

July 28, 2022

TECHNICAL MEMORANDUM

To: Jeff Cattaneo, San Benito County Water District

From: Chad Taylor, PG, CHG, Brent Johnson, PG, Gus Yates, PG, CHG, and Iris Priestaf, PhD

Re: North San Benito Managed Aquifer Recharge Feasibility and Location Assessment Study, North San Benito Groundwater Basin, San Benito and Santa Clara Counties

By increasing groundwater declines during dry periods, climate change and growth in urban and agricultural water demand could undermine the sustainability of groundwater conditions in the North San Benito Groundwater Basin (Basin). Those declines can be offset by increasing the amount of recharge during wet periods, provided that the recharged water remains in storage until the next drought. The study presented in this technical memorandum (TM) addresses questions of how additional managed aquifer recharge (MAR) can be achieved in the Basin. Unlike some basins with highly permeable alluvial fans and recharge forebays, the most useful recharge areas in the North San Benito Basin may not be obvious. Moreover, the best areas are likely to represent the sum of many factors. Therefore, a systematic and precise analysis of geographically distributed recharge factors has been developed in this study.

Recharge factors for all water supplies and potential recharge methods were evaluated throughout the Basin using best available data to develop geographic recharge feasibility rankings. The rankings were used to identify the best locations for future MAR projects by recharge type. Assessment of MAR feasibility considered these locations along with water supply source availability and general benefits. This assessment included review of water supply availability and benefits to groundwater sustainability using the Basin numerical groundwater model. The assessment results indicated that injection wells and/or aquifer storage and recovery wells (ASR) are the most practical and effective MAR options for the Basin. Injection and ASR MAR project options were developed in coordination with the San Benito County Water District (SBCWD) and these future MAR projects were further evaluated using the Basin numerical model. This allowed for assessment of the long-term effects of MAR projects and comparison to future conditions without increased MAR in the Basin.

The modeling tasks identified potential locations for future injection MAR and/or ASR facilities and these locations were evaluated further. This evaluation included water quality analysis from groundwater samples collected from existing wells near the injection and ASR project locations and engineering feasibility analysis for injection MAR and ASR.

1. PROJECT BACKGROUND

Since its founding in 1953, SBCWD has actively managed water resources in San Benito County. This management, focused on conjunctive use of groundwater and surface water sources, was formalized in 1998 through adoption of its Groundwater Management Plan (GWMP), subsequently updated in 2004. In 2014, the State of California passed the Sustainable Groundwater Management Act (SGMA) to empower local agencies to adopt Groundwater Sustainability Plans (GSPs) that are tailored to the resources and needs of their communities. SGMA also empowers local agencies to form a Groundwater Sustainability Agency (GSA) for managing groundwater resources in a sustainable manner. SBCWD and Valley Water both formed GSAs, which collaborated on preparation of a GSP for the entire North San Benito Basin, including portions in Santa Clara County. This study focused on the San Benito County portion of the Basin.

In recent years, SBCWD has been using four existing percolation facilities to recharge imported Central Valley Project (CVP) water. The locations are shown in **Figure 1**. Prior to around 2004, CVP water was percolated in local creek channels to supplement recharge. That practice was later prohibited due to the risk of introducing invasive non-native aquatic species present in San Luis Reservoir into local watersheds. Accordingly, three of the percolation facilities are off-channel ponds, which are the Frog Pond near Arroyo de las Viboras (approximate capacity of one cubic foot per second, cfs), a pond near the San Benito River at Union Road (approximate capacity five cfs), and ponds next to the San Benito River at the new Highway 156 bridge (approximate capacity four cfs). The fourth site percolates five to ten cfs through the bed of Tres Pinos Creek between the Southside Road bridges, but only at times when there is no natural flow in that reach and no connection to the San Benito River. Together, these facilities can percolate about 4,000 acre-feet per year (AFY) of surplus CVP water.

SBCWD GSA requested and received grant funding from the California Department of Water Resources (DWR) Round 3, Sustainable Groundwater Planning Grant Program. The purpose of these funds is to invest in surface and groundwater infrastructure to mitigate drought and achieve regional sustainability.

2. PHYSICAL SETTING AND HYDROGEOLOGY

The Basin includes valley areas characterized by productive agriculture, urban areas including the City of Hollister and the City of San Juan Bautista, rural communities, and upland areas with grazing land. The Basin is characterized by unconsolidated to semi-consolidated sediments that were deposited in alluvial fan and stream environments from a variety of source rocks and directions. These deposits interfinger in the subsurface so that regional zones of low or high permeability have not been distinguished. The valley portions contain unconsolidated alluvial deposits—clay, silt, sand, and gravel—that store and transmit significant quantities of groundwater. These geologic deposits also underlie some upland areas but generally are more consolidated and less permeable than in the valley areas. The Principal aquifers include the unconsolidated alluvial deposits in the valley areas and generally range from 0 to 300 feet thick. Secondary aquifers include the older, less permeable deposits that

underlie the valleys at depth, crop out in portions of the valley areas, and occur in upland areas with thickness up to several thousand feet.

The Basin boundaries are defined mostly by geology (contacts with relatively impermeable consolidated rocks) and by faults that may form barriers to groundwater flow. Faults crossing the Basin, most notably the Calaveras Fault, are partial barriers to groundwater and also are important because they may offset bedrock and affect the local depth of the Basin.

Unlike most Basin boundaries, the northern boundary with the Santa Clara County Llagas Subbasin is defined by the county line. Like the northernmost portion of the North San Benito Basin, the Llagas Subbasin underlies a relatively flat valley and consists of unconsolidated alluvial sediments. The North San Benito and Llagas basins are hydrologically connected with groundwater flow across the boundary.

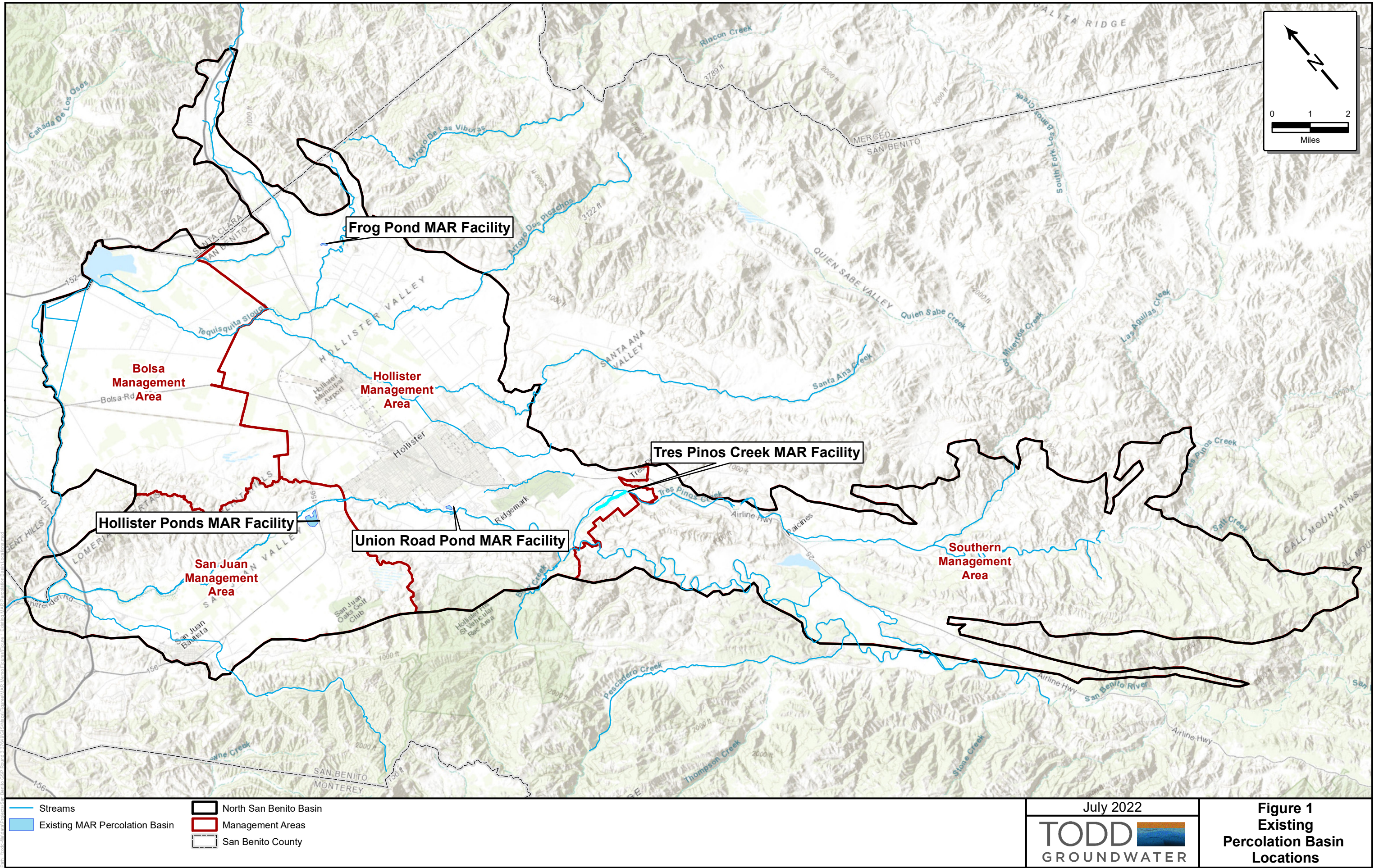
The Basin is situated within the Pajaro River watershed. Main tributaries to the Pajaro River include the San Benito River, Tres Pinos Creek, and Pacheco Creek, among others. These streams are dry over most of their lengths for much of the year, flowing mainly during wet winter conditions.

Groundwater recharge occurs over the entire surface of the Basin, in varying intensities. Dispersed recharge over broad areas derives from deep percolation of rainfall and applied irrigation water. Subsurface inflow to the Basin occurs from surrounding consolidated formations and from the Llagas Subbasin. Percolation from streams is a major source of recharge. Percolation from ponds also occurs, including percolation from wastewater treatment plant disposal ponds. Recharge also occurs through SBCWD's existing MAR programs, which have a long history of percolating available imported and surface water to augment recharge.

Wells represent by far the largest discharges from the Basin. Natural outflow from the Basin consists of groundwater discharge into streams. The primary exit points are groundwater seepage into the lower ends of the Pajaro and San Benito Rivers as they approach the northwestern end of the Basin and enter the bedrock canyon leading to the coast.

Groundwater is present in the principal and secondary aquifers that generally are not distinguished in the Basin. Groundwater in Basin aquifers occurs under unconfined to confined (pressurized) conditions, and areas with artesian flowing wells have been mapped. However, distinct vertical zones have not been mapped, so groundwater level maps and hydrographs generally represent a range of depth zones. In addition, most monitored wells in the Basin are production wells with considerable screen lengths. Nonetheless, these generally represent the productive zones of the Basin.

Groundwater elevations change in response to wet years and droughts, groundwater pumping, importation of water, and managed aquifer recharge programs. The current monitoring network for groundwater elevations provides little information about vertical groundwater gradients within the Basin. Flowing artesian wells have been reported historically and in recent years clearly indicate that upward gradients and flow exist locally.



Groundwater quality in the Basin has been described as highly mineralized and of marginal water quality for drinking and agricultural purposes. The mineralized water quality is typical of other relatively small Coast Range groundwater basins and reflects the geology of the watershed and relatively low permeability of groundwater basin sediments. Groundwater in the Basin has also been impacted by human activities including agricultural, urban, and industrial land uses.

Interconnection of groundwater and surface water occurs wherever the water table intersects the land surface and groundwater discharges into a stream channel or spring. In the North San Benito GSP, locations of interconnected surface water and groundwater have been evaluated and existing wells have been identified for monitoring near-stream groundwater levels. In addition, dedicated shallow monitoring wells have been installed as part of this GSP and monitoring has been initiated.

3. MANAGED AQUIFER RECHARGE WATER SOURCES

This assessment considered potential water sources for MAR in general terms of availability and capture of additional supply, environmental factors, water rights, feasibility, and cost. Sources addressed include local streamflow, urban stormwater, and imported water from the Central Valley Project (CVP). Each is summarized below.

3.1 Local Streamflow

Natural streamflow in the Basin already recharges groundwater as it flows through existing channels, and it is noted that construction of in-stream recharge facilities is disruptive to riparian ecosystems. To minimize such impacts, local streamflow would need to be diverted to offsite percolation basins or other MAR locations to increase recharge through MAR. From the standpoint of hydrology and hydrogeology, the best opportunities would likely be along Tres Pinos Creek or the San Benito River, which are the largest streams in the Basin. Drawbacks to these streams include the cost of constructing a diversion facility capable of functioning at low flows in a broad, sandy channel and capable of withstanding flood flows. Water rights issues, permitting and land costs could also be unfavorable. The Pajaro River is larger, but is only present along the northern boundary of the Basin and diversions would pose complex environmental and other issues. Smaller streams would offer lower yield potential and/or have other limitations. Therefore, local streamflow was not considered further as a potential source for MAR in the Basin.

3.2 Urban Stormwater

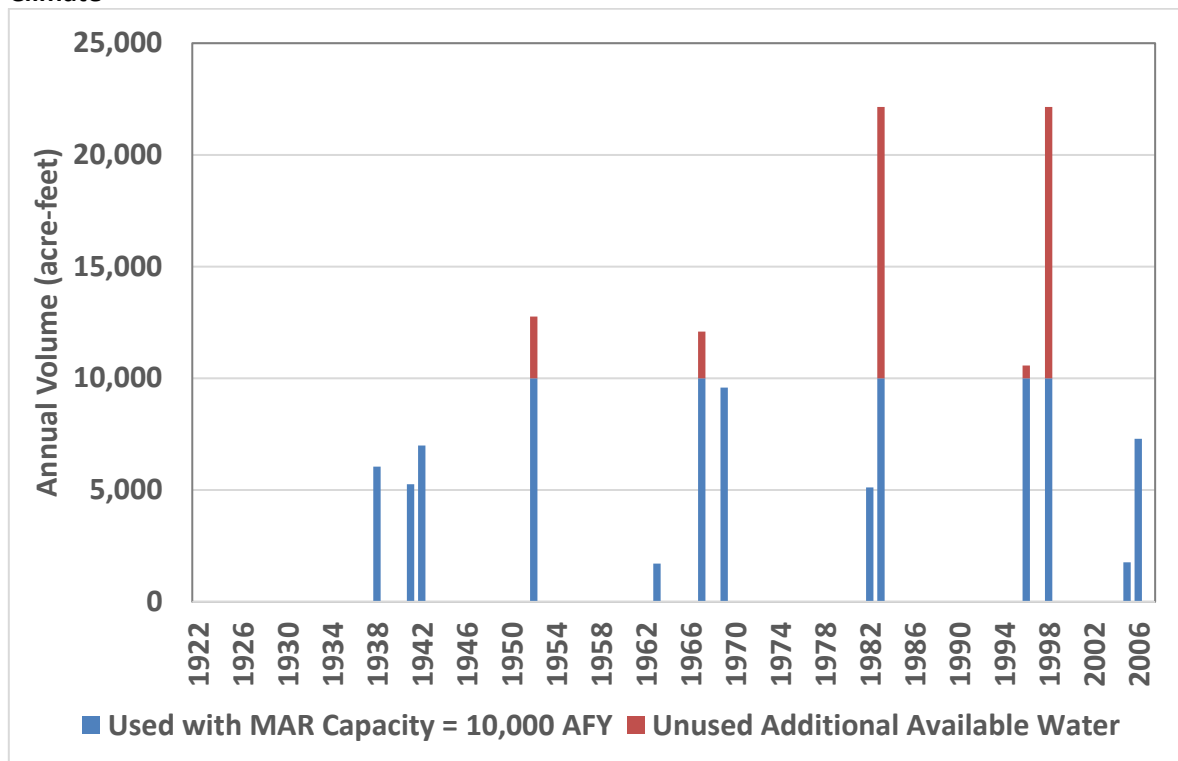
Percolation of urban stormwater is another potential supply option. Assessment of the urban stormwater system in the City of Hollister revealed that the existing system already captures and diverts stormwater to a network of detention ponds or ephemeral stream channels, both which facilitate recharge. Accordingly, no significant supply is available for new MAR projects. As a result, urban stormwater runoff was not considered further as source of MAR water supply.

3.3 Imported Central Valley Project Water

Another source of water for MAR is surplus CVP water available in wet years. In general, SBCWD's agricultural customers tend not to buy CVP water beyond about 50 percent of the contract amount. At that point, water quality and pressurized delivery benefits no longer outweigh the higher cost relative to using groundwater. Local CVP agricultural allocations typically exceed 50 percent only in sequences of wet years when local rainfall is also high.

Figure 2 shows simulated amounts of agricultural CVP allocation in excess of 50 percent of SBCWD's contract amount during 1922 to 2007. These amounts are based on output from DWR's CalSim2 model of statewide CVP and State Water Project operations (DWR 2020a). Surplus CVP water is available in 13 out of 86 years, in amounts ranging from 1,700 to 21,000 acre-feet (AF). The ability to capture and store water depends on total MAR facility capacity. For example, if the storage capacity is 5,000 AFY, then there would be eleven years when the capacity was fully used and two years when it was partially used. The total volume of water stored over the 86 years would be 58,484 AF. By comparison, if the facility capacity is 10,000 AFY, then the capacity would be fully used in full five years and partially used in 8 years. The total volume stored would be 92,864 AF. This is the capacity selected by SBCWD for evaluation purposes, and it is represented by the blue bar segments in the figure.

Figure 2. CVP Water Available for Managed Aquifer Recharge, with Future Growth and 2070 Climate



4. MANAGED AQUIFER RECHARGE METHODS

Three MAR methods were considered: injection wells, percolation basins, and temporary flooding of agricultural fields (AgMAR). Each method has benefits and drawbacks, as discussed below.

4.1 Injection Wells

Injection wells could provide significant MAR capacity, given identification of suitable locations. Advantages of this MAR method include low land costs, avoidance of surface percolation rate limitations, long potential recharge season, and two water quality benefits. First, injection wells avoid moving poor-quality shallow groundwater down to deep water-supply aquifers; and second, injection can potentially dilute the mineral content of native groundwater and thereby improve quality of water pumped from nearby downgradient water supply wells. Disadvantages include the high capital cost for an injection well, ongoing energy costs, the need to filter and possibly chemically treat water prior to injection, and the potential need to treat recovered water if it has mixed with native groundwater.

While the MAR potential of a single injection well may be limited, the total capacity of injection wells can be increased by increasing the number of wells. For analysis purposes, it is assumed here that injection wells will have a capacity of 500 gallons per minute (gpm). Injection wells must be periodically backflushed to reverse gradual clogging, ideally at a rate double the injection rate. This would mean wells capable of pumping at 1,000 gpm, which is a reasonable assumption for local production wells.

4.2 Percolation Basins

As noted above, SBCWD already operates several percolation basins for MAR. Additional percolation basins could be constructed to increase the total MAR capacity. Disadvantages of dedicated basins are the relatively low percolation rates of many soils in the area and the high cost of land for a facility that is used only sporadically. Former gravel pits may provide unique opportunities to create percolation facilities where few other productive uses are possible. Those could be evaluated on a case-by-case basis as opportunities arise.

4.3 Temporary Agricultural Field Flooding (AgMAR)

Flooding of agricultural fields for 1 to 2 months in the winter of wet years—which is when surplus CVP water is typically available—could provide a large area for percolation and be compatible with farming at all other times. In concept, willing growers would lease a field to SBCWD for a few months outside the main growing season in years with available surplus CVP water. Fields with existing CVP turnouts would be preferred. Water could be applied at a rate roughly equal to the soil infiltration rate, initiating deep percolation. Alternatively, low berms could be constructed around the field, and the field could be inundated with 1 to 2 feet of water, which would then be allowed to percolate. Assuming the fields would be out of

production for three months in each of the 11 recharge years¹, it would reduce the time available for farming by only 3.5 percent over the 86-year period. This efficient dual-use arrangement could decrease the land cost for percolation, and a large area is potentially available for enrollment.

One drawback to this MAR method is the need to find a relatively large number of willing landowners and execute lease agreements with all of them. Another drawback is that sporadically percolating a relatively large volume of water through an agricultural field would accelerate the rate at which accumulated salts (and potentially nitrates and other agricultural chemicals) in the soil are transported down to aquifers used by water supply wells. In light of these drawbacks, SBCWD decided not to pursue this recharge mechanism. However, partial assessment of potential AgMAR recharge is presented below.

5. HYDROGEOLOGIC RECHARGE SUITABILITY ASSESSMENT

To assess MAR options throughout the Basin, an indexed geographic analysis of spatial datasets was developed. This analysis focused on spatial factors relevant to each MAR method and included: 1) development and assessment of spatial datasets for parameters affecting the MAR methods, 2) qualitative classification of each dataset to create indices relevant to recharge, and 3) combination of the individual indices with other relevant parameters to generate MAR-type-specific map overlays representing recharge suitability throughout the Basin.

5.1 Individual Recharge Suitability Indices

As a first step in developing indices for recharge, data relating to the following MAR parameters were collected, developed, and analyzed in individual datasets:

- Unsaturated Zone Thickness Recharge Suitability
- Subsurface Hydraulic Conductivity
- Aquitard Presence
- Surficial Soil Hydraulic Conductivity Recharge Suitability
- Crop Mapping and Land Use
- Percolation Basin (Surface Recharge) Land Use
- AgMAR Crop Type
- Soil Agricultural Groundwater Banking Index (SAGBI)
- Existing Aggregate Quarry
- Proximity to CVP Supply Source

For each dataset, values representing recharge potential were identified based on quantitative assessment of the effect on recharge of each data type. Working collaboratively with SBCWD

¹ Although there are 13 years of surplus CVP water, existing percolation basin capacity would recharge the entire amount in two of those years, leaving 11 years of operation for the additional 6,000 AFY of recharge capacity.

staff, each dataset was indexed into six categories representing recharge potential with values ranging from very poor to very good. Assigning integer values (1 through 6) allows spatial representation in GIS software as grid datasets (rasters) and combination with indexed values for other parameters in an index-overlay assessment. The resulting Recharge Suitability Indices are discussed below and summarized in Tables 1 through 6.

5.1.1 Unsaturated Zone Thickness Recharge Suitability Index

The thickness of the unsaturated zone is equivalent to depth to water, which fluctuates with shallow groundwater elevations over space and time. Groundwater recharge feasibility is directly proportional to the thickness of the unsaturated zone; the thicker the unsaturated zone, the more space there is for newly recharged water.

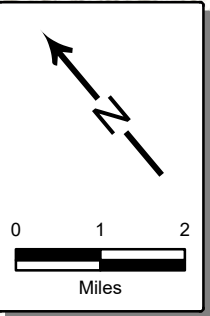
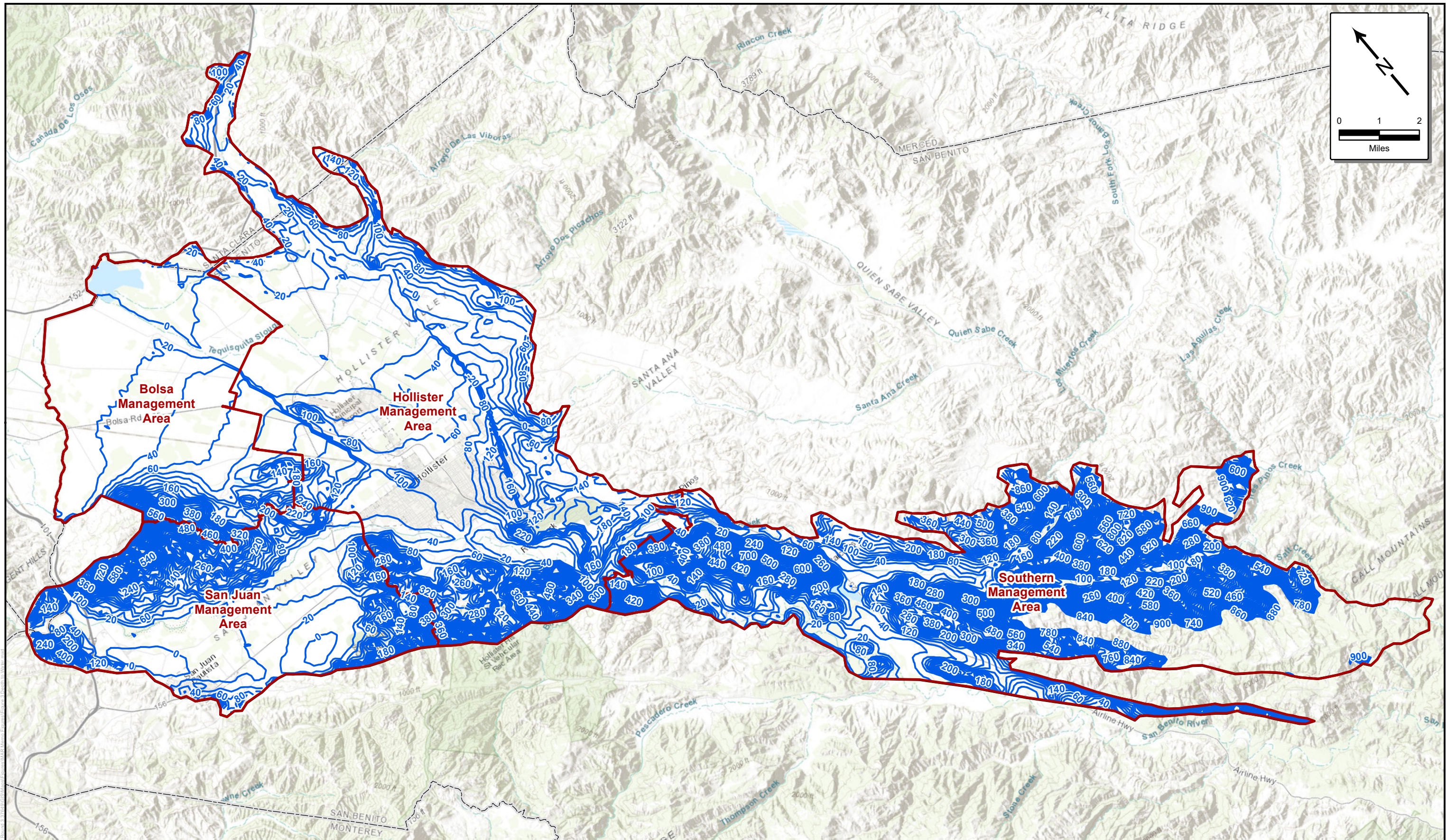
Depth to groundwater surfaces for wet conditions in the Basin were taken from the Basin numerical groundwater model (Todd 2020). Water year 1998 was selected because it represented a period of high groundwater elevation in areas with the closest proximity to source water infrastructure.

The depth to water coverage is shown on **Figure 3**. The modeled values for depth to water/unsaturated zone thickness were assessed and classified into six groups representing recharge potential of very poor, poor, moderately poor, moderately good, good, and very good. The unsaturated zone thickness classes and corresponding index values are listed in **Table 1**. This division considered both relative values within the Basin and general hydrogeologic principals relating to groundwater recharge feasibility. While not shown on Figure 3, a minimum depth to groundwater of 20 feet also was defined.

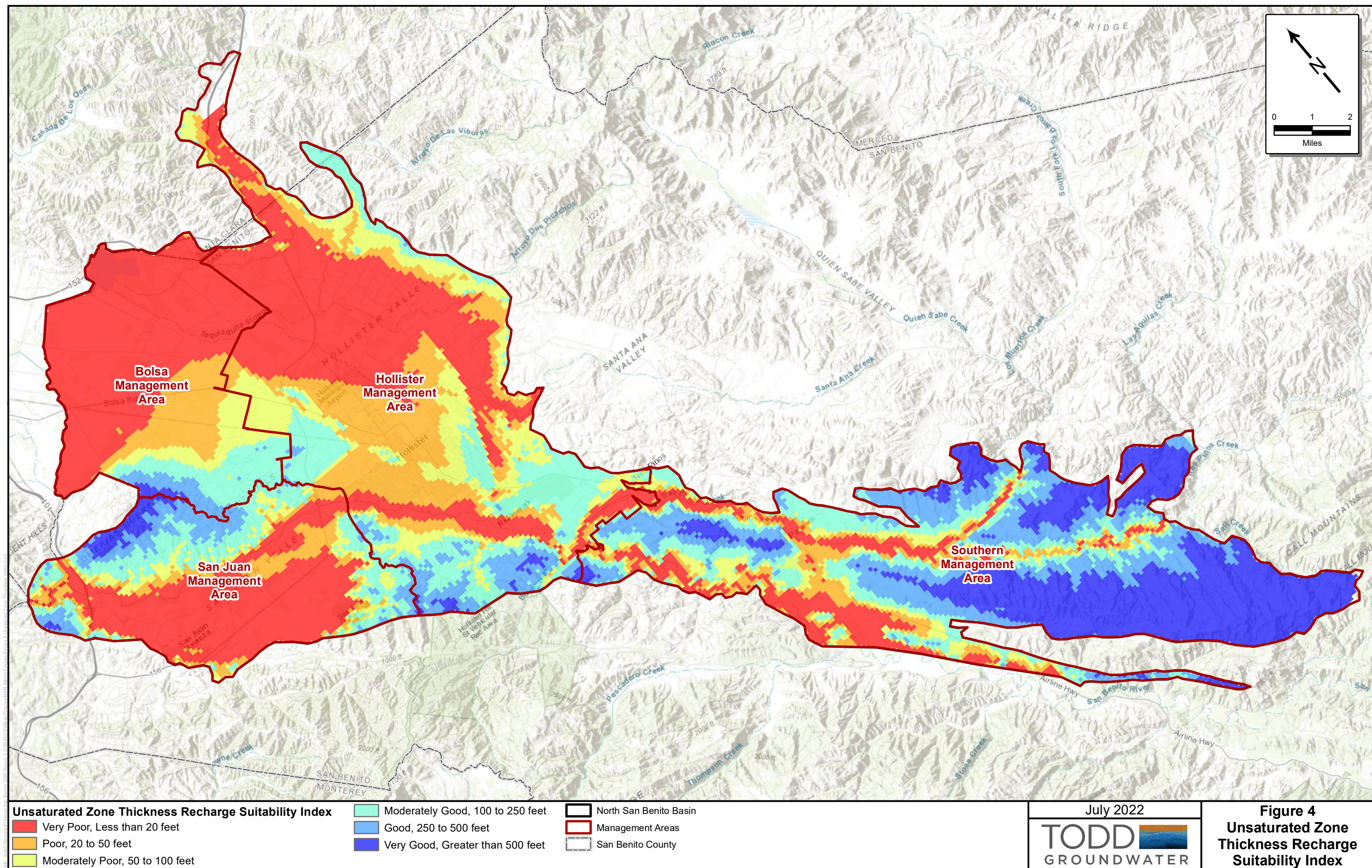
Table 1. Unsaturated Zone Thickness Recharge Index Values

Depth to Water / Unsaturated Zone Thickness Range	Qualitative Index Value	Index Integer Value
Less than 20 feet	Very Poor	1
20 to 50 feet	Poor	2
50 to 100 feet	Moderately Poor	3
100 to 250 feet	Moderately Good	4
250 to 500 feet	Good	5
Greater than 500 feet	Very Good	6

Grid datasets representing this index were created to represent unsaturated zone thickness MAR suitability throughout the Basin, as shown on **Figure 4**.



<p>— Depth to Groundwater Contours, feet (20 foot contour interval)</p> <p>□ North San Benito Basin</p> <p>▬ Management Areas</p> <p>▬ San Benito County</p>	<p>July 2022</p> <p>TODD </p> <p>GROUNDWATER</p>	<p>Figure 3</p> <p>Depth to Groundwater /</p> <p>Unsaturated Zone</p> <p>Thickness</p>
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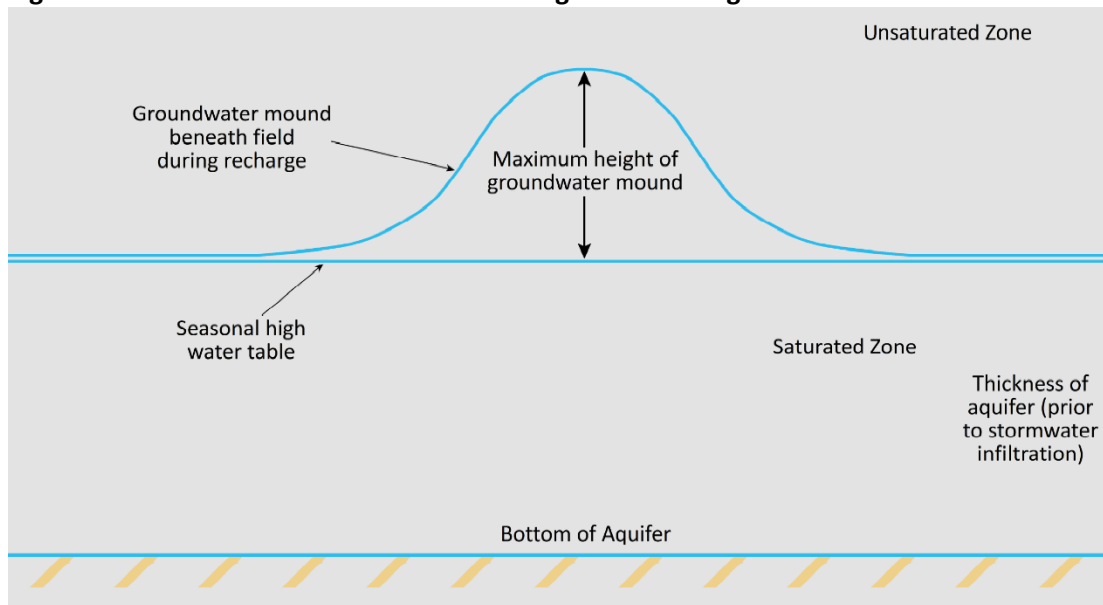
5.1.2 Hydraulic Conductivity Recharge Suitability Index Development

Hydraulic conductivity is a measure of the capacity of a porous media to transmit water. Groundwater aquifers generally have higher capacity to transmit water horizontally than vertically, so hydraulic conductivity is separated into horizontal and vertical components when modeling natural systems. The rate at which water travels laterally in a groundwater system is governed by horizontal hydraulic conductivity and the rate at which it moves vertically is governed by the vertical hydraulic conductivity. When large volumes of water are recharged in discrete locations, there is a tendency for groundwater mounds to develop beneath the recharge areas. This can lead to decreased recharge rates or rejection of recharge water. However, water moves laterally away from a recharge source in areas with higher horizontal hydraulic conductivity. Therefore, it is important to also consider relative horizontal hydraulic conductivity when selecting recharge locations.

5.1.2.1 Groundwater Mounding Analysis

It is not possible to accurately estimate real-world effects of discrete area recharge on groundwater elevations without a thorough representation of these parameters. However, simplified analytical methods are available for assessing generalized groundwater elevation changes. Application of the Hantush equation (1967) is an industry standard approach for estimating the height of a groundwater recharge mound as a function of time and distance from the recharge area, as illustrated below in **Figure 5**. The Hantush equation is a two-dimensional approximation that assumes that the underlying aquifer is unconfined, homogeneous, isotropic, and effectively infinite in areal extent. The analysis does not account for travel time, lateral flow of recharge water through the unsaturated zone, a sloping groundwater table, aquifer boundaries (such as surface water bodies, bedrock, or faults), or aquifer stresses, such as pumping. Nonetheless, the Hantush equation is suitable for approximation of groundwater mounding beneath a hypothetical field that may be used for recharge.

Figure 5. Generalized Groundwater Mounding from Recharge



The Hantush equation was solved using the mounding function for a ten-acre rectangular recharge area. An Excel macro developed by the USGS (Carleton 2010) was used to solve the following equation:

$$Z(r, t) = h_m^2 - h_i^2 = (V/2\pi K)(w(u_0) + (1 - e^{(-u_0)})/u_0)$$

where,

$Z(r, t) =$	Height of the mound above initial height of water table with respect to distance from center of recharge area over time
$h_m =$	Height of mound above aquifer base
$h_i =$	Initial height of water table above aquifer base
$V =$	Volume of recharge water expressed as wpr^2 , where w is the vertical infiltration rate from a circular recharge area of radius, r
$K_H =$	Horizontal hydraulic conductivity of the aquifer
$w(u) =$	Theis well function for nonleaky aquifers
$u_0 =$	$R^2/4ntR$, where $n = Kb/Sn$ and $b = 0.5(h_i(0) + h(t))$, where S = Specific yield of the unsaturated zone, t = time since start of recharge, and b = constant of linearization

A series of solutions to the Hantush equation were calculated to examine scenarios representing the range of possible combinations of hydrogeologic conditions present within the Basin. In each case, the recharge area was simulated as ten-acre square. As shown in the Hantush equation, the development of a groundwater mound is largely dependent on the vertical infiltration rate (w), specific yield (S) of the unsaturated zone, and the horizontal hydraulic conductivity (K_H). The saturated aquifer thickness in the Basin is very large, but for this analysis it was assumed that the recharge effects would be limited to the top 200 feet of saturated thickness.

Twenty combinations of subsurface conditions were simulated using hydraulic conductivity values taken from Layer 1 of the Basin numerical groundwater model (Todd 2020). Calculations were completed for each of these scenarios using a fixed infiltration rate of 2 feet per day (ft/day). It was assumed that these recharge rates are over and above evapotranspiration demands. All Hantush simulations were completed assuming a recharge period of 60 days.

The estimated mound height under the recharge area after 60 days varied from just under 16 feet to just over 413 feet. In general, the more permeable the subsurface the lower the mound. This relationship suggests that the mound from recharge in lower permeability areas will rise higher as the flow of water away from the MAR site is slower. While groundwater mound heights are greater in less permeable material, the effects will take a longer time to propagate horizontally. The same volume of water is added to these scenarios, therefore the net volumetric benefit to the groundwater aquifer is the same.

The results shown in **Table 2** present the maximum height of groundwater mounding for each hydraulic conductivity value.

Table 2. Groundwater Recharge Mound Heights and Hydraulic Conductivity

Horizontal Hydraulic Conductivity (feet/day)	Estimated Maximum Mound Height at 60 days (feet)
1	413.3
3	235.3
5	175.3
7	142.7
10	113.6
12	100.7
15	86.5
20	70.8
30	52.8
40	42.6
50	35.9
60	31.2
70	27.6
80	24.8
90	22.6
100	20.8
110	19.2
120	17.9
130	16.8
140	15.8

5.1.2.2 Subsurface Hydraulic Conductivity Index

The effects of horizontal hydraulic conductivity on MAR in the Basin were assessed using values from Layer 1 of the Basin numerical model (Todd 2020) and the mounding analysis discussed above. The distribution of horizontal hydraulic conductivity in shallow aquifer materials in the Basin are shown on **Figure 6**. Vertical hydraulic conductivity estimates were not used as a recharge suitability index metric; the presence of widespread aquitards was identified as a more important factor for recharge.

The recharge potential of a specific hydraulic conductivity was ranked based on the results of the groundwater mounding assessment. Hydraulic conductivities that produced a groundwater mound greater than 100 feet in height were classified as having very poor recharge potential. Accordingly, a groundwater mound height of 100 feet was used as an endpoint to define the unsaturated zone thickness recharge suitability index. As indicated in **Table 3** and mapped in

Figure 7, hydraulic conductivity values resulting in mounds from 70 to 100 feet were considered poor, from 40 to 70 feet were moderately poor, from 30 to 40 feet were moderately good, 20 to 30 feet were good, and those that mounded less than 20 feet were very good.

Table 3. Horizontal Hydraulic Conductivity Recharge Index Values

Horizontal Hydraulic Conductivity Range	Qualitative Index Value	Index Integer Value
Less than 3 feet/day	Very Poor	1
3 to 4 feet/day	Poor	2
4 to 12 feet/day	Moderately Poor	3
12 to 60 feet/day	Moderately Good	4
60 to 100 feet/day	Good	5
Greater than 100 feet/day	Very Good	6

5.1.2.3 Aquitard Presence Index

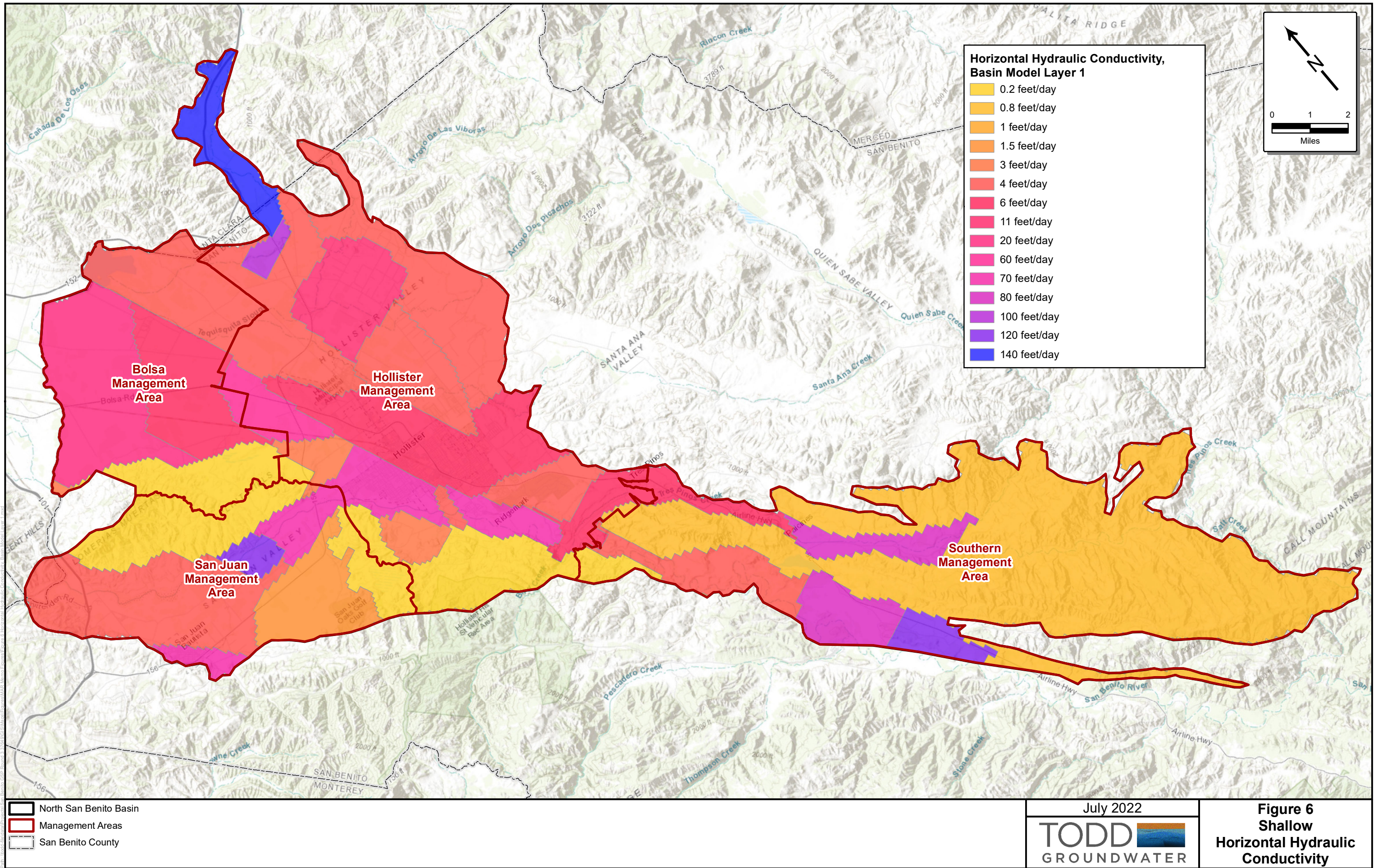
Aquitards are local or regional units of low permeability that limit vertical flow of groundwater. Portions of the basin are underlain by impermeable zones as shown on **Figure 8**. These zones are modeled as Layer 2 in the Basin numerical groundwater model (Todd 2020). The vertical hydraulic conductivity for Layer 2 was indexed either permeable or impermeable. Areas with the impermeable aquitard were assigned an integer value of 1 and all other areas were assigned an integer value of 6.

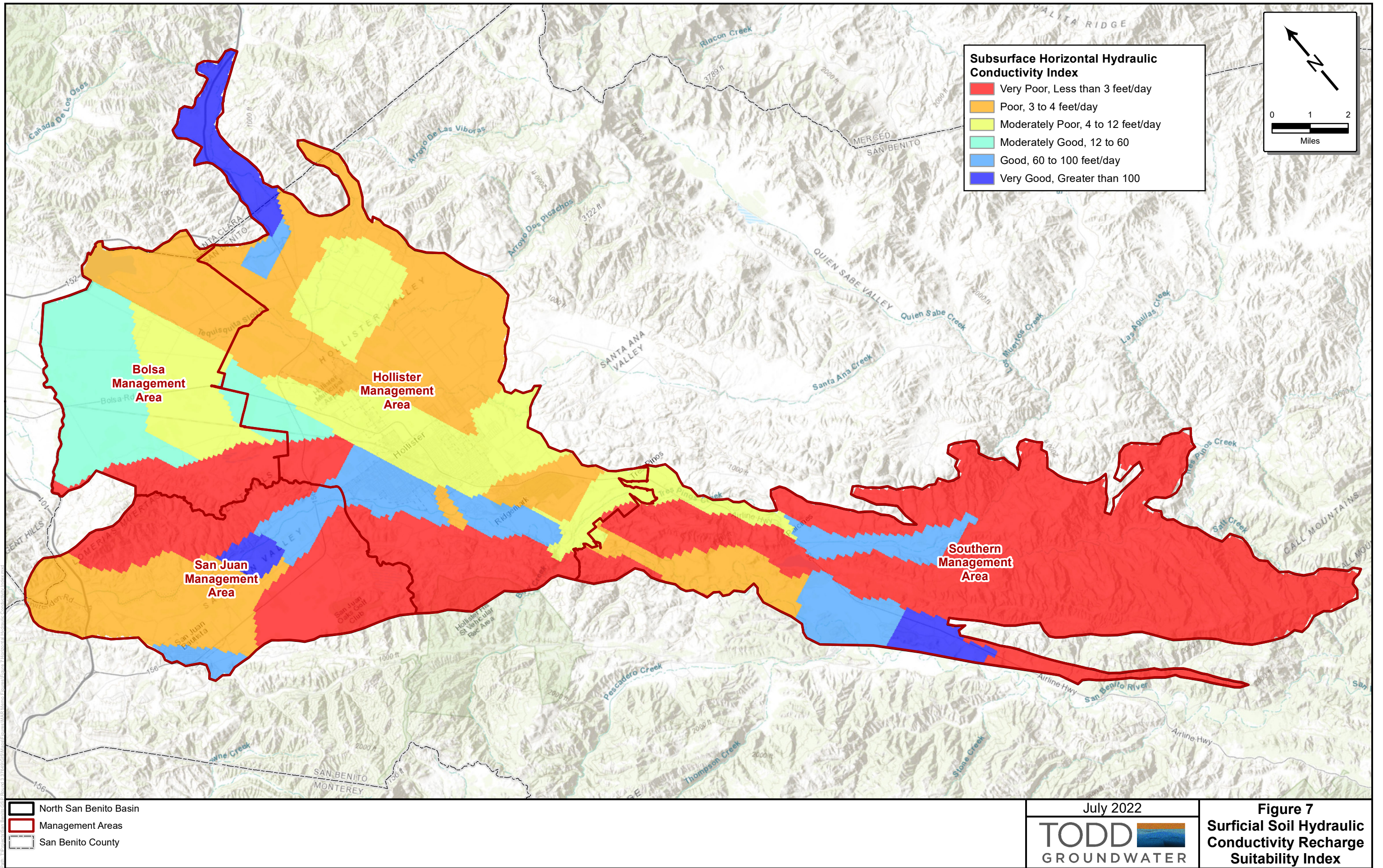
5.1.3 Surficial Soil Hydraulic Conductivity Recharge Suitability Index

The ability of undisturbed surface soils to transmit water to the subsurface is critical to evaluating recharge potential. If water is unable to adequately pass through near surface soils, it may not percolate to groundwater. It also can have negative effects on agriculture and infrastructure.

Saturated hydraulic conductivity (Ksat) is a soil property that represents the rate at which pores in a saturated soil transmit water. Estimated and measured soil Ksat values were obtained from the United States Department of Agriculture (USDA) Soil Survey Geographic Database (SSURGO) (USDA 2018). These values are based on measured soil characteristics, field observations, porosity, soil structure, and soil texture.

Estimated and measured Ksat values in the SSURGO database are expressed in terms of micrometers per second ($\mu\text{m}/\text{sec}$). The weighted average Ksat for a 60-inch section of soil was calculated from SSURGO on a percent composition basis and the resulting values were organized into six groups based on relative percolation capacity and assigned integer values as shown in **Table 4** and mapped in **Figure 9**.





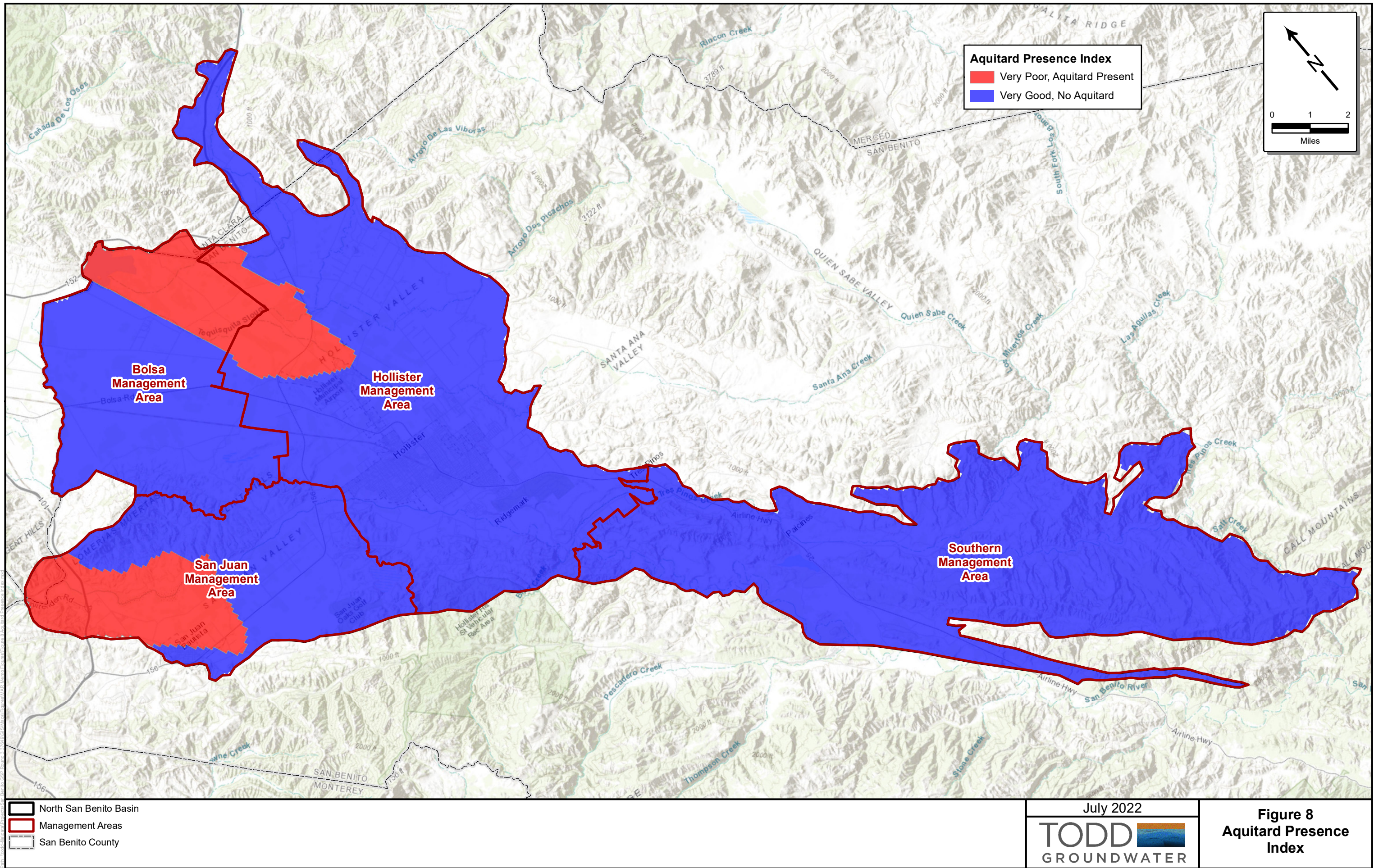


Table 4. Saturated Hydraulic Conductivity Recharge Index Values

Saturated Hydraulic Conductivity Range	Qualitative Index Value	Index Integer Value
0.00 to 0.01 $\mu\text{m/sec}$	Very Poor	1
0.01 to 0.1 $\mu\text{m/sec}$	Poor	2
0.1 to 1.0 $\mu\text{m/sec}$	Moderately Poor	3
1.0 to 10 $\mu\text{m/sec}$	Moderately Good	4
10 to 100 $\mu\text{m/sec}$	Good	5
100 to 705 $\mu\text{m/sec}$	Very Good	6

5.1.4 Crop Mapping and Land Use Recharge Indices

To properly evaluate surface recharge MAR in the form of percolation basins and/or AgMAR, an accurate accounting of land use and crop types is necessary. Modern remote sensing techniques make it possible to accurately identify land use using satellite imagery and other tools. Statewide land use and crop mapping datasets from 2016 were used to identify recharge potential for surface recharge and for AgMAR (DWR 2020b).

5.1.4.1 Percolation Basin (Surface Recharge) Land Use Index

The 2016 land use mapping was used to distinguish between urban hardscape and agricultural areas. Land use was indexed as either very poor or very good recharge potential accordingly. Unclassified areas, urban, and native riparian vegetation were assumed to have a very poor recharge potential and assigned an integer value of 1. All other mapped active agricultural areas were assumed to have very good recharge potential and assigned an integer value of six. **Figure 10** shows the very good areas in blue and urban/very poor areas in red; the remainder is unclassified/very poor and mostly includes upland areas.

5.1.4.2 AgMAR Crop Type Index

2016 crop mapping data were also used to evaluate the suitability of agricultural areas for AgMAR. Not all crops respond well to inundation; some crops are sensitive to saturated soils in the root zone, even for short periods, while others can accommodate periods of flooding. To identify land use-based recharge suitability, available literature was reviewed relating to inundation tolerance of mapped crop types shown in **Table 5**. The land use data was indexed as either very poor (index value of 1) or very good (index value of 6) based on published inundation tolerance. The crop types mapped in the Basin and their assigned recharge suitability index are shown in **Table 5** and on **Figure 11**.

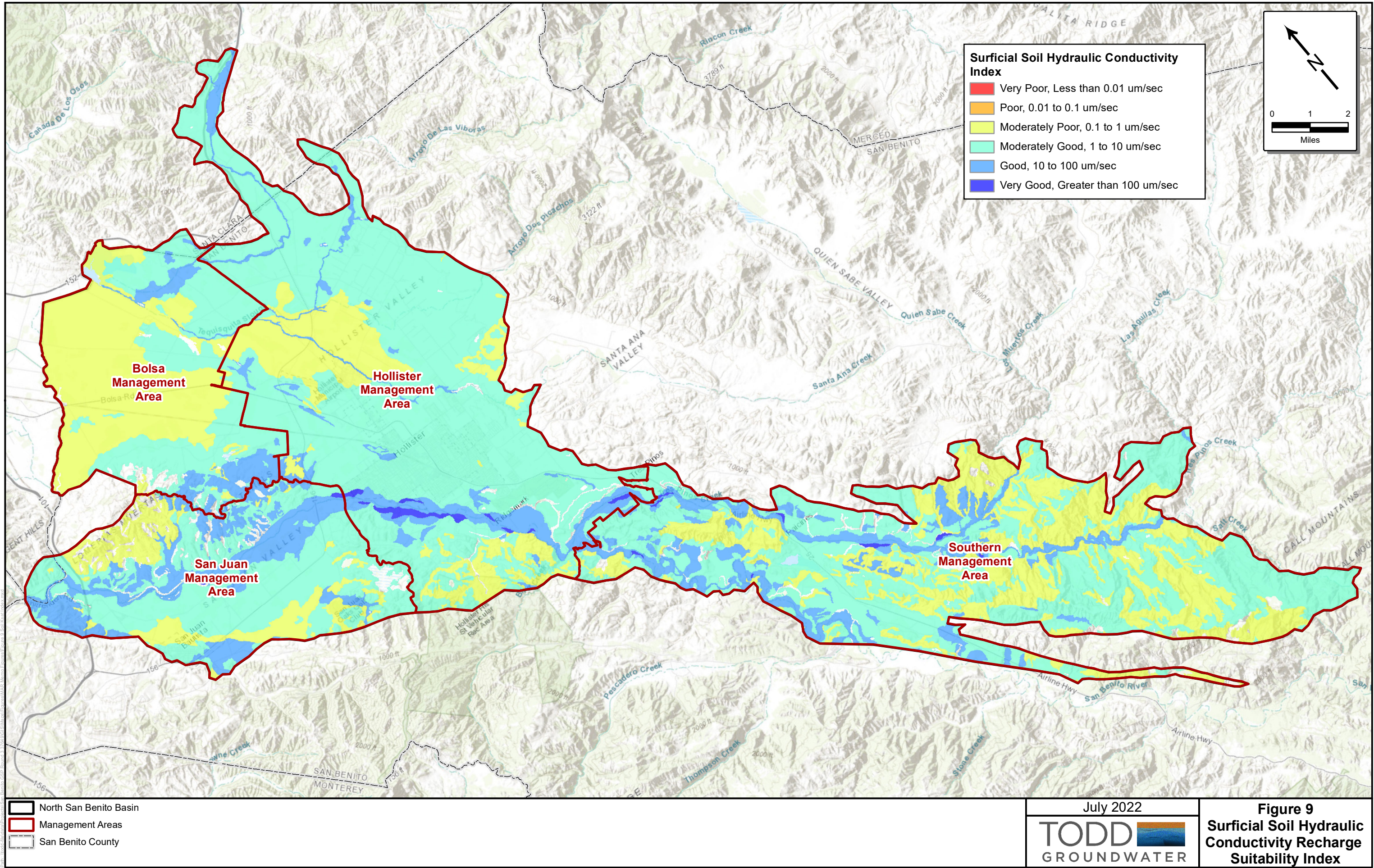
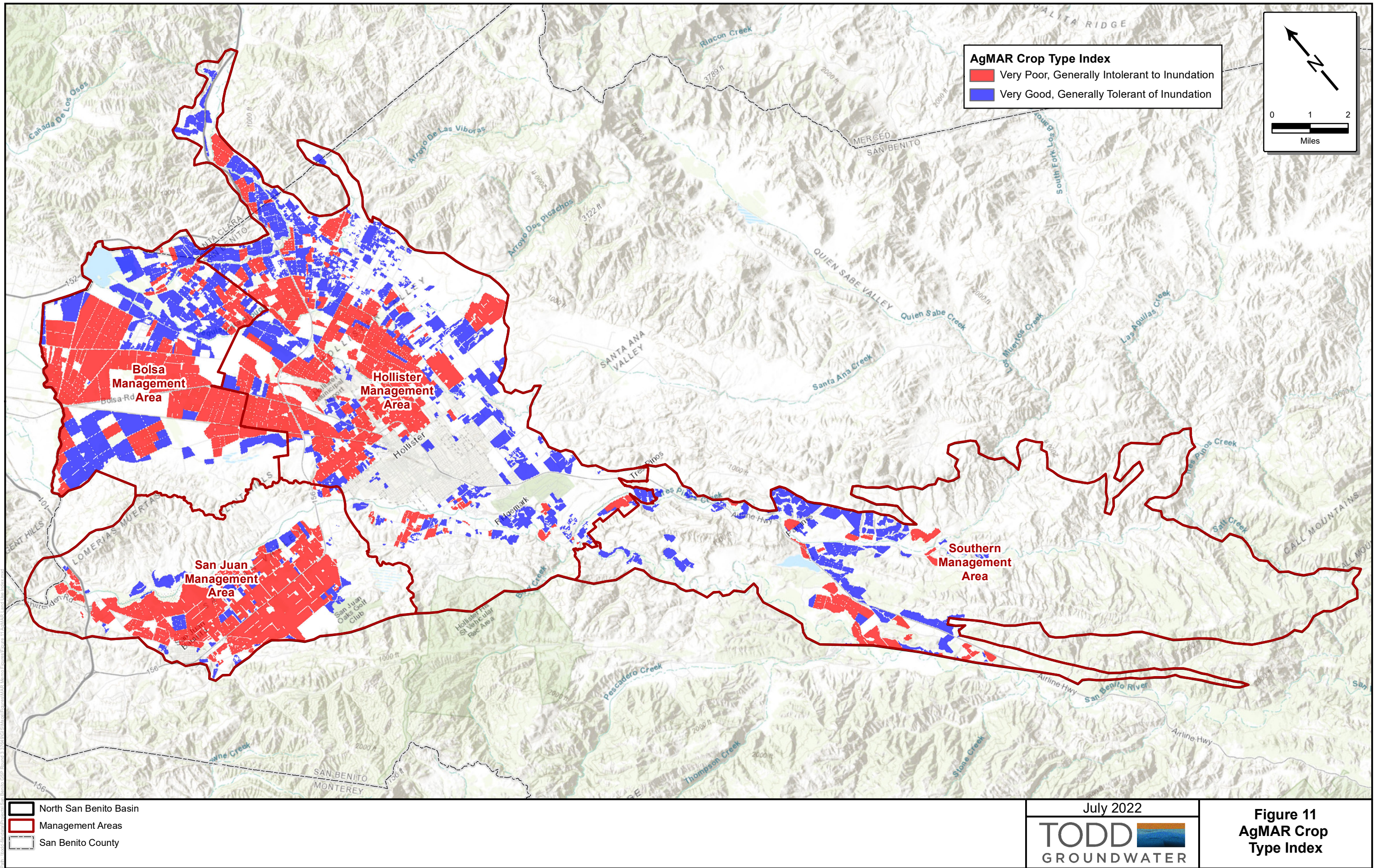


Table 5. Crop Type and Land Use Index Values

Land Use and Crop Type	Generally Tolerant to Inundation?	Index Integer Value	Literature Source
Apples	Yes	6	Schaffer et al. 1992
Bush Berries	No	1	Schaffer et al. 1992
Cherries	Yes	6	Schaffer et al. 1992
Citrus	Yes	6	Schaffer et al. 1992
Cole Crops	No	1	Rubatzky and Yamaguchi 1997
Corn, Sorghum and Sudan	Yes	6	RMC 2015
Flowers, Nursery and Christmas Tree Farms	No	1	Vreugdenhil 2006
Grapes	Yes	6	Schaffer et al., 1992
Greenhouse	---	1	---
Idle	---	1	---
Lettuce/Leafy Greens	No	1	Higashio 2012
Managed Wetland	No	1	---
Miscellaneous Deciduous	No	1	Vreugdenhil et al. 2006
Miscellaneous Grain and Hay	Yes	6	RMC 2015
Miscellaneous Grasses	Yes	6	Assumed flood tolerant
Miscellaneous Truck Crops	No	1	Nonspecific, complex to assess
Mixed Pasture	Yes	6	RMC 2015
Olives	No	1	Kourigialas 2016
Plums, Prunes and Apricots	Yes	6	Schaffer et al. 1992
Tomatoes	Yes	6	RMC 2015
Urban	No	1	Assume hardscape
Walnuts	Yes	6	Schaffer et al. 1992
Young Perennials	Yes	6	RMC 2015



5.1.5 Soil Agricultural Groundwater Banking Index (SAGBI)

The SAGBI dataset was also used to evaluate AgMAR potential. SAGBI is a suitability index for groundwater recharge on agricultural land (O’Geen et al. 2015). It is based on five factors important to successful recharge on agricultural land: deep percolation, root zone residence time, topography, chemical limitations, and soil surface condition. The SAGBI dataset is normalized on a 100-point rating system that is commonly divided into six groups, consistent with the index scale used for the other parameters developed for this assessment.

The SAGBI dataset is available in two versions: modified and unmodified. The modified version assumes that all restrictive layers present in shallow soils have been removed or changed by excavation and/or tillage and no longer present a barrier to the percolation of groundwater. Such excavation and/or tillage are common in areas that have long been used for agriculture, especially those with permanent crops. The unmodified version of SAGBI assumes no modification of restrictive layers. The modified and unmodified versions of SAGBI were reviewed to assess the accuracy of the modified version in the Basin. This assessment showed that most of the SAGBI areas that differ between the two versions were in urban or unimproved areas. As a result, the unmodified version of SAGBI was used in this MAR feasibility assessment (**Figure 12**).

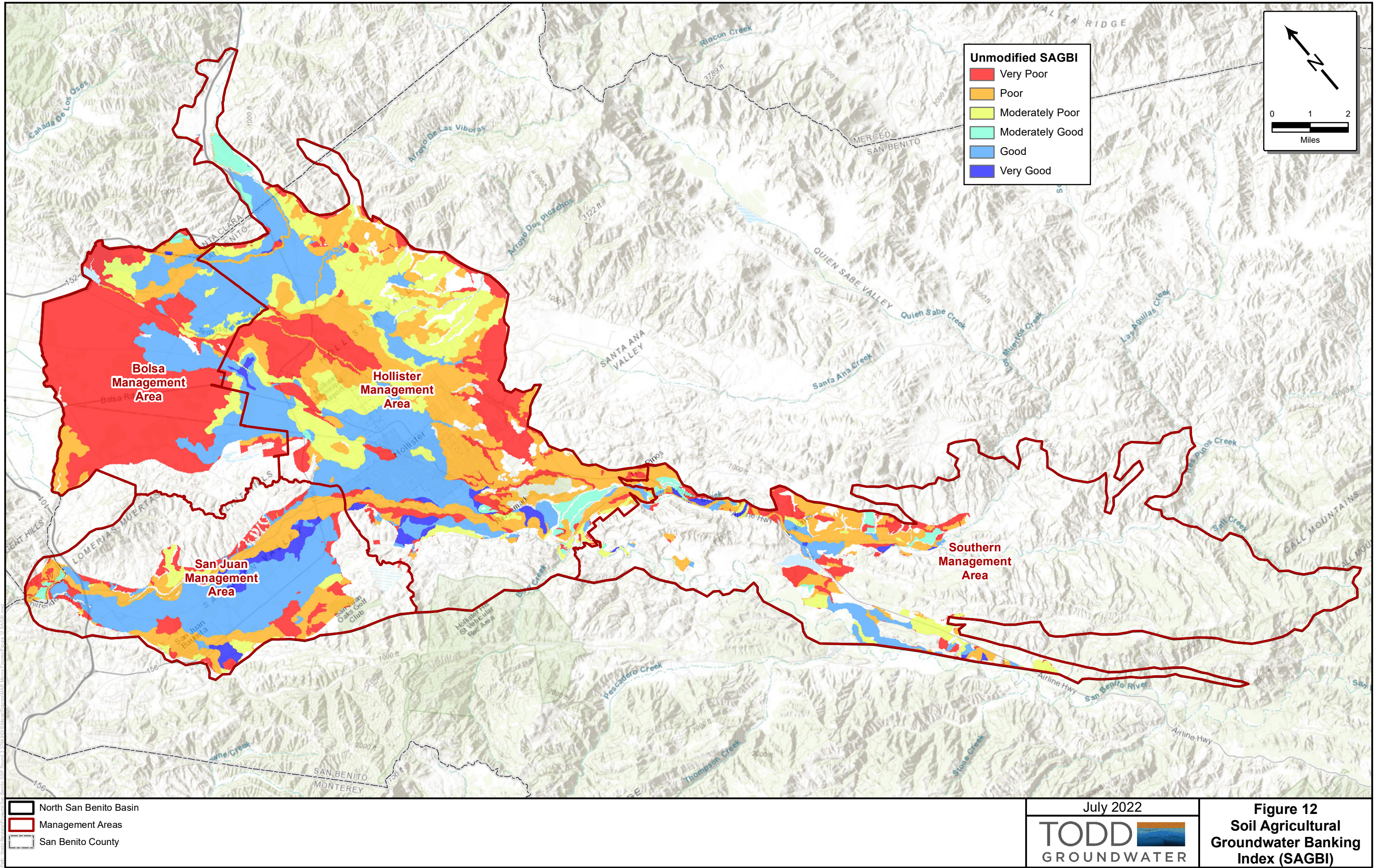
5.1.6 Existing Aggregate Quarry Index

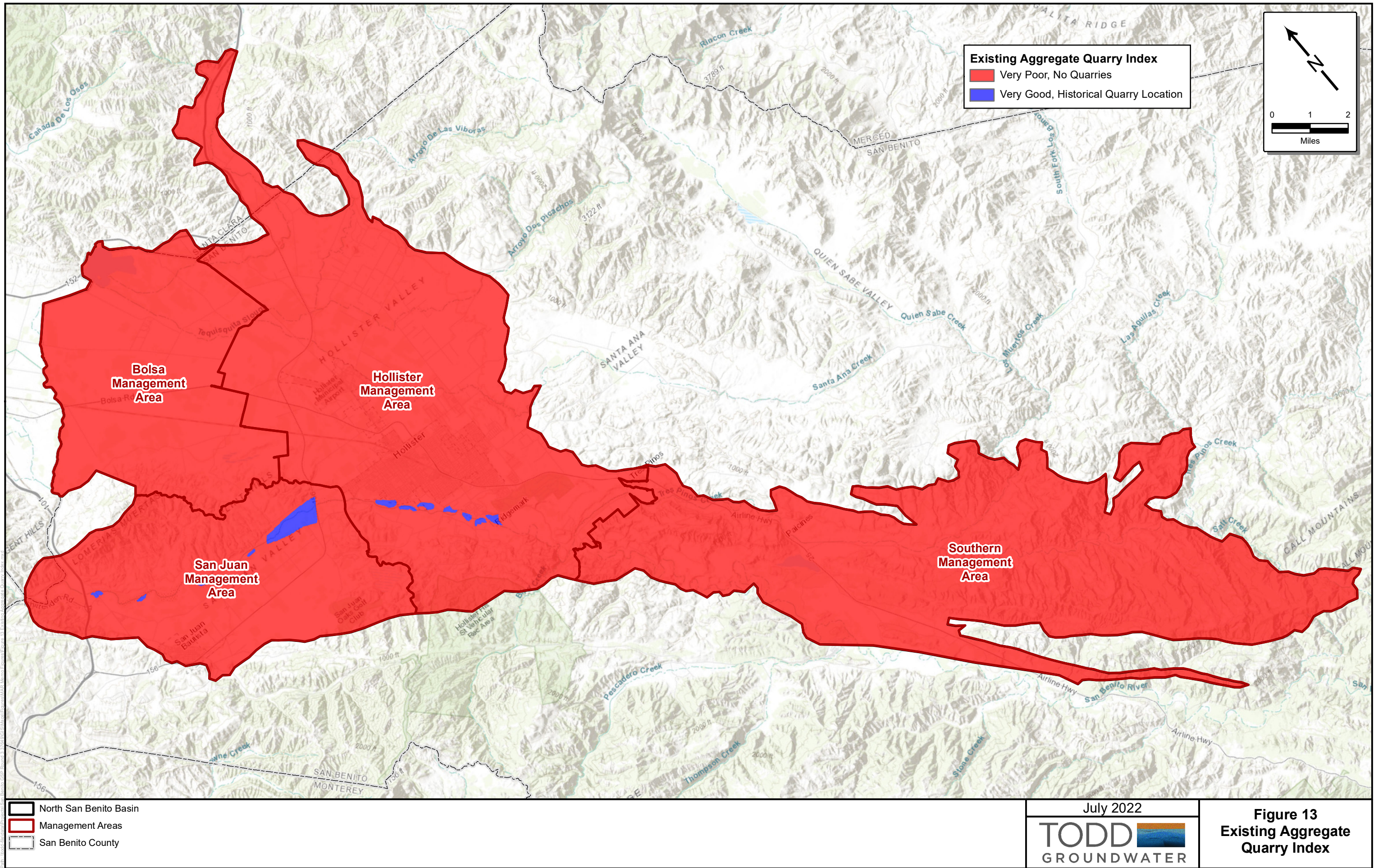
Sand and gravel quarries were included in our evaluation of potential sites for surface recharge. Open pit mining of sand and gravel from ancestral and modern stream channels has the potential to provide sites with highly permeable lithology, previously excavated pits, and close proximity to source water. Locations of known sand and gravel pits adjacent to the San Benito River were included in the surface water recharge index as either very poor or very good recharge potential. Mapped sand and gravel pits were assigned an integer value of six and all other areas were assigned a value of one, as shown on **Figure 13**.

5.1.7 Proximity to CVP Supply Source Index

The viability of a MAR project is strongly dependent on the proximity, quality, and quantity of water that is available. As discussed above, three potential water sources were identified for MAR: local streamflow, urban stormwater runoff, and imported CVP. However, assessment of these water sources indicated that CVP is most suitable as a potential source for new MAR projects.

Accordingly, proximity to existing CVP infrastructure was identified as a component of the recharge index for the Basin. Existing conveyance infrastructure for the delivery of CVP water in San Benito County is depicted on **Figure 14**. In discussions with SBCWD, a minimum pipe diameter of 12 inches was identified for MAR projects. Pipes with a diameter less than 12 inches would not be able to supply water at an adequate flow rate for recharge projects. SBCWD also identified 3,000 feet from existing pipelines as the maximum practical distance for new MAR projects. As a result, conduits and mains with a diameter of 12 inches or greater were identified throughout the Basin and a grid dataset (raster) of distance from each suitable pipeline was created. The grid dataset was indexed for use in the recharge ranking system using the distance classifications shown in **Table 6**.





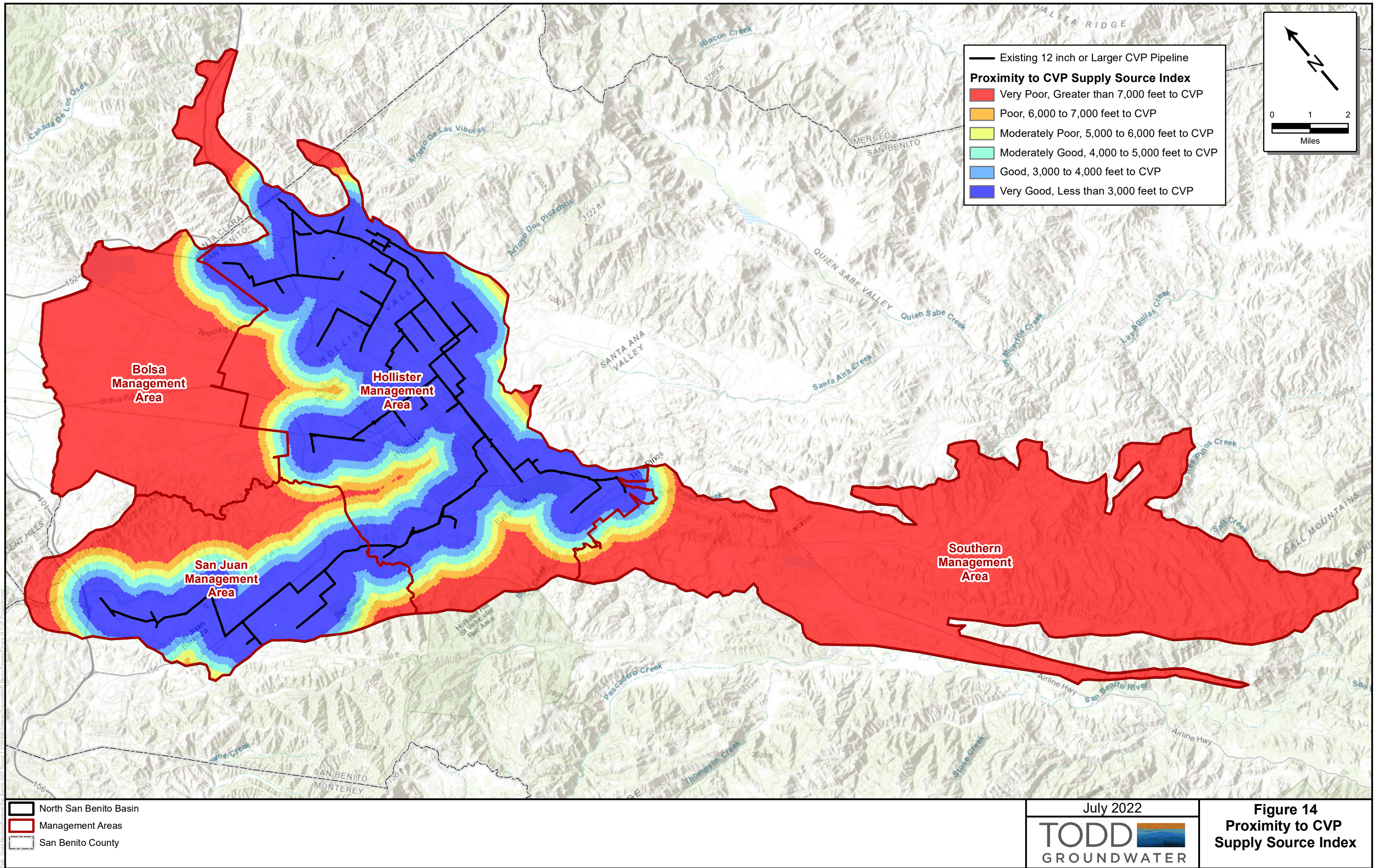


Table 6. Distance to Conveyance Index Values

Distance to Existing Pipeline at least 12 inches in Diameter	Index	Index Integer Value
Greater than 7,000 feet	Very Poor	1
6,000 to 7,000 feet	Poor	2
5,000 to 6,000 feet	Moderately Poor	3
4,000 to 5,000 feet	Moderately Good	4
3,000 to 4,000 feet	Good	5
Less than 3,000 feet	Very Good	6

5.2 Combined Index-Overlay Assessment Tools

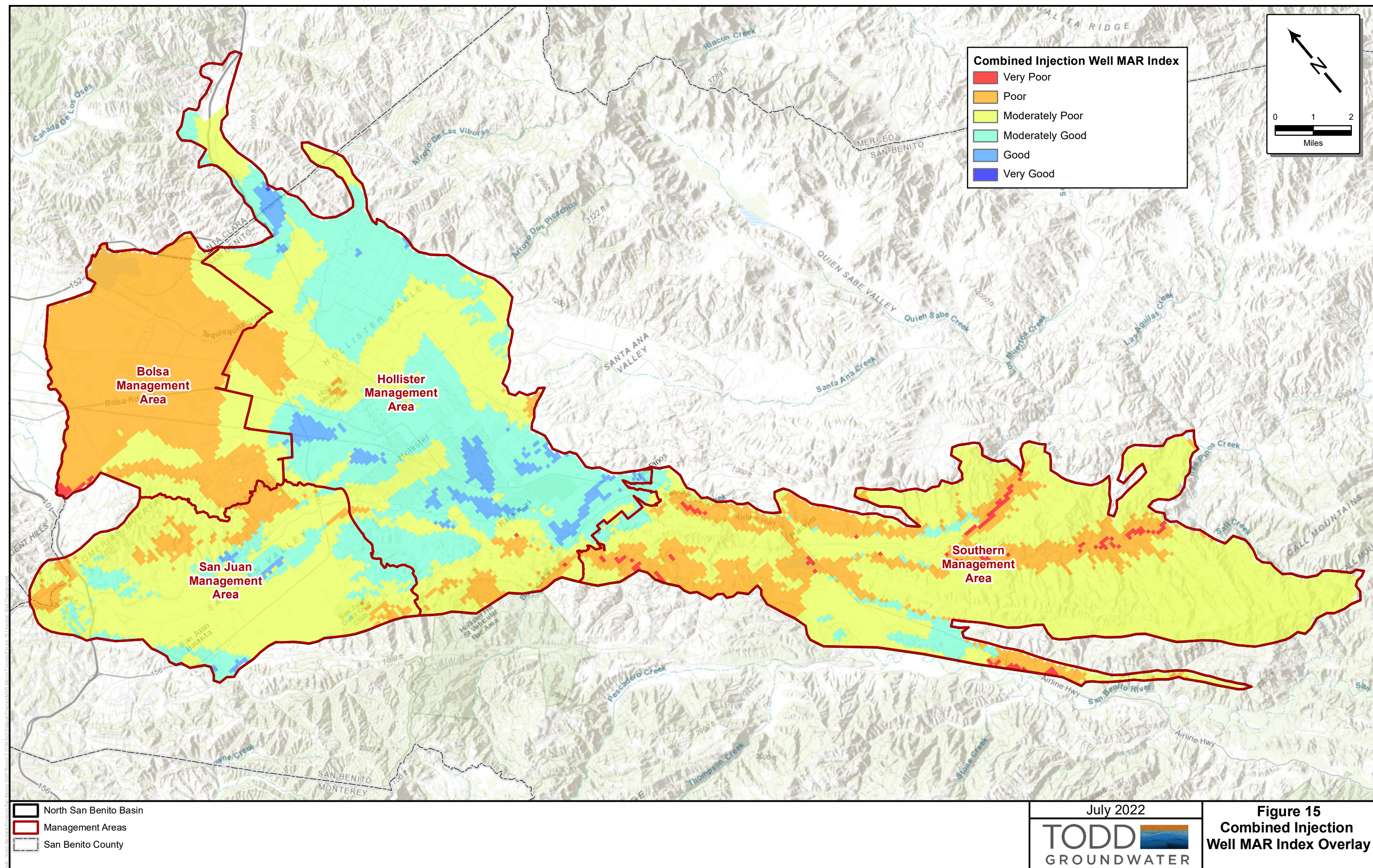
The indices described above were combined in multiple ways to create tools for Basin-wide geographic assessment of recharge potential by MAR type. Individual hydrogeologic suitability coverages were created for injection wells (subsurface recharge), percolation basins (surface recharge), and AgMAR. These suitability index coverages were constructed by merging different combinations of the individual indices using GIS software tools. The GIS grid datasets representing each index were summed using raster calculation tools and then grouped back into six classes with values dependent on the number of individual indices used. Maps showing the potential injection well MAR index, percolation basin MAR index, and AgMAR index are presented as **Figures 15 to 17**, respectively.

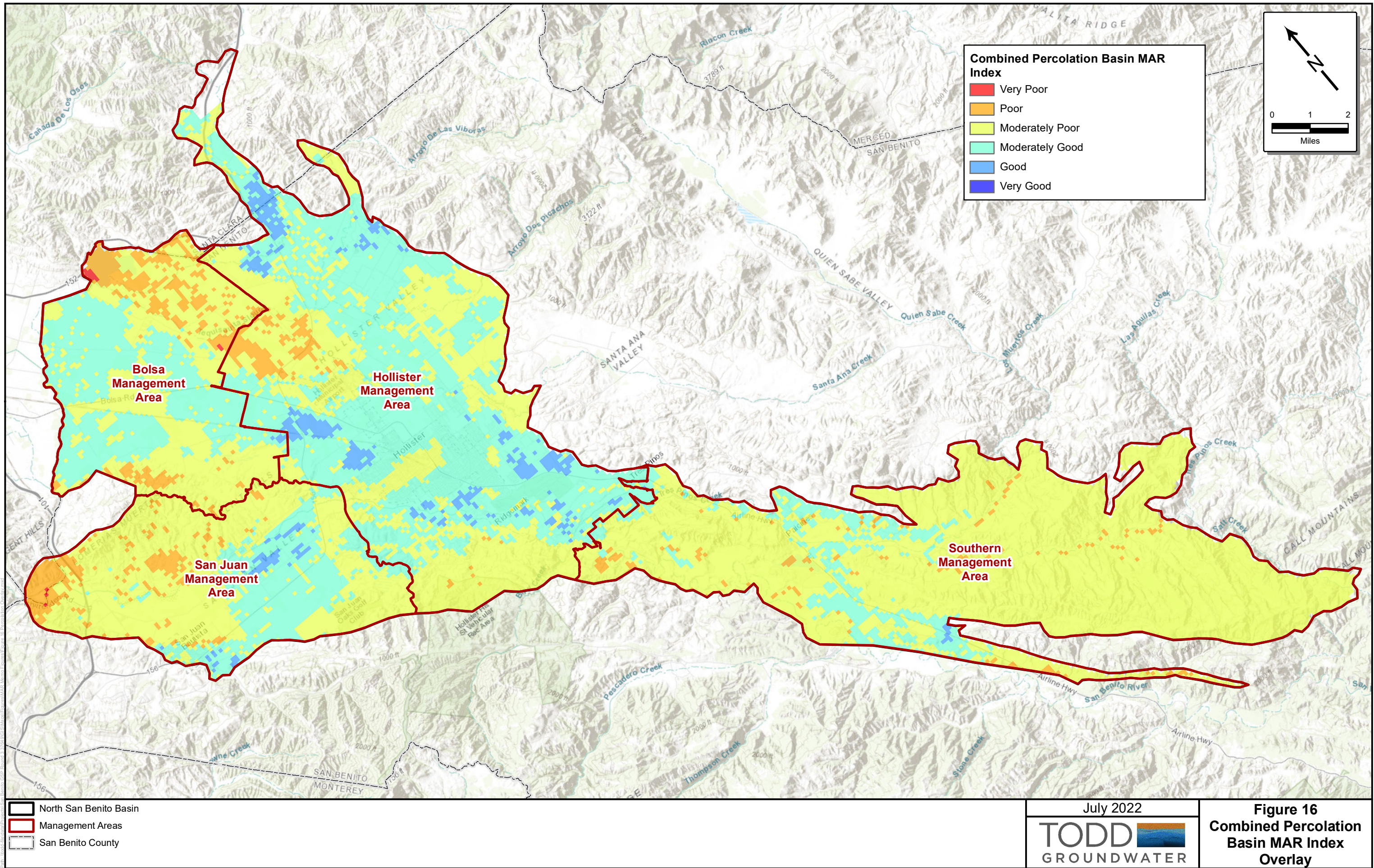
5.2.1 Injection Well MAR Index

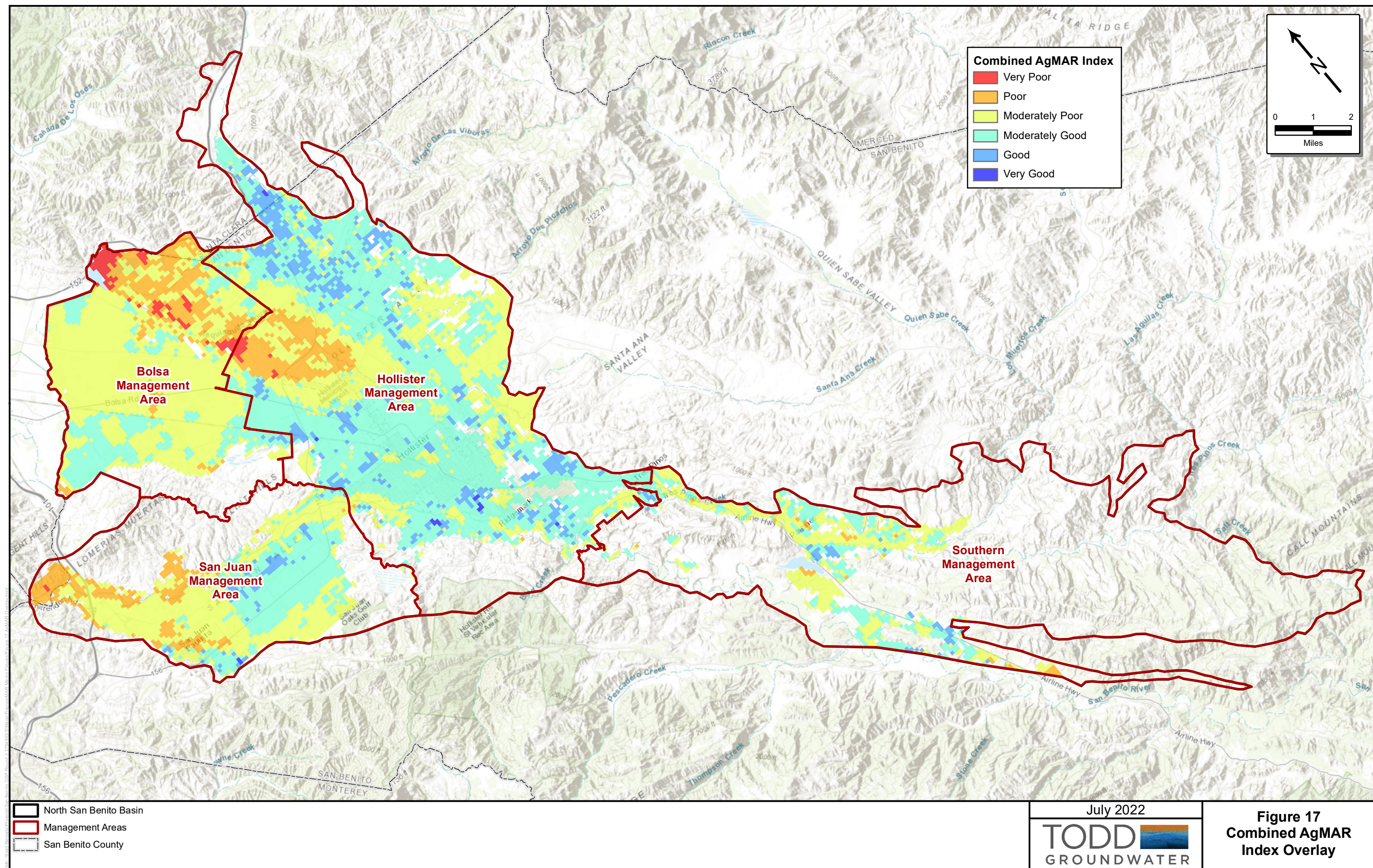
The injection well MAR index identifies areas with the highest potential for direct groundwater recharge through injection wells. Included in this index are the individual indices for unsaturated zone thickness, subsurface hydraulic conductivity, and proximity to CVP supply source indices. The maximum possible index value for the injection well MAR index is 18 (because it includes 3 individual indices). However, as shown on **Figure 15** the values in the index range between 3 and 16 and most of the Basin shows moderately poor to poor injection well MAR potential. The Bolsa and Southern Management Areas have the lowest injection well MAR potential. In the Southern Management Area very poor zones are focused along stream channels. The highest density of moderately good or greater injection well MAR potential is observed in the Hollister and San Juan Management Areas. The Hollister Management Area appears to have the highest recharge potential of the four management areas.

5.2.2 Percolation Basin MAR Index

A percolation basin MAR index was developed to evaluate the feasibility for construction and operation of percolation ponds. This index focuses on the feasibility of efficiently and effectively infiltrating water from the surface to the aquifer. Included in this index are the individual indices for unsaturated zone thickness, subsurface hydraulic conductivity, aquitard presence, surficial soil hydraulic conductivity, percolation basin land use, proximity to CVP supply source, and existing aggregate quarries.







The percolation basin MAR index is shown on **Figure 16** with a range of index values from 6 to 32. The maximum possible index value for this combined index is 42 and no areas of the Basin reached an index value indicating very good percolation basin MAR potential. The lowest potential is observed in the Bolsa Management Area followed by the Southern Management Area. The Hollister Management Area has the overall highest recharge.

5.2.3 AgMAR Index

AgMAR potential is a function of available storage space, subsurface conductivity, land use, water supply availability, and surface infiltration capacity. As a result, the AgMAR Index includes the individual unsaturated zone thickness, subsurface hydraulic conductivity, aquitard presence, AgMAR crop type index, proximity to CVP supply source, and the SAGBI indices. The combined AgMAR index is shown on **Figure 17** and has an index value range of 6 to 31, with no locations reaching the maximum index value of 36. The Southern Management Area has little agriculture and is generally not suitable for AgMAR. The Hollister Management Area has the highest potential AgMAR, despite a zone of very poor to moderately poor potential trending north-south across the Bolsa and into the Hollister Management Area.

6. POTENTIAL MAR PROJECT SCREENING ANALYSIS

The areas identified for MAR by all three methods were further evaluated in a screening level analysis that used the Basin numerical groundwater model (Todd 2020). This screening analysis simulated MAR in various parts of the Basin to assess the amount of water-level mounding, identify the geographic extent of noticeable water-level effects surrounding each facility, and determine how long the recharge from a single recharge year is retained in the Basin. Locations of hypothetical injection wells, percolation basins, and AgMAR were selected in areas identified as relatively high suitability from the index-overlay method described above. The facilities were placed in four general regions: the Hollister Management Area between Arroyo de las Viboras and Union Road / Airline Highway, the Hollister Management Area south of Arroyo de las Viboras and Union / Airline, the Zone 6 part of the Bolsa Management Area, and the eastern part of San Juan Management Area. Operations of injection wells and percolation basins in those regions were simulated separately in two screening-level simulations.

Plans for this screening simulation are described in detail in a TM titled *Draft Specifications for Managed Aquifer Recharge Modeling Scenarios, North San Benito Basin Round 3 Managed Aquifer Recharge Evaluation* (Todd 2021).

Each of the MAR facilities was simulated to recharge 6,000 AFY in the years when excess CVP water is assumed to be available. Any one of these new MAR facilities combined with the existing SBCWD MAR capacity would meet the 10,000 AFY total MAR goal. The results are not presented here but led to the following conclusions that informed the development of subsequent, refined scenarios:

- Increases in groundwater levels were generally noticeable only within 1 to 2 miles of the recharge location.

- Water-level increases of tens of feet occurred at model cells containing recharge facilities.
- Water-level rises dissipated rapidly following a recharge year, remaining detectable for 2 to 5 years thereafter.
- Water-level rises receded more rapidly in locations closer to head-dependent boundaries such as stream reaches that are hydraulically connected to groundwater.

7. SELECTED MAR SCENARIO SIMULATIONS AND ANALYSES

Two injection well MAR scenarios were developed for evaluation. The first is injection-only MAR and the second scenario involves wells that inject and extract water, a strategy termed aquifer storage and recovery or ASR. The first scenario involves eleven MAR injection wells located along CVP distribution pipelines at locations close to and roughly upgradient of City of Hollister (Hollister) and Sunnyslope County Water District (Sunnyslope) municipal supply wells (**Figure 18**). This arrangement maximizes the water-quality benefit of injection by allowing the recharged water to be recovered at nearby existing potable supply wells, before it has mixed into a large volume of native groundwater. The total recharge in the injection-only scenario was 6,000 AFY in years when excess CVP water is assumed to be available. As above, this injection volume meets the desired 10,000 AFY of total MAR when combined with the SBCWD's current 4,000 AFY MAR capacity

In the second scenario involving ASR, a treatment plant would be built near eleven ASR wells to treat the water up to injectable quality before injection and to treat extracted water to drinking water standards before piping it into the City of Hollister's potable water distribution system. To achieve flow and pressure objectives in the distribution system, SBCWD is focused on locations near the north end of Hollister. For this scenario, seven ASR wells were hypothetically located 1,500 feet apart along Fallon Road between Highway 156 and Fairview Road (**Figure 18**). This is the estimated minimum spacing needed to avoid excessive well interference. Fallon Road has a CVP pipeline that could supply the treatment plant, and its right of way could provide well locations that eliminate the need to negotiate access with private landowners. Also, Fallon Road is roughly parallel to the regional groundwater flow direction. This maximizes the probability that injected water could be recovered later at one of the wells. Another four ASR wells were hypothetically located along another existing CVP distribution pipeline parallel to Fallon Road but about one mile to the south. This row of wells is also aligned with the regional flow gradient, and it was assumed that it would be easier to expand SBCWD's existing easements (for the CVP pipeline) to include ASR wells rather than negotiate new easements with a new set of landowners.

For the ASR scenario, the amounts and timing of injection are the same as for the MAR injection-only scenario. Extraction is assumed to occur in all non-injection years at a rate that balances the injected and extracted volumes over the course of an 86-year simulation period. Thus, injection of a total of 45,408 AF occurs during 11 years over the 86-year timeline, which averages 528 AFY. Extraction of the same volume of water occurs in 75 of the 86 years at a rate of 605 AFY.

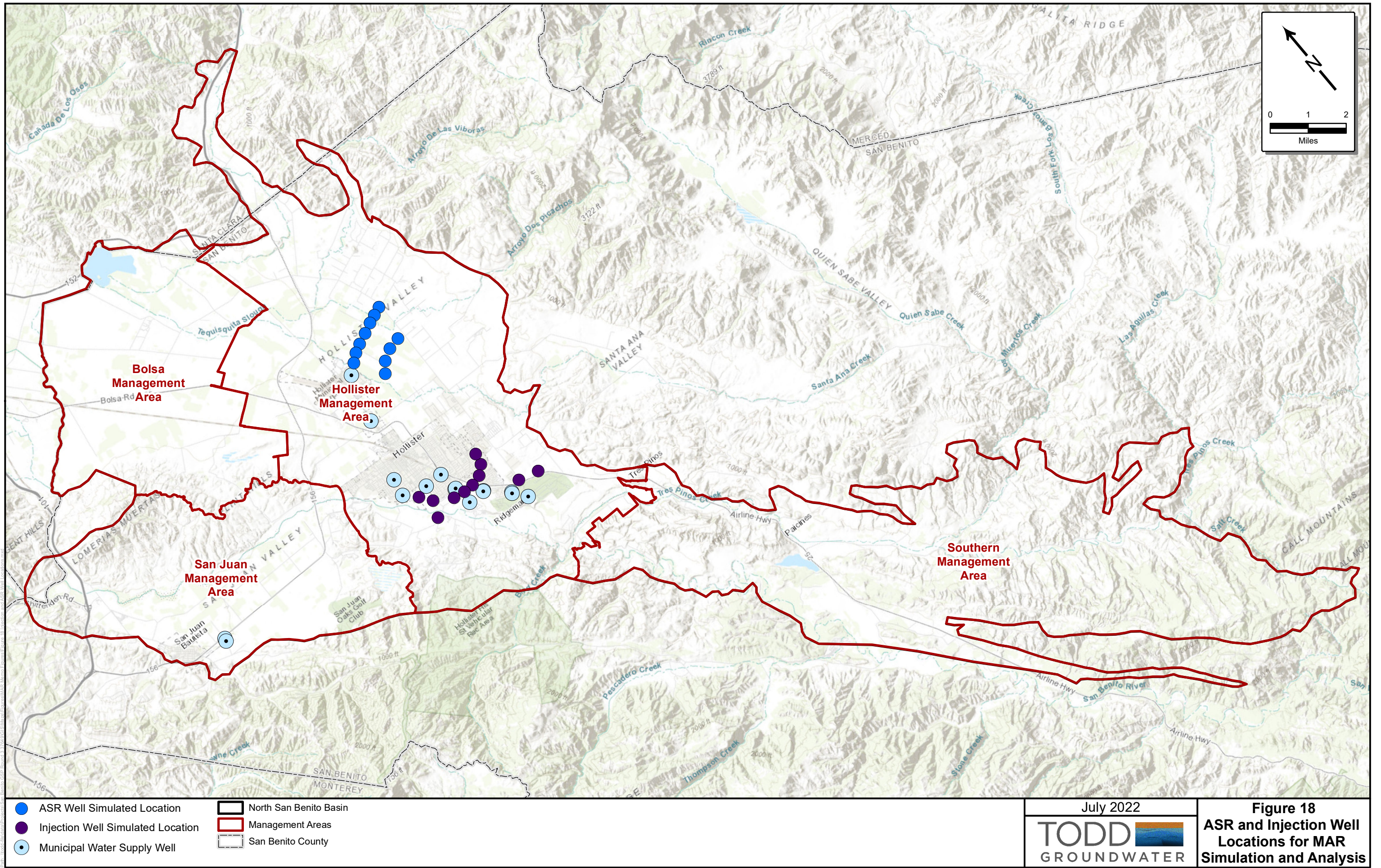
The two injection well scenarios reflect additional siting considerations, including where recharge is most needed and how long the recharged water can be retained in storage before being lost to groundwater outflow. Because of the relatively large recharge capacity of the San Benito River, the San Juan Management Area does not experience drought-related water-level declines as large or prolonged as in the Hollister Management Area. Also, one of the existing CVP percolation basins and the City of Hollister's reclaimed water percolation ponds supplement recharge in the San Juan Management Area. Recharge anywhere along Pacheco Creek tends to be lost quickly to groundwater discharge back into the creek, Tequisquita Slough, or San Felipe Lake. Thus, the supplemental recharge is not retained in storage as reliably as it is farther south. The region that has the greatest need of supplemental recharge and retains it the longest is the region that was slowest to recover following historical overdraft during the 1940s to 1970s: the area east of the Calaveras Fault between about Fallon Road and Tres Pinos Creek. The injection well and ASR scenarios are both in that region.

7.1 Results of Scenario Simulations

The effects of the injection well and ASR well scenarios were each simulated and compared to a reference simulation that consisted of the future baseline simulation plus future growth and climate change. One scenario at a time, the reference simulation was modified to include the injection wells or the ASR wells. Almost all aspects of the reference simulation remained unchanged in the scenarios, including land use, dispersed recharge, bedrock inflow, stream inflows, wastewater percolation and agricultural pumping. For the injection well scenario, the only change was the addition of injection at the injection well sites, which was concentrated into a four-month season (November-February). All groundwater pumping remained unchanged. For the ASR scenario, the changes were injection and extraction at the ASR wells and a small decrease by a uniform percentage among all other City of Hollister municipal wells to compensate for the production from the ASR wells. To test the effect of spreading injection out over a longer season, injection was assumed to occur over nine months during each injection year (June-February).

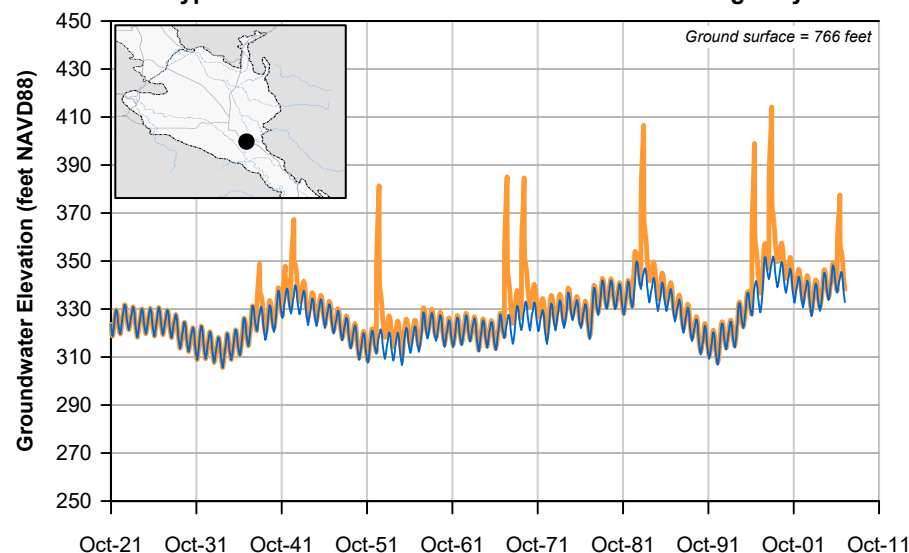
7.1.1 Water Levels

Figure 19 shows hydrographs of simulated water levels at four wells in Hollister for the reference simulation and the injection well scenario. Two of the wells are hypothetical MAR injection wells: MAR Well IW-11 near the intersection of Fairview Road and Highway 25, and MAR Well IW-8 west of the Calaveras Fault near San Benito Street north of Union Road. At IW-11, water levels rose on the order of 60 feet in injection years. This large water-level rise is due partly to the relatively low hydraulic conductivity of the aquifer system at that location (4 ft/d in the model). The simulated water-level rise is the average rise over the total area of the model cell (5.7 acres). Water-level rise in the immediate vicinity of the well would be much larger than the average. This indicates that spreading injection out over nine months would likely be necessary to prevent excessively high water levels in the injection well. IW-8 is located west of the Calaveras Fault near the San Benito River, where aquifer hydraulic conductivity is much higher (70 ft/d in the model). There, the water-level rise in injection years was only 20 feet. Hydrographs for two nearby wells with historical water-level data are also shown in the figure. Water-level rises at those wells were 5-20 feet, with the range correlating with distance from nearby injection wells.

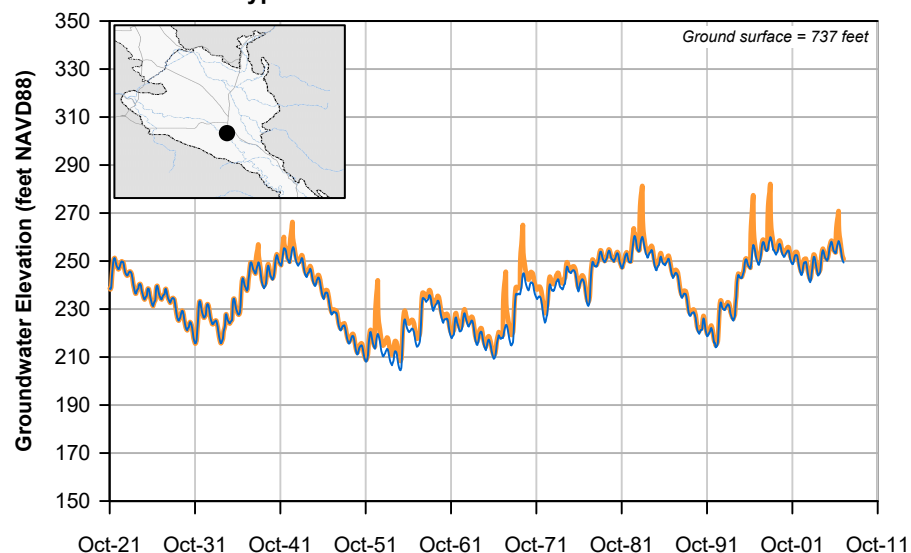


Path: T:\Projects\San Benito GSP Round 3 37643\GPHICS\MAR\Figure 19 Hydrographs of Simulated Water Levels with Injection.gph

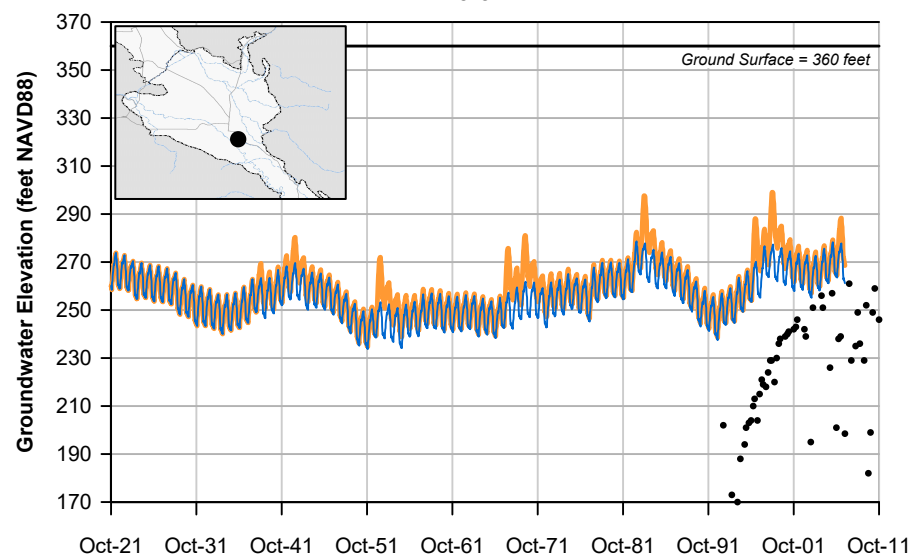
Hypothetical MAR Well near Fairview Road and Highway 25



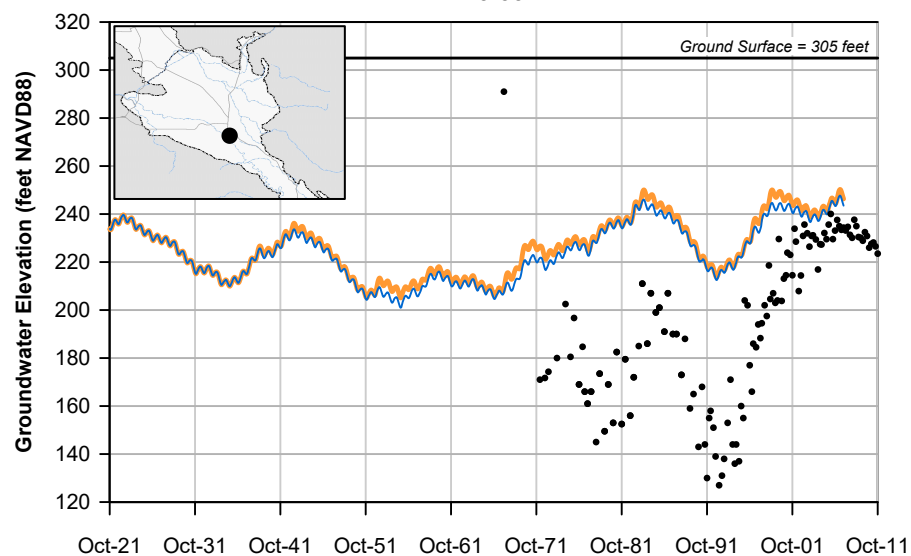
Hypothetical MAR Well West of Calaveras Fault



13-5-12D4



12-5-35N2



- Ground Surface
- Measured Historical
- Scenario: MAR Wells in Hollister
- Scenario: No MAR

Data Source:
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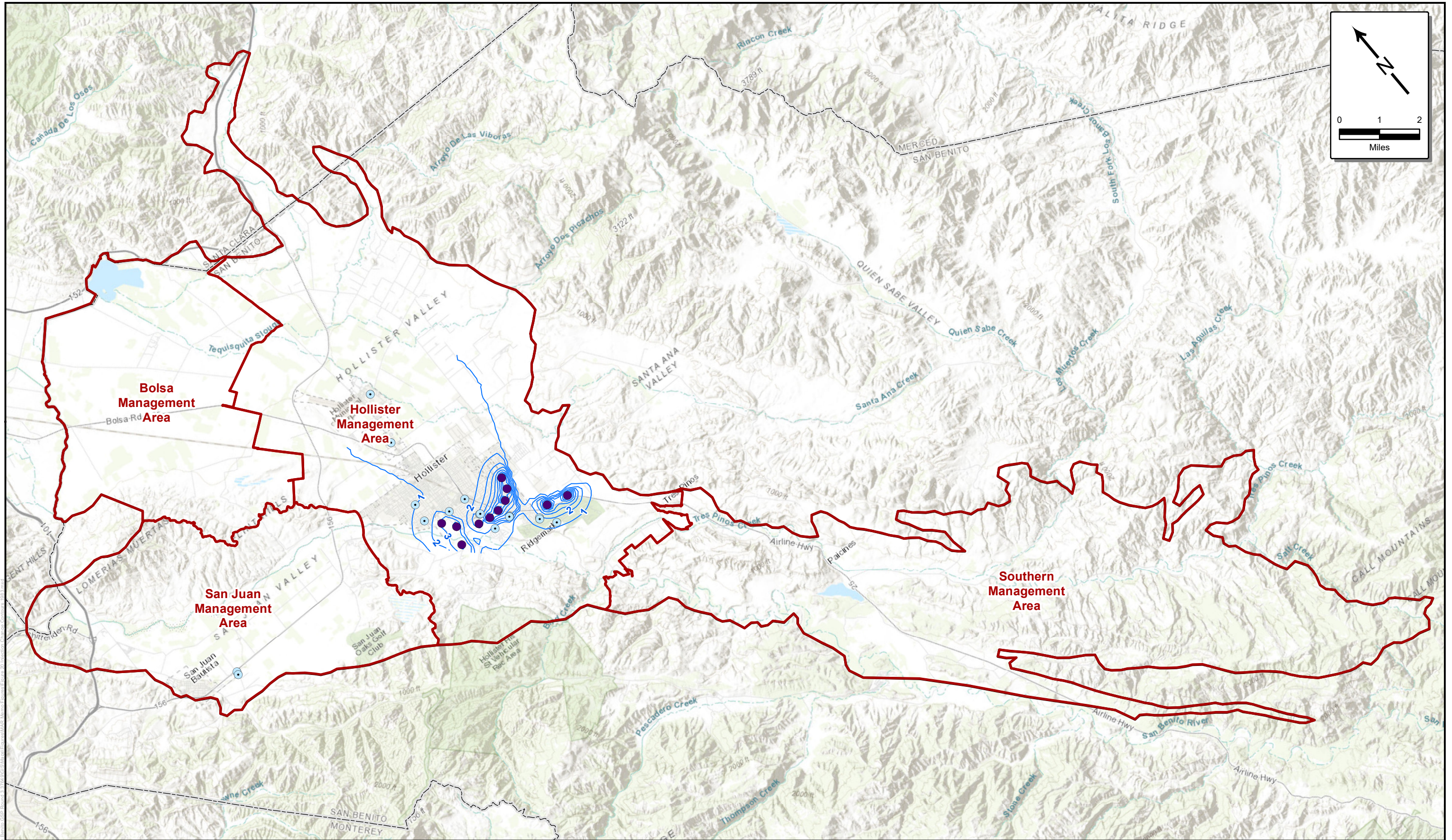
TODD
GROUNDWATER

Figure 19
Hydrographs of
Simulated Water Levels
with Injection

The persistence of injected water in storage is better shown by contouring differences in water levels between scenarios. **Figure 20** shows contours of the change in water levels (relative to the reference simulation) resulting from injection of 6,000 AF uniformly among the wells over a four-month period. This period corresponds to February 1983 hydrology, a wet period. Prominent water level mounds up to 16 feet high can be seen around individual injection wells. The mounding decreases to less than 2 feet within 0.5 mile and is generally less than 0.5 foot at locations one mile or more from the injection wells. The presence of faults sharply truncates the mounding in some directions. To test the residence time of the stored water, contours were also compared six years later (November 1988 hydrology), as shown in **Figure 21**. The influence of injection was still present at that time, with water levels up to 2.7 ft higher than for the baseline scenario near the east end of the arc of injection wells. The effect of injection had spread substantially during the six years following injection. The water-level increases gradually decreased to 1.5 feet at distances 2 miles north of the row of wells. Faults continued to restrict the spread of the mounding to the east and west.

For the ASR well scenario, hydrographs for four wells near Fallon Road are shown in **Figure 22**. Two of the hydrographs are at hypothetical ASR wells (ASR-5 and ASR-10), where prominent spikes in water levels are visible during injection years (for example, 1938, 1952, 1969 and 1983). Water levels at those wells decline back to near baseline levels within about 4 years. During longer periods between injection years, water levels drop below the baseline levels because of extraction at the ASR wells. Overall, this scenario is water-budget neutral: increased recharge from injection is balanced in subsequent years by increased extractions, with the latter spread out over all the municipal wells. Hydrographs of water levels at two nearby wells with measured historical water levels are also shown (wells 12S/5E-12R1 and 12S/5E-23A20). At those wells, water levels are higher for several years following injection years and are never lower than the baseline water levels. That is because these two wells are not municipal wells, so they experience the effect of substantial nearby injection more than the effect of smaller nearby increases in extraction during intervening years.

The persistence of injected water in storage is indicated by a contour map of differences in water levels between the ASR well scenario and the reference simulation. The contour map shown in **Figure 23** is for February 1983 hydrology, which follows injection of 6,000 AF of CVP water over 9 months. Water level mounding around individual ASR wells diminishes from about 6 feet in the model cell where the well is located to less than 2 feet within 0.5 mile. There is a cone of depression around one of the hypothetical additional municipal water wells east of the ASR well group. This resulted from the ASR scenario operating assumptions. When ASR wells are injecting, the rest of the municipal supply wells pump slightly more than they otherwise would, and vice versa when the ASR wells are extracting. The mounding around individual ASR wells is smaller in this scenario than in the injection-only scenario because the same annual volume of water was injected over nine months rather than four months. The longer operating season is preferable not only to minimize well interference but also to decrease the number of wells needed and their required injection rates.

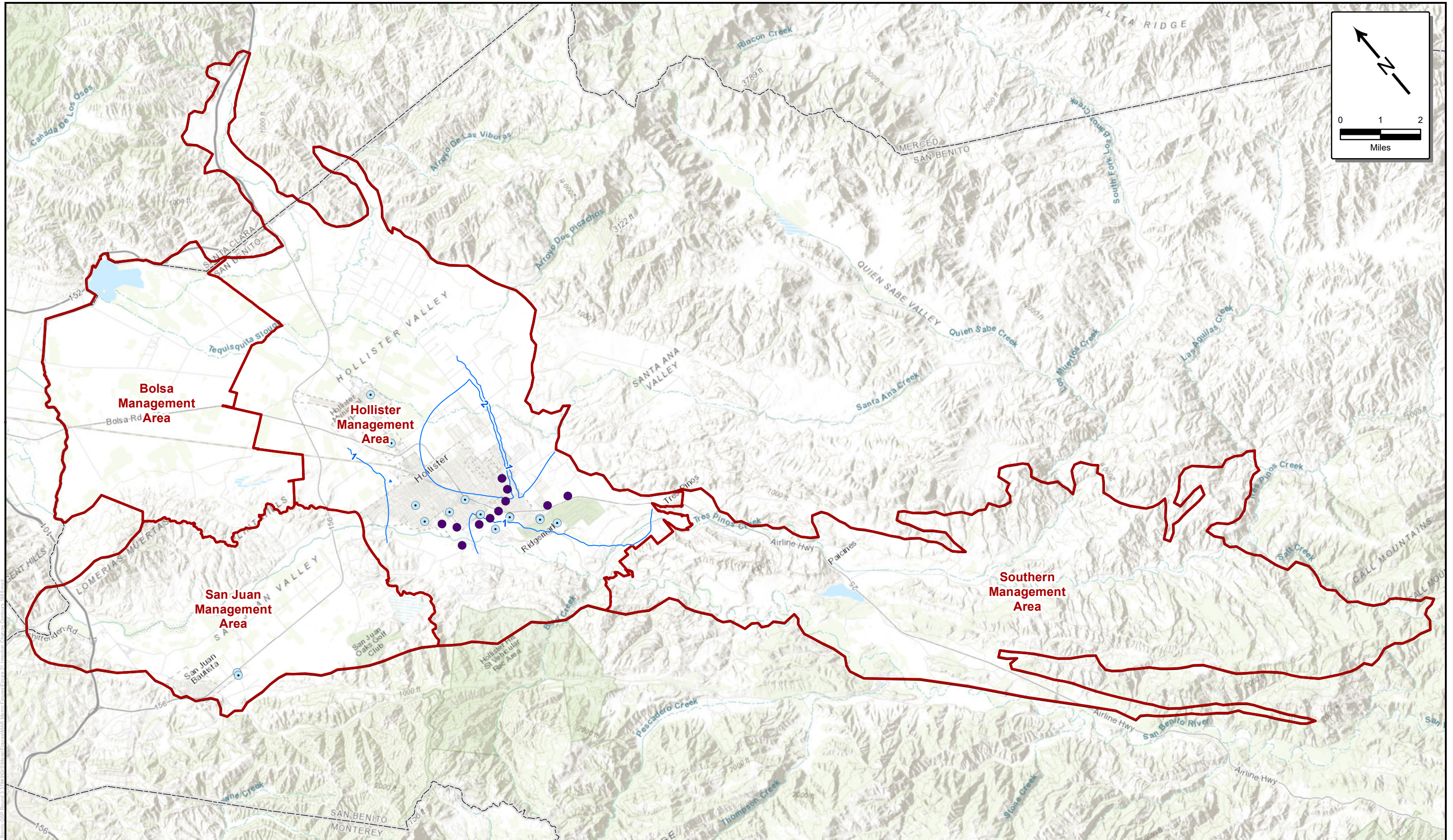


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- | | |
|---|--------------------------|
| ● Injection Well Simulated Location | ▭ North San Benito Basin |
| ○ Municipal Water Supply Well | ▭ Management Areas |
| — Groundwater Elevation Difference Contour, 1 foot interval | ▭ San Benito County |

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GROUNDWATER

Figure 20
Contours of Groundwater
Elevation Difference
Immediately Following Injection



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- Injection Well Simulated Location
- Municipal Water Supply Well
- Groundwater Elevation Difference Contour, 1 foot interval
- North San Benito Basin
- Management Areas
- San Benito County

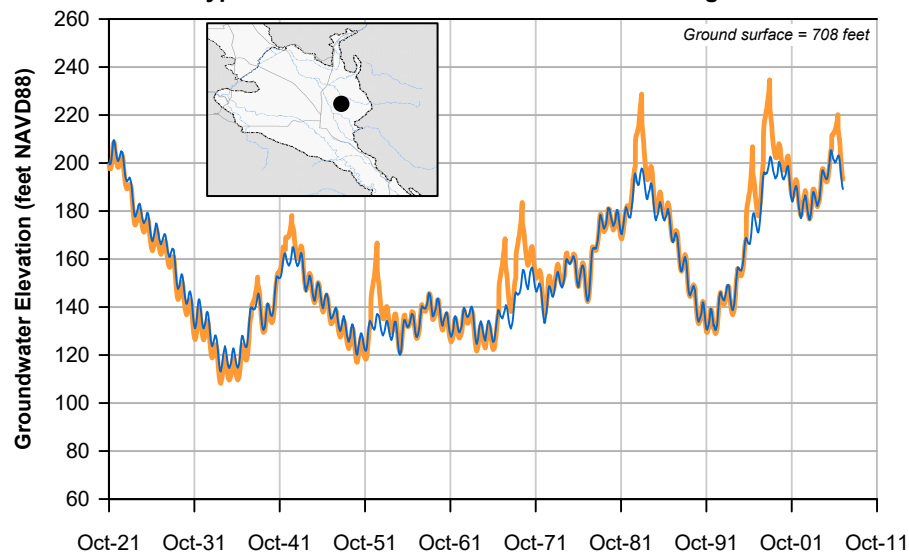
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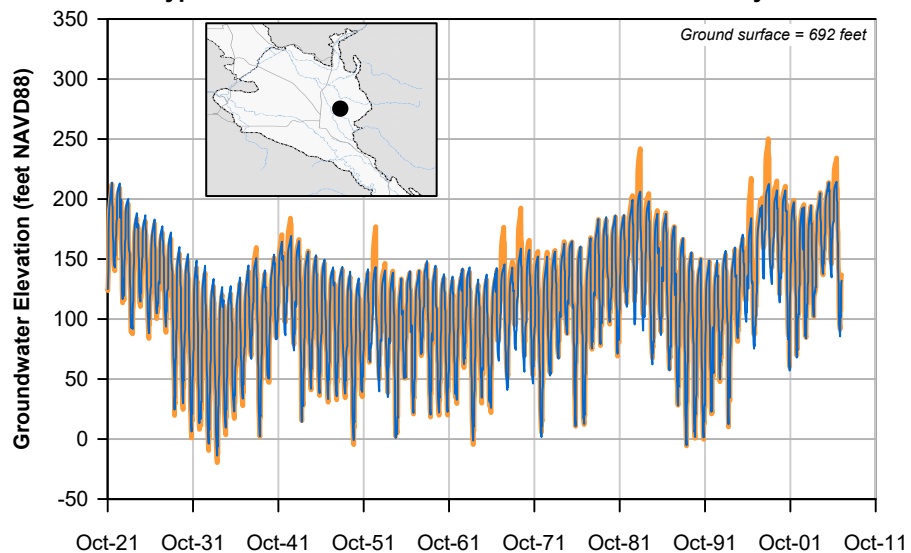
GROUNDWATER

Figure 20
Contours of Groundwater
Elevation Difference
Six Years Following Injection

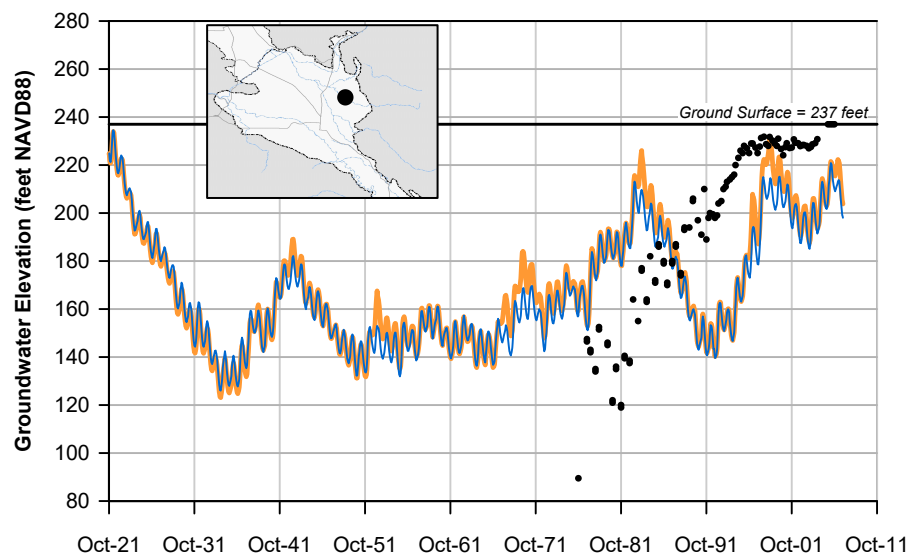
Hypothetical ASR Well on Fallon Rd near Scagliotti Rd



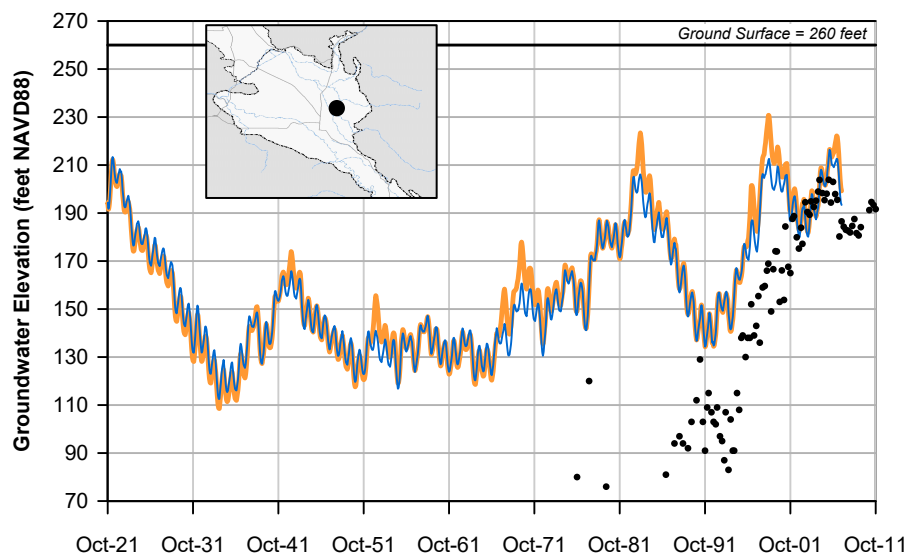
Hypothetical ASR Well between Fallon and McCloskey Roads



12-5-12R1



12-5-23A20



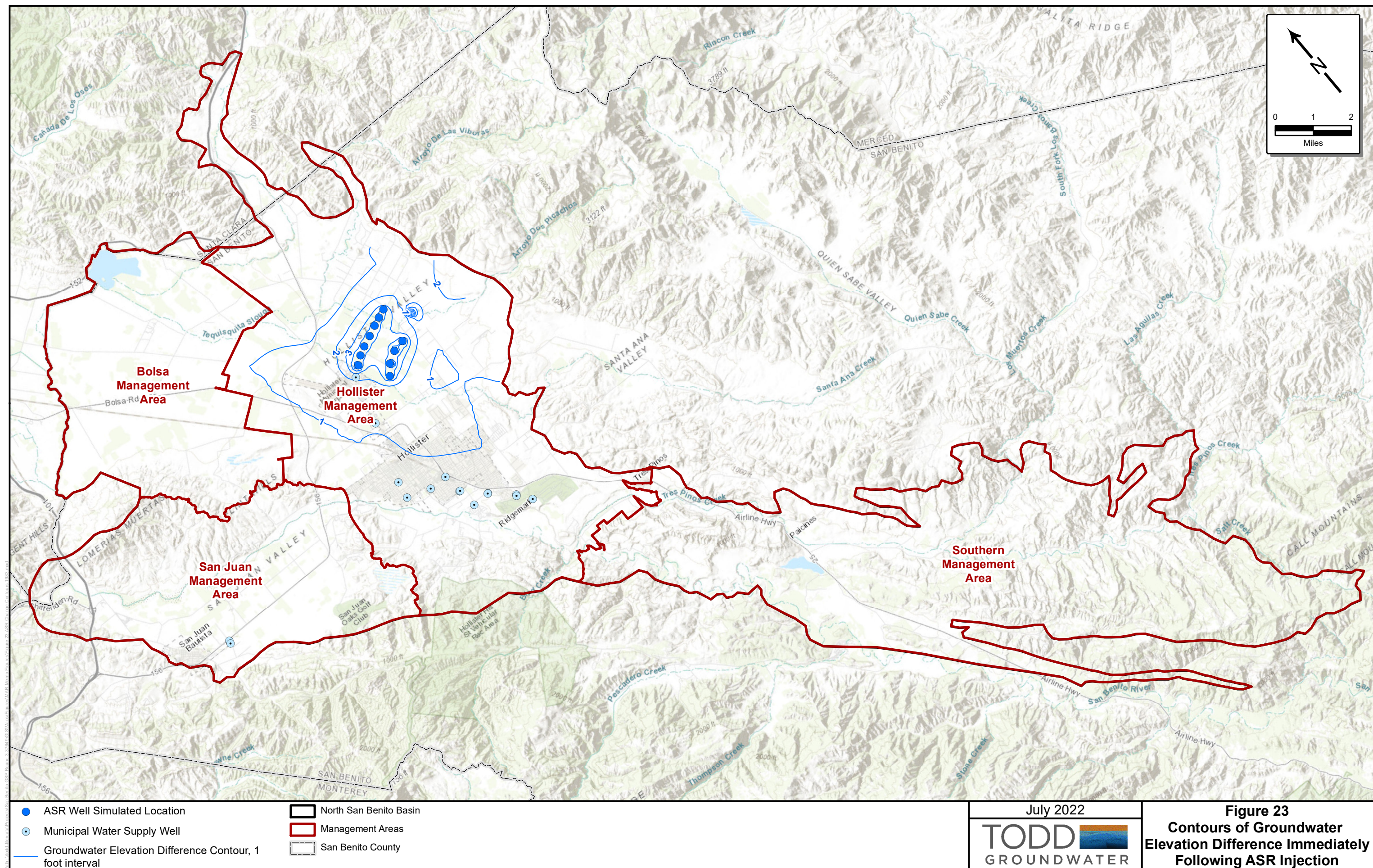
- Ground Surface
- Measured Historical
- Scenario: ASR Wells near Fallon Road
- Scenario: No ASR

Data Source:
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GROUNDWATER

Figure 22
Hydrographs of
Simulated Water Levels
with ASR

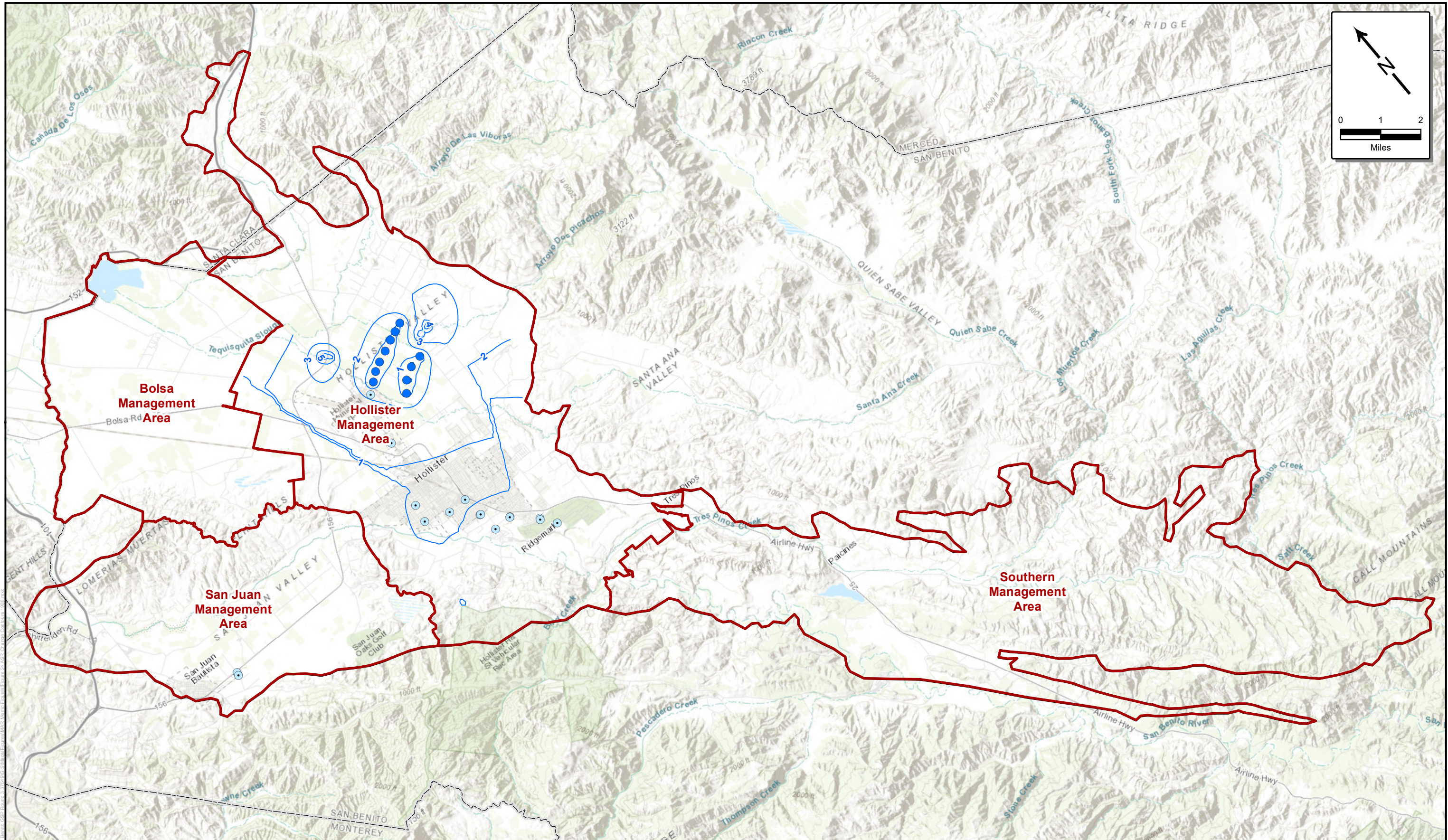


A contour map of conditions six years after ASR well injection (November 1988 hydrology) is shown in **Figure 24**. The ASR wells were extracting at a low rate from 1983 to 1988 and developed a local water-level trough within the broader water-level mound that remained from the 1983 injection event. This pattern clearly confirms the long-term storage of water following injection. The residual mounding was on the order of 2.5 feet above the baseline scenario over a region extending several miles from the ASR wells. The center of the local trough was of a similar magnitude, lowering water levels back to around the baseline elevations.

7.2 Water Budgets and Storage

For the injection well scenario, all groundwater extraction in the model remained the same as in the reference simulation. The model automatically balances the increased recharge from injection with increases in storage, groundwater discharge to streams, riparian vegetation evapotranspiration (ET), and outflow to other Management Areas. For the ASR well scenario, pumping was increased in non-recharge years to balance the amount of injection in recharge years. There was no net increase in recharge over the span of the entire simulation, but in individual years recharge and pumping were higher or lower than in the reference simulation. The locations of pumping also changed, as some City of Hollister pumping shifted from the normal supply wells to the ASR wells in non-injection years.

Table 7 compares the average annual water budgets for the injection well and ASR well scenarios with the growth plus climate change reference simulation. Separate tables are shown for each management area. All three water budgets were essentially the same in the Southern Management Area, which had no MAR facilities and is upgradient of where the simulated MAR facilities were located. The biggest water budget effects were in the Hollister Management Area, where all the simulated MAR facilities were located. Recharge at MAR percolation basins was the same for all three scenarios because they are existing facilities that were assumed to have first priority for recharging surplus CVP water in the two MAR scenarios. The amounts and timing of CVP water injection were the same for the injection well and ASR well scenarios. The differences between those scenarios were the locations of the wells and the extraction simulated at the ASR wells in non-injection years. For the injection well scenario, the increase in total recharge contributed by the injection wells (528 AFY) was balanced over the 86-year simulation primarily by decreased percolation from streams (44 percent), increased groundwater outflow to streams (17 percent), decreased outflow to the Bolsa and San Juan Management Areas (14 percent), increased groundwater storage (about 13 percent), and decreased inflow from the Southern Management Area (10 percent).



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- | | |
|---|--------------------------|
| ● ASR Well Simulated Location | ▭ North San Benito Basin |
| ⊙ Municipal Water Supply Well | ▭ Management Areas |
| — Groundwater Elevation Difference Contour, 1 foot interval | ▭ San Benito County |

July 2022

TODD 
GROUNDWATER

Figure 24
Contours of Groundwater
Elevation Difference Six Years
Following ASR Injection and Recovery

The ASR well scenario had the same total amount of injection and extraction as the injection well scenario because the ASR wells do not increase municipal water demand. Extraction from the ASR wells in non-injection years was simply extraction that was shifted in location from the normal municipal wells to the ASR wells. Because of the differences in timing and location of injection and pumping, the ASR well scenario had a slightly different effect on the average annual Hollister Management Area water balance than the injection well scenario. The 528 AFY increase in recharge contributed by injection was balanced primarily by decreased percolation from streams (37 percent), increased outflow to the Bolsa and San Juan Management Areas (20 percent), increased groundwater storage (18 percent), decreased inflow from the Southern Management Area (15 percent), and increased groundwater discharge to streams (13 percent).

Although all the simulated MAR facilities were located in the Hollister Management Area, small water budget effects occurred in the San Juan and Bolsa Management Areas. In the San Juan Management Area, the ASR well scenario produced a small (61 AFY) increase in subsurface inflow from the Hollister Management Area, most of which was offset by a decrease in percolation from the San Benito River (associated with reduced pumping at Hollister municipal wells near the San Benito River) and increased groundwater discharge to the river at the west end of the Management Area. In the Bolsa Management Area, the injection well scenario had essentially no effect on the water budget. The ASR well scenario decreased percolation from streams by a small amount (29 AFY) because some of the pumping at two hypothetical future City of Hollister wells near Pacheco Creek (near the Bolsa Management Area boundary) was shifted to the ASR wells. Subsurface inflow from the Hollister Management Area increased by 46 AFY, which was balanced roughly equally by decreased subsurface inflow from the Llagas Subbasin and decreased groundwater discharge to the Pajaro River.

All the above changes in water budgets are relatively small, because on an average annual basis the injected CVP water represents only about 1 percent of total inflows to the Hollister Management Area. The spillover effects on water budgets in the San Juan and Bolsa Management Areas represent even smaller percentages of those budgets.

Figure 25 shows cumulative storage change in the four Management Areas for the reference simulation, injection well scenario and ASR well scenario. For practical purposes, storage changes in the Southern and Bolsa Management Areas were identical for all three scenarios. In the Hollister Management Area, cumulative storage change was essentially the same as in the reference simulation until the first recharge year (hydrologic year 1938), at which point storage began increasing with each successive injection year. The largest difference from the reference simulation was in 1969-1972, when cumulative storage was approximately 12,000 AF greater. This difference is small in the context of the total range of storage variation, which was about 280,000 AF. A very similar pattern occurred in the San Juan Management Area, but at a smaller magnitude. The maximum difference between the MAR scenarios and the reference simulation was about 3,200 AF in 1972.

Table 7. Water Budgets for Injection and ASR Well Scenarios

A. Southern Management Area			
Water Balance Items	Growth & 2070 Climate	Injection Wells	ASR Wells
Groundwater Inflow			
Subsurface inflow from external basins	0	0	0
Percolation from streams	26,933	26,900	26,892
Bedrock inflow	1,362	1,362	1,362
Dispersed recharge from rainfall ¹	5,918	5,914	5,885
Irrigation deep percolation	966	966	966
Reclaimed water percolation	0	0	0
Inflow from Hollister MA	854	851	853
MAR - percolation basins	0	0	0
MAR - injection or ASR wells	0	0	0
MAR - agricultural fields	0	0	0
Total inflow	36,034	35,994	35,958
Groundwater Outflow			
Shallow discharge to streams	0	0	0
Subsurface outflow to external basins	0	0	0
Wells - M&I and domestic	-100	-100	-100
Wells - agricultural	-10,451	-10,451	-10,451
Groundwater discharge to streams	-18,934	-18,916	-18,867
Riparian evapotranspiration	-2,030	-2,030	-2,030
Outflow to Hollister MA	-2,954	-2,934	-2,950
Total outflow	-34,469	-34,431	-34,397
Net Change in Storage	1,565	1,563	1,561
Change from Baseline	n.a.	-2	-4

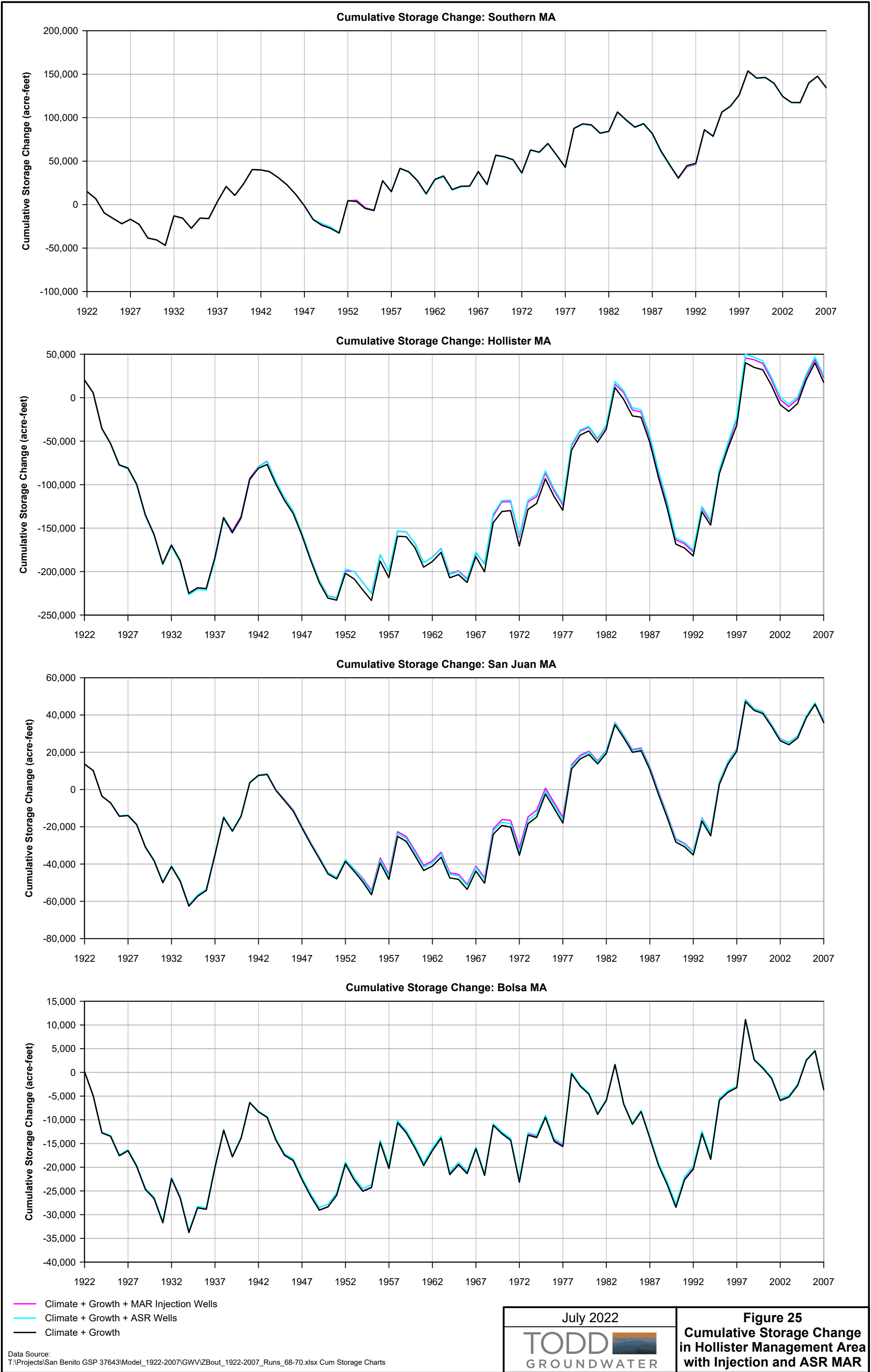
C. San Juan Management Area			
Water Balance Items	Growth & 2070 Climate	Injection Wells	ASR Wells
Groundwater Inflow			
Subsurface inflow from external basins	0	0	0
Percolation from streams	5,265	5,255	5,223
Bedrock inflow	1,179	1,179	1,179
Dispersed recharge from rainfall ¹	9,044	9,041	9,055
Irrigation deep percolation	2,359	2,360	2,360
Reclaimed water percolation	6,583	6,583	6,583
Inflow from Hollister and Bolsa MAs	3,313	3,382	3,374
MAR - percolation basins	136	136	136
MAR - injection or ASR wells	0	0	0
MAR - agricultural fields	0	0	0
Total inflow	27,880	27,937	27,911
Groundwater Outflow			
Shallow discharge to streams	0	0	0
Subsurface outflow to external basins	0	0	0
Wells - M&I and domestic	-2,104	-2,104	-2,104
Wells - agricultural	-20,147	-20,147	-20,147
Groundwater discharge to streams	-1,564	-1,629	-1,600
Riparian evapotranspiration	-1,349	-1,351	-1,350
Outflow to Bolsa MA	-2,299	-2,279	-2,285
Total outflow	-27,463	-27,509	-27,485
Net Change in Storage	418	428	426
Change from Baseline	n.a.	10	9

B. Hollister Management Area			
Water Balance Items	Growth & 2070 Climate	Injection Wells	ASR Wells
Groundwater inflow			
Subsurface inflow from external basins	0	0	0
Percolation from streams	26,410	26,178	26,212
Bedrock inflow	3,541	3,541	3,540
Dispersed recharge from rainfall ¹	21,462	21,451	21,485
Irrigation deep percolation	5,220	5,222	5,222
Reclaimed water percolation	4,585	4,585	4,585
Inflow from Southern MA	7,465	7,413	7,386
MAR - percolation basins	416	416	416
MAR - injection or ASR wells	0	528	528
MAR - agricultural fields	0	0	0
Total inflow	69,099	69,334	69,373
Groundwater Outflow			
Shallow discharge to streams	0	0	0
Subsurface outflow to external basins	0	0	0
Wells - M&I and domestic	-15,225	-15,225	-15,229
Wells - agricultural	-44,427	-44,427	-44,427
Groundwater discharge to streams	-1,250	-1,342	-1,317
Riparian evapotranspiration	-193	-195	-195
Outflow to Bolsa and San Juan MAs	-7,798	-7,872	-7,904
Total outflow	-68,892	-69,060	-69,073
Net Change in Storage	206	274	300
Change from Baseline	n.a.	68	94

D. Bolsa Management Area			
Water Balance Items	Growth & 2070 Climate	Injection Wells	ASR Wells
Groundwater Inflow			
Subsurface inflow from external basins	5,280	5,272	5,262
Percolation from streams	3,945	3,941	3,916
Bedrock inflow	10	10	10
Dispersed recharge from rainfall ¹	11,218	11,219	11,220
Irrigation deep percolation	2,027	2,027	2,027
Reclaimed water percolation	0	0	0
Inflow from Hollister and San Juan MAs	4,201	4,210	4,247
MAR - percolation basins	0	0	0
MAR - injection or ASR wells	0	0	0
MAR - agricultural fields	0	0	0
Total inflow	26,680	26,680	26,682
Groundwater Outflow			
Shallow discharge to streams	-651	-655	-689
Subsurface outflow to external basins	-25	-25	-25
Wells - M&I and domestic	-17	-17	-17
Wells - agricultural	-21,504	-21,504	-21,504
Groundwater discharge to streams	-1,469	-1,475	-1,490
Riparian evapotranspiration	-274	-274	-275
Outflow to San Juan MA	-2,783	-2,772	-2,723
Total outflow	-26,723	-26,721	-26,723
Net Change in Storage	-43	-41	-41
Change from Baseline	n.a.	1	2

Tables show average annual values for water years 1922-2007.

¹ Dispersed recharge volumes adjusted from pre-processor to match model inflows



8. PRELIMINARY INJECTION AND ASR WELLFIELD AREA WATER QUALITY ASSESSMENT

A water quality assessment of existing wells near potential injection/ASR wells was completed to support further assessment of injection and ASR in the simulated locations. This assessment included identification and sampling of existing public and private water supply wells near the potential injection/ASR wells in coordination with SBCWD, Sunnyslope, Hollister, and private well owners.

Samples were collected from wells owned and operated by Hollister, Sunnyslope, and private parties. A SBCWD representative escorted a Todd geologist to the each well for sampling. In general, sampling was scheduled to coincide with periods when the wells were in operation. Wells that were not operating upon arrival were turned on and pumped for at least 30 minutes prior to sample collection. The sampled wells are shown on **Figure 26** and listed with sampling dates in **Table 8** below.

Table 8. Sampled Wells Near Simulated Injection and ASR Locations

Well ID	Sampling Date
Sunnyslope Ridgemark Well 05	July 26, 2021
Sunnyslope Enterprise Well 07	July 26, 2021
Sunnyslope Well 11	July 26, 2021
Sunnyslope Southside Well 02	July 26, 2021
3121	August 18, 2021 (general and extended sampling)
12-5-23A20	August 18, 2021 (general sampling)
3357	August 18, 2021
3123	August 18, 2021 (general and extended sampling)
3127	August 18, 2021
Hollister Bundeson Road Well 02	August 18, 2021
13-5-10L1	August 19, 2021
12-5-23A20	August 26, 2021 (extended sampling)

Selected physical and chemical parameters were measured in the field with calibrated handheld meters. These included conductivity, dissolved oxygen, free chlorine, oxidation-reduction potential (ORP), pH, salinity, specific conductance, temperature, and total dissolved solids (TDS). Field measured parameters are presented in **Table 9**. Samples were collected into laboratory-provided bottles from pump discharge systems after flushing. All the samples were analyzed for a comprehensive list of water quality parameters relevant to injection. Three of the wells were selected for additional analyses that may be important for treating recovered water during ASR. Laboratory results are presented in **Table 10** and original laboratory reports are included in **Appendix A**.

The water quality data were used to assess the quality of recovery water from injection/ASR and the treatment needed, as described in Groundwater Recharge Alternatives Facility Plan (**Appendix B**, HDR 2022). The Facility Plan notes the generally high TDS and hardness in groundwater and the considerable geographic variability even within short distances.

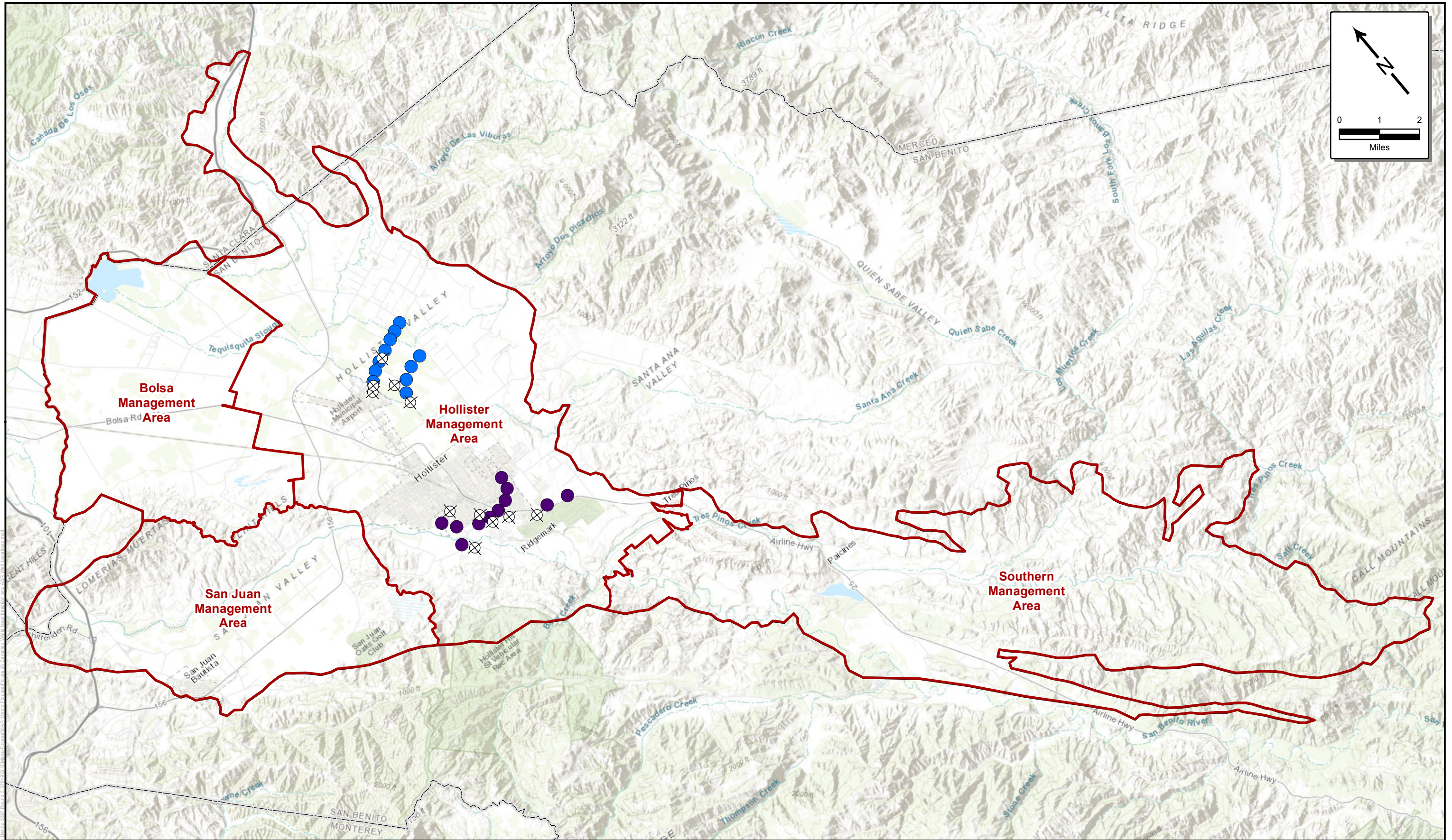


Table 9. Water Quality Field Parameter Measurements, Wells Near Simulated Injection and ASR MAR Locations

Well ID	Sample Date and Time	Free Chlorine (mg/L)	pH	Dissolved Oxygen (%)	Dissolved Oxygen (mg/L)	Temperature (°C)	Total Dissolved Solids (g/L)	Salinity (sal)	Specific Conductance (mS/cm)	Conductivity (µS/cm)	Oxidation-Reduction Potential (ORP)
Sunnyslope Ridgemark Well 5	07/26/2021 09:20:00	0.04	7.24	65.6	6.03	19.32	0.785	0.6	1.209	1078	134.2
Sunnyslope Enterprise Well 7	07/26/2021 10:00:00	0.05	20.87	1.217	1120	0.79	0.61	81.1	7.18	7.37	107.1
Sunnyslope Well 11	07/26/2021 10:15:00	0	21.74	1.287	1208	0.837	0.64	53.3	4.66	7.42	120
Sunnyslope Southside Well 2	07/26/2021 10:30:00	0	19.88	1.271	1147	0.826	0.64	67.9	6.14	7.45	102.9
3121	08/18/2021 08:38:00	0.04	19.07	1.348	1195	0.876	0.68	23.8	2.19	7.42	115.7
12-5-23A20	08/18/2021 09:55:00	0.02	20.86	1.368	1263	0.888	0.69	32.7	2.9	7.68	110
3357	08/18/2021 10:30:00	0	23.11	1.2	1159	0.779	0.6	47.2	3.99	7.78	101.7
3123	08/18/2021 11:50:00	0.1	26.02	1.752	1786	1.139	0.88	15.1	1.22	7.8	95.9
3127	08/18/2021 12:25:00	0	24.15	1.321	3102	0.857	0.66	13.5	1.12	7.52	-45.4
Hollister Bundeson Road Well 2	08/18/2021 13:15:00	0	19.58	1.396	1252	0.907	0.7	39.5	3.61	7.38	107.2
13-5-10L1	08/19/2021 08:30:00	0.02	19.01	1.567	1387	1.019	0.79	63	5.83	7.69	98
12-5-23A20	08/26/2021 09:30:00	0.02	20.64	1.421	1303	0.923	0.71	47.6	4.25	7.55	75.3

Table 10. Laboratory Water Quality Results, Wells Near Simulated Injection and ASR MAR Locations

Well ID	Sample Date	Analyte	Result	Units	Reporting Limit
Sunnyslope Ridgemark Well 5	07/26/2021 09:20:00	Calcium, dissolved	71	mg/L	1
		Iron, dissolved	ND	mg/L	0.1
		Potassium, dissolved	2.9	mg/L	1
		Magnesium, dissolved	57	mg/L	1
		Sodium, dissolved	120	mg/L	1
		Silver, dissolved	ND	ug/L	0.1
		Aluminum, dissolved	ND	ug/L	10
		Arsenic, dissolved	2.9	ug/L	0.5
		Boron, dissolved	940	ug/L	50
		Barium, dissolved	35	ug/L	0.5
		Beryllium, dissolved	ND	ug/L	0.1
		Cadmium, dissolved	ND	ug/L	0.1
		Chromium, dissolved	10	ug/L	0.5
		Copper, dissolved	2.4	ug/L	0.5
		Manganese, dissolved	ND	ug/L	5
		Molybdenum, dissolved	1.7	ug/L	0.25
		Nickel, dissolved	2.4	ug/L	0.5
		Lead, dissolved	ND	ug/L	0.25
		Antimony, dissolved	ND	ug/L	0.5
		Selenium, dissolved	ND	ug/L	2
		Thallium, dissolved	ND	ug/L	0.1
		Vanadium, dissolved	5.1	ug/L	1
		Zinc, dissolved	6.8	ug/L	5
		Mercury, dissolved	ND	ug/L	0.2
		Chloride	130	mg/L	5
		Fluoride	0.26	mg/L	0.1
		Nitrate as N	2.4	mg/L	0.2
		Sulfate as SO4	200	mg/L	5
		Perchlorate	ND	ug/L	2
		Bromodichloromethane	ND	ug/L	1
		Bromoform	ND	ug/L	1
		Chloroform	ND	ug/L	1
		Dibromochloromethane	ND	ug/L	1
		Trihalomethanes (total)	ND	ug/L	1
		Bromofluorobenzene	27.8	ug/L	
		Dibromofluoromethane	23	ug/L	
		Toluene-d8	26.6	ug/L	
		Monobromoacetic Acid	ND	ug/L	1
		Monochloroacetic Acid	ND	ug/L	2
		Dibromoacetic Acid	ND	ug/L	1
		Dichloroacetic Acid	ND	ug/L	1
		Trichloroacetic Acid	ND	ug/L	1
		Total Haloacetic Acids (HAA5)	ND	ug/L	1
		2,3-Dibromopropionic Acid	8.27	ug/L	
		2-Bromopropionic Acid	8.83	ug/L	
		Color	ND	CU	5
		Turbidity	0.15	NTU	0.1
		Bicarbonate Alkalinity as CaCO3	300	mg/L	5
		Carbonate Alkalinity as CaCO3	ND	mg/L	5
		Hydroxide Alkalinity as CaCO3	ND	mg/L	5
		Total Alkalinity as CaCO3	300	mg/L	5
		Hardness, Total	413	mg/L	5
		Total Dissolved Solids	800	mg/L	10
		Sulfide	ND	mg/L	0.1
		MBAS, calculated as LAS, mw 340	ND	mg/L	0.05
		E. Coli	ND	MPN/100mL	1
		Total Coliforms	ND	MPN/100mL	1
		Calcium, dissolved	71	mg/L	1
		Iron, dissolved	ND	mg/L	0.1
		Potassium, dissolved	2.9	mg/L	1
		Magnesium, dissolved	57	mg/L	1
		Sodium, dissolved	120	mg/L	1
		Silver, dissolved	ND	ug/L	0.1
		Aluminum, dissolved	ND	ug/L	10
		Arsenic, dissolved	2.9	ug/L	0.5
		Boron, dissolved	940	ug/L	50
		Barium, dissolved	35	ug/L	0.5
		Beryllium, dissolved	ND	ug/L	0.1
		Cadmium, dissolved	ND	ug/L	0.1
		Chromium, dissolved	10	ug/L	0.5
		Copper, dissolved	2.4	ug/L	0.5
		Manganese, dissolved	ND	ug/L	5
		Molybdenum, dissolved	1.7	ug/L	0.25
		Nickel, dissolved	2.4	ug/L	0.5
		Lead, dissolved	ND	ug/L	0.25
		Antimony, dissolved	ND	ug/L	0.5
		Selenium, dissolved	ND	ug/L	2
		Thallium, dissolved	ND	ug/L	0.1
		Vanadium, dissolved	5.1	ug/L	1
		Zinc, dissolved	6.8	ug/L	5
		Mercury, dissolved	ND	ug/L	0.2
		Chloride	130	mg/L	5
		Fluoride	0.26	mg/L	0.1
		Nitrate as N	2.4	mg/L	0.2
		Sulfate as SO4	200	mg/L	5
		Perchlorate	ND	ug/L	2
		Bromodichloromethane	ND	ug/L	1
		Bromoform	ND	ug/L	1
		Chloroform	ND	ug/L	1
		Dibromochloromethane	ND	ug/L	1
		Trihalomethanes (total)	ND	ug/L	1
		Bromofluorobenzene	27.8	ug/L	
		Dibromofluoromethane	23	ug/L	
		Toluene-d8	26.6	ug/L	
		Monobromoacetic Acid	ND	ug/L	1
		Monochloroacetic Acid	ND	ug/L	2
		Dibromoacetic Acid	ND	ug/L	1
		Dichloroacetic Acid	ND	ug/L	1
		Trichloroacetic Acid	ND	ug/L	1
		Total Haloacetic Acids (HAA5)	ND	ug/L	1

Table 10. Laboratory Water Quality Results, Wells Near Simulated Injection and ASR MAR Locations

Well ID	Sample Date	Analyte	Result	Units	Reporting Limit
		2,3-Dibromopropionic Acid	8.27	ug/L	
		2-Bromopropionic Acid	8.83	ug/L	
		Color	ND	CU	5
		Turbidity	0.15	NTU	0.1
		Bicarbonate Alkalinity as CaCO3	300	mg/L	5
		Carbonate Alkalinity as CaCO3	ND	mg/L	5
		Hydroxide Alkalinity as CaCO3	ND	mg/L	5
		Total Alkalinity as CaCO3	300	mg/L	5
		Total Dissolved Solids	800	mg/L	10
		Sulfide	ND	mg/L	0.1
		MBAS, calculated as LAS, mw 340	ND	mg/L	0.05
		E. Coli	ND	MPN/100mL	1
		Total Coliforms	ND	MPN/100mL	1
Sunnyslope Enterprise Well 7	07/26/2021 10:00:00	Calcium, dissolved	73	mg/L	1
		Iron, dissolved	ND	mg/L	0.1
		Potassium, dissolved	3.2	mg/L	1
		Magnesium, dissolved	63	mg/L	1
		Sodium, dissolved	120	mg/L	1
		Silver, dissolved	ND	ug/L	0.1
		Aluminum, dissolved	ND	ug/L	10
		Arsenic, dissolved	3.4	ug/L	0.5
		Boron, dissolved	900	ug/L	50
		Barium, dissolved	30	ug/L	0.5
		Beryllium, dissolved	ND	ug/L	0.1
		Cadmium, dissolved	ND	ug/L	0.1
		Chromium, dissolved	14	ug/L	0.5
		Copper, dissolved	4.9	ug/L	0.5
		Manganese, dissolved	ND	ug/L	5
		Molybdenum, dissolved	1.5	ug/L	0.25
		Nickel, dissolved	7.8	ug/L	0.5
		Lead, dissolved	ND	ug/L	0.25
		Antimony, dissolved	ND	ug/L	0.5
		Selenium, dissolved	4.1	ug/L	2
		Thallium, dissolved	ND	ug/L	0.1
		Vanadium, dissolved	5	ug/L	1
		Zinc, dissolved	ND	ug/L	5
		Mercury, dissolved	ND	ug/L	0.2
		Chloride	110	mg/L	5
		Fluoride	0.2	mg/L	0.1
		Nitrate as N	4.3	mg/L	0.2
		Sulfate as SO4	230	mg/L	5
		Perchlorate	ND	ug/L	2
		Bromodichloromethane	ND	ug/L	1
		Bromoform	ND	ug/L	1
		Chloroform	ND	ug/L	1
		Dibromochloromethane	ND	ug/L	1
		Trihalomethanes (total)	ND	ug/L	1
		Bromofluorobenzene	27.7	ug/L	
		Dibromofluoromethane	22.3	ug/L	
		Toluene-d8	26.8	ug/L	
		Monobromoacetic Acid	ND	ug/L	1
		Monochloroacetic Acid	ND	ug/L	2
		Dibromoacetic Acid	ND	ug/L	1
		Dichloroacetic Acid	ND	ug/L	1
		Trichloroacetic Acid	ND	ug/L	1
		Total Haloacetic Acids (HAA5)	ND	ug/L	1
		2,3-Dibromopropionic Acid	10.4	ug/L	
		2-Bromopropionic Acid	11.7	ug/L	
		Color	ND	CU	5
		Turbidity	ND	NTU	0.1
		Bicarbonate Alkalinity as CaCO3	280	mg/L	5
		Carbonate Alkalinity as CaCO3	ND	mg/L	5
		Hydroxide Alkalinity as CaCO3	ND	mg/L	5
		Total Alkalinity as CaCO3	280	mg/L	5
		Hardness, Total	440	mg/L	5
		Total Dissolved Solids	760	mg/L	10
		Sulfide	ND	mg/L	0.1
		MBAS, calculated as LAS, mw 340	ND	mg/L	0.05
		E. Coli	ND	MPN/100mL	1
		Total Coliforms	ND	MPN/100mL	1
		Calcium, dissolved	73	mg/L	1
		Iron, dissolved	ND	mg/L	0.1
		Potassium, dissolved	3.2	mg/L	1
		Magnesium, dissolved	63	mg/L	1
		Sodium, dissolved	120	mg/L	1
		Silver, dissolved	ND	ug/L	0.1
		Aluminum, dissolved	ND	ug/L	10
		Arsenic, dissolved	3.4	ug/L	0.5
		Boron, dissolved	900	ug/L	50
		Barium, dissolved	30	ug/L	0.5
		Beryllium, dissolved	ND	ug/L	0.1
		Cadmium, dissolved	ND	ug/L	0.1
		Chromium, dissolved	14	ug/L	0.5
		Copper, dissolved	4.9	ug/L	0.5
		Manganese, dissolved	ND	ug/L	5
		Molybdenum, dissolved	1.5	ug/L	0.25
		Nickel, dissolved	7.8	ug/L	0.5
		Lead, dissolved	ND	ug/L	0.25
		Antimony, dissolved	ND	ug/L	0.5
		Selenium, dissolved	4.1	ug/L	2
		Thallium, dissolved	ND	ug/L	0.1
		Vanadium, dissolved	5	ug/L	1
		Zinc, dissolved	ND	ug/L	5
		Mercury, dissolved	ND	ug/L	0.2
		Chloride	110	mg/L	5
		Fluoride	0.2	mg/L	0.1
		Nitrate as N	4.3	mg/L	0.2
		Sulfate as SO4	230	mg/L	5
		Perchlorate	ND	ug/L	2
		Bromodichloromethane	ND	ug/L	1

Table 10. Laboratory Water Quality Results, Wells Near Simulated Injection and ASR MAR Locations

Well ID	Sample Date	Analyte	Result	Units	Reporting Limit
		Bromoform	ND	ug/L	1
		Chloroform	ND	ug/L	1
		Dibromochloromethane	ND	ug/L	1
		Trihalomethanes (total)	ND	ug/L	1
		Bromofluorobenzene	27.7	ug/L	
		Dibromofluoromethane	22.3	ug/L	
		Toluene-d8	26.8	ug/L	
		Monobromoacetic Acid	ND	ug/L	1
		Monochloroacetic Acid	ND	ug/L	2
		Dibromoacetic Acid	ND	ug/L	1
		Dichloroacetic Acid	ND	ug/L	1
		Trichloroacetic Acid	ND	ug/L	1
		Total Haloacetic Acids (HAA5)	ND	ug/L	1
		2,3-Dibromopropionic Acid	10.4	ug/L	
		2-Bromopropionic Acid	11.7	ug/L	
		Color	ND	CU	5
		Turbidity	ND	NTU	0.1
		Bicarbonate Alkalinity as CaCO3	280	mg/L	5
		Carbonate Alkalinity as CaCO3	ND	mg/L	5
		Hydroxide Alkalinity as CaCO3	ND	mg/L	5
		Total Alkalinity as CaCO3	280	mg/L	5
		Total Dissolved Solids	760	mg/L	10
		Sulfide	ND	mg/L	0.1
		MBAS, calculated as LAS, mw 340	ND	mg/L	0.05
		E. Coli	ND	MPN/100mL	1
		Total Coliforms	ND	MPN/100mL	1
Sunnyslope Well 11	07/26/2021 10:15:00	Calcium, dissolved	62	mg/L	1
		Iron, dissolved	ND	mg/L	0.1
		Potassium, dissolved	3.4	mg/L	1
		Magnesium, dissolved	60	mg/L	1
		Sodium, dissolved	140	mg/L	1
		Silver, dissolved	ND	ug/L	0.1
		Aluminum, dissolved	ND	ug/L	10
		Arsenic, dissolved	3.1	ug/L	0.5
		Boron, dissolved	780	ug/L	50
		Barium, dissolved	27	ug/L	0.5
		Beryllium, dissolved	ND	ug/L	0.1
		Cadmium, dissolved	ND	ug/L	0.1
		Chromium, dissolved	4	ug/L	0.5
		Copper, dissolved	5.5	ug/L	0.5
		Manganese, dissolved	ND	ug/L	5
		Molybdenum, dissolved	3.1	ug/L	0.25
		Nickel, dissolved	2.2	ug/L	0.5
		Lead, dissolved	ND	ug/L	0.25
		Antimony, dissolved	ND	ug/L	0.5
		Selenium, dissolved	2.1	ug/L	2
		Thallium, dissolved	ND	ug/L	0.1
		Vanadium, dissolved	4.7	ug/L	1
		Zinc, dissolved	ND	ug/L	5
		Mercury, dissolved	ND	ug/L	0.2
		Chloride	160	mg/L	5
		Fluoride	0.19	mg/L	0.1
		Nitrate as N	1.5	mg/L	0.2
		Sulfate as SO4	210	mg/L	5
		Perchlorate	ND	ug/L	2
		Bromodichloromethane	ND	ug/L	1
		Bromoform	ND	ug/L	1
		Chloroform	ND	ug/L	1
		Dibromochloromethane	ND	ug/L	1
		Trihalomethanes (total)	ND	ug/L	1
		Bromofluorobenzene	28.3	ug/L	
		Dibromofluoromethane	23.1	ug/L	
		Toluene-d8	27.2	ug/L	
		Monobromoacetic Acid	ND	ug/L	1
		Monochloroacetic Acid	ND	ug/L	2
		Dibromoacetic Acid	ND	ug/L	1
		Dichloroacetic Acid	ND	ug/L	1
		Trichloroacetic Acid	ND	ug/L	1
		Total Haloacetic Acids (HAA5)	ND	ug/L	1
		2,3-Dibromopropionic Acid	10.6	ug/L	
		2-Bromopropionic Acid	11.3	ug/L	
		Color	ND	CU	5
		Turbidity	0.15	NTU	0.1
		Bicarbonate Alkalinity as CaCO3	260	mg/L	5
		Carbonate Alkalinity as CaCO3	ND	mg/L	5
		Hydroxide Alkalinity as CaCO3	ND	mg/L	5
		Total Alkalinity as CaCO3	260	mg/L	5
		Hardness, Total	401	mg/L	5
		Total Dissolved Solids	820	mg/L	10
		Sulfide	ND	mg/L	0.1
		MBAS, calculated as LAS, mw 340	ND	mg/L	0.05
		E. Coli	ND	MPN/100mL	1
		Total Coliforms	ND	MPN/100mL	1
		Calcium, dissolved	62	mg/L	1
		Iron, dissolved	ND	mg/L	0.1
		Potassium, dissolved	3.4	mg/L	1
		Magnesium, dissolved	60	mg/L	1
		Sodium, dissolved	140	mg/L	1
		Silver, dissolved	ND	ug/L	0.1
		Aluminum, dissolved	ND	ug/L	10
		Arsenic, dissolved	3.1	ug/L	0.5
		Boron, dissolved	780	ug/L	50
		Barium, dissolved	27	ug/L	0.5
		Beryllium, dissolved	ND	ug/L	0.1
		Cadmium, dissolved	ND	ug/L	0.1
		Chromium, dissolved	4	ug/L	0.5
		Copper, dissolved	5.5	ug/L	0.5
		Manganese, dissolved	ND	ug/L	5
		Molybdenum, dissolved	3.1	ug/L	0.25
		Nickel, dissolved	2.2	ug/L	0.5

Table 10. Laboratory Water Quality Results, Wells Near Simulated Injection and ASR MAR Locations

Well ID	Sample Date	Analyte	Result	Units	Reporting Limit
		Lead, dissolved	ND	ug/L	0.25
		Antimony, dissolved	ND	ug/L	0.5
		Selenium, dissolved	2.1	ug/L	2
		Thallium, dissolved	ND	ug/L	0.1
		Vanadium, dissolved	4.7	ug/L	1
		Zinc, dissolved	ND	ug/L	5
		Mercury, dissolved	ND	ug/L	0.2
		Chloride	160	mg/L	5
		Fluoride	0.19	mg/L	0.1
		Nitrate as N	1.5	mg/L	0.2
		Sulfate as SO4	210	mg/L	5
		Perchlorate	ND	ug/L	2
		Bromodichloromethane	ND	ug/L	1
		Bromoform	ND	ug/L	1
		Chloroform	ND	ug/L	1
		Dibromochloromethane	ND	ug/L	1
		Trihalomethanes (total)	ND	ug/L	1
		Bromofluorobenzene	28.3	ug/L	
		Dibromofluoromethane	23.1	ug/L	
		Toluene-d8	27.2	ug/L	
		Monobromoacetic Acid	ND	ug/L	1
		Monochloroacetic Acid	ND	ug/L	2
		Dibromoacetic Acid	ND	ug/L	1
		Dichloroacetic Acid	ND	ug/L	1
		Trichloroacetic Acid	ND	ug/L	1
		Total Haloacetic Acids (HAA5)	ND	ug/L	1
		2,3-Dibromopropionic Acid	10.6	ug/L	
		2-Bromopropionic Acid	11.3	ug/L	
		Color	ND	CU	5
		Turbidity	0.15	NTU	0.1
		Bicarbonate Alkalinity as CaCO3	260	mg/L	5
		Carbonate Alkalinity as CaCO3	ND	mg/L	5
		Hydroxide Alkalinity as CaCO3	ND	mg/L	5
		Total Alkalinity as CaCO3	260	mg/L	5
		Total Dissolved Solids	820	mg/L	10
		Sulfide	ND	mg/L	0.1
		MBAS, calculated as LAS, mw 340	ND	mg/L	0.05
		E. Coli	ND	MPN/100mL	1
		Total Coliforms	ND	MPN/100mL	1
Sunnyslope Southside Well 2	07/26/2021 10:30:00	Calcium, dissolved	57	mg/L	1
		Iron, dissolved	ND	mg/L	0.1
		Potassium, dissolved	3	mg/L	1
		Magnesium, dissolved	72	mg/L	1
		Sodium, dissolved	130	mg/L	1
		Silver, dissolved	ND	ug/L	0.1
		Aluminum, dissolved	ND	ug/L	10
		Arsenic, dissolved	2.5	ug/L	0.5
		Boron, dissolved	900	ug/L	50
		Barium, dissolved	23	ug/L	0.5
		Beryllium, dissolved	ND	ug/L	0.1
		Cadmium, dissolved	ND	ug/L	0.1
		Chromium, dissolved	9.9	ug/L	0.5
		Copper, dissolved	6.8	ug/L	0.5
		Manganese, dissolved	ND	ug/L	5
		Molybdenum, dissolved	2.4	ug/L	0.25
		Nickel, dissolved	4.1	ug/L	0.5
		Lead, dissolved	ND	ug/L	0.25
		Antimony, dissolved	ND	ug/L	0.5
		Selenium, dissolved	ND	ug/L	2
		Thallium, dissolved	ND	ug/L	0.1
		Vanadium, dissolved	3.7	ug/L	1
		Zinc, dissolved	13	ug/L	5
		Mercury, dissolved	ND	ug/L	0.2
		Chloride	110	mg/L	5
		Fluoride	0.32	mg/L	0.1
		Nitrate as N	2.6	mg/L	0.2
		Sulfate as SO4	260	mg/L	5
		Perchlorate	ND	ug/L	2
		Bromodichloromethane	ND	ug/L	1
		Bromoform	ND	ug/L	1
		Chloroform	ND	ug/L	1
		Dibromochloromethane	ND	ug/L	1
		Trihalomethanes (total)	ND	ug/L	1
		Bromofluorobenzene	28.3	ug/L	
		Dibromofluoromethane	22.8	ug/L	
		Toluene-d8	27	ug/L	
		Monobromoacetic Acid	ND	ug/L	1
		Monochloroacetic Acid	ND	ug/L	2
		Dibromoacetic Acid	ND	ug/L	1
		Dichloroacetic Acid	ND	ug/L	1
		Trichloroacetic Acid	ND	ug/L	1
		Total Haloacetic Acids (HAA5)	ND	ug/L	1
		2,3-Dibromopropionic Acid	9.18	ug/L	
		2-Bromopropionic Acid	9.57	ug/L	
		Color	ND	CU	5
		Turbidity	0.1	NTU	0.1
		Bicarbonate Alkalinity as CaCO3	300	mg/L	5
		Carbonate Alkalinity as CaCO3	ND	mg/L	5
		Hydroxide Alkalinity as CaCO3	ND	mg/L	5
		Total Alkalinity as CaCO3	300	mg/L	5
		Hardness, Total	439	mg/L	5
		Total Dissolved Solids	830	mg/L	10
		Sulfide	ND	mg/L	0.1
		MBAS, calculated as LAS, mw 340	ND	mg/L	0.05
		E. Coli	ND	MPN/100mL	1
		Total Coliforms	ND	MPN/100mL	1
		Calcium, dissolved	57	mg/L	1
		Iron, dissolved	ND	mg/L	0.1
		Potassium, dissolved	3	mg/L	1
		Magnesium, dissolved	72	mg/L	1

Table 10. Laboratory Water Quality Results, Wells Near Simulated Injection and ASR MAR Locations

Well ID	Sample Date	Analyte	Result	Units	Reporting Limit
		Sodium, dissolved	130	mg/L	1
		Silver, dissolved	ND	ug/L	0.1
		Aluminum, dissolved	ND	ug/L	10
		Arsenic, dissolved	2.5	ug/L	0.5
		Boron, dissolved	900	ug/L	50
		Barium, dissolved	23	ug/L	0.5
		Beryllium, dissolved	ND	ug/L	0.1
		Cadmium, dissolved	ND	ug/L	0.1
		Chromium, dissolved	9.9	ug/L	0.5
		Copper, dissolved	6.8	ug/L	0.5
		Manganese, dissolved	ND	ug/L	5
		Molybdenum, dissolved	2.4	ug/L	0.25
		Nickel, dissolved	4.1	ug/L	0.5
		Lead, dissolved	ND	ug/L	0.25
		Antimony, dissolved	ND	ug/L	0.5
		Selenium, dissolved	ND	ug/L	2
		Thallium, dissolved	ND	ug/L	0.1
		Vanadium, dissolved	3.7	ug/L	1
		Zinc, dissolved	13	ug/L	5
		Mercury, dissolved	ND	ug/L	0.2
		Chloride	110	mg/L	5
		Fluoride	0.32	mg/L	0.1
		Nitrate as N	2.6	mg/L	0.2
		Sulfate as SO4	260	mg/L	5
		Perchlorate	ND	ug/L	2
		Bromodichloromethane	ND	ug/L	1
		Bromoform	ND	ug/L	1
		Chloroform	ND	ug/L	1
		Dibromochloromethane	ND	ug/L	1
		Trihalomethanes (total)	ND	ug/L	1
		Bromofluorobenzene	28.3	ug/L	
		Dibromofluoromethane	22.8	ug/L	
		Toluene-d8	27	ug/L	
		Monobromoacetic Acid	ND	ug/L	1
		Monochloroacetic Acid	ND	ug/L	2
		Dibromoacetic Acid	ND	ug/L	1
		Dichloroacetic Acid	ND	ug/L	1
		Trichloroacetic Acid	ND	ug/L	1
		Total Haloacetic Acids (HAA5)	ND	ug/L	1
		2,3-Dibromopropionic Acid	9.18	ug/L	
		2-Bromopropionic Acid	9.57	ug/L	
		Color	ND	CU	5
		Turbidity	0.1	NTU	0.1
		Bicarbonate Alkalinity as CaCO3	300	mg/L	5
		Carbonate Alkalinity as CaCO3	ND	mg/L	5
		Hydroxide Alkalinity as CaCO3	ND	mg/L	5
		Total Alkalinity as CaCO3	300	mg/L	5
		Total Dissolved Solids	830	mg/L	10
		Sulfide	ND	mg/L	0.1
		MBAS, calculated as LAS, mw 340	ND	mg/L	0.05
		E. Coli	ND	MPN/100mL	1
		Total Coliforms	ND	MPN/100mL	1
3121	08/18/2021 08:38:00	Calcium	52	mg/L	1
		Magnesium	59	mg/L	1
		Silica (SiO2)	18	mg/L	1
		Cobalt	ND	ug/L	0.4
		Uranium	2.9	pCi/l	1
		Chromium, hexavalent	11	ug/L	1
		Acetone	ND	ug/L	5
		Acrylonitrile	ND	ug/L	5
		Benzene	ND	ug/L	0.5
		Bromobenzene	ND	ug/L	0.5
		Bromochloromethane	ND	ug/L	0.5
		Bromodichloromethane	ND	ug/L	1
		Bromoform	ND	ug/L	1
		Bromomethane	ND	ug/L	0.5
		n-Butylbenzene	ND	ug/L	0.5
		sec-Butylbenzene	ND	ug/L	0.5
		tert-Butylbenzene	ND	ug/L	0.5
		Carbon disulfide	ND	ug/L	0.5
		Carbon tetrachloride	ND	ug/L	0.5
		Chlorobenzene	ND	ug/L	0.5
		Chloroethane	ND	ug/L	0.5
		Chloroform	ND	ug/L	1
		Chloromethane	ND	ug/L	0.5
		2-Chlorotoluene	ND	ug/L	0.5
		4-Chlorotoluene	ND	ug/L	0.5
		Dibromochloromethane	ND	ug/L	1
		Dibromomethane	ND	ug/L	0.5
		1,2-Dichlorobenzene	ND	ug/L	0.5
		1,3-Dichlorobenzene	ND	ug/L	0.5
		1,4-Dichlorobenzene	ND	ug/L	0.5
		Dichlorodifluoromethane	ND	ug/L	0.5
		1,1-Dichloroethane	ND	ug/L	0.5
		1,2-Dichloroethane	ND	ug/L	0.5
		1,1-Dichloroethene	ND	ug/L	0.5
		cis-1,2-Dichloroethene	ND	ug/L	0.5
		trans-1,2-Dichloroethene	ND	ug/L	0.5
		1,3-Dichloropropene (total)	ND	ug/L	0.5
		1,2-Dichloropropane	ND	ug/L	0.5
		1,3-Dichloropropane	ND	ug/L	0.5
		2,2-Dichloropropane	ND	ug/L	0.5
		1,1-Dichloropropene	ND	ug/L	0.5
		cis-1,3-Dichloropropene	ND	ug/L	0.5
		trans-1,3-Dichloropropene	ND	ug/L	0.5
		Ethylbenzene	ND	ug/L	0.5
		Hexachlorobutadiene	ND	ug/L	0.5
		Isopropylbenzene	ND	ug/L	0.5
		p-Isopropyltoluene	ND	ug/L	0.5
		Methyl ethyl ketone	ND	ug/L	5

Table 10. Laboratory Water Quality Results, Wells Near Simulated Injection and ASR MAR Locations

Well ID	Sample Date	Analyte	Result	Units	Reporting Limit
		Methyl isobutyl ketone	ND	ug/L	5
		Methyl tert-butyl ether	ND	ug/L	3
		Methylene chloride	ND	ug/L	0.5
		Naphthalene	ND	ug/L	0.5
		n-Propylbenzene	ND	ug/L	0.5
		Styrene	ND	ug/L	0.5
		1,1,1,2-Tetrachloroethane	ND	ug/L	0.5
		1,1,2,2-Tetrachloroethane	ND	ug/L	0.5
		Tetrachloroethene	ND	ug/L	0.5
		Toluene	ND	ug/L	0.5
		1,2,3-Trichlorobenzene	ND	ug/L	0.5
		1,2,4-Trichlorobenzene	ND	ug/L	0.5
		1,1,1-Trichloroethane	ND	ug/L	0.5
		1,1,2-Trichloroethane	ND	ug/L	0.5
		Trichloroethene	ND	ug/L	0.5
		Trichlorofluoromethane	ND	ug/L	5
		Trichlorotrifluoroethane	ND	ug/L	10
		1,2,4-Trimethylbenzene	ND	ug/L	0.5
		1,3,5-Trimethylbenzene	ND	ug/L	0.5
		Vinyl chloride	ND	ug/L	0.5
		m,p-Xylene	ND	ug/L	0.5
		o-Xylene	ND	ug/L	0.5
		Xylenes (total)	ND	ug/L	0.5
		Trihalomethanes (total)	ND	ug/L	0.5
		Bromofluorobenzene	27.5	ug/L	
		Dibromofluoromethane	23.3	ug/L	
		Toluene-d8	26.3	ug/L	
		Hardness, Total	374	mg/L	5
		Ammonia as NH3	ND	mg/L	0.5
		Phosphorus, total	0.079	mg/L	0.04
		Total Organic Carbon	ND	mg/L	1
		Calcium, dissolved	54	mg/L	1
		Iron, dissolved	ND	mg/L	0.1
		Potassium, dissolved	3.2	mg/L	1
		Magnesium, dissolved	61	mg/L	1
		Sodium, dissolved	180	mg/L	1
		Silver, dissolved	ND	ug/L	1
		Aluminum, dissolved	ND	ug/L	100
		Arsenic, dissolved	4.9	ug/L	0.5
		Boron, dissolved	1900	ug/L	500
		Barium, dissolved	41	ug/L	0.5
		Beryllium, dissolved	ND	ug/L	0.1
		Cadmium, dissolved	ND	ug/L	0.1
		Chromium, dissolved	12	ug/L	0.5
		Copper, dissolved	24	ug/L	0.5
		Manganese, dissolved	ND	ug/L	5
		Molybdenum, dissolved	5.4	ug/L	0.25
		Nickel, dissolved	1.2	ug/L	0.5
		Lead, dissolved	0.3	ug/L	0.25
		Antimony, dissolved	ND	ug/L	0.5
		Selenium, dissolved	5.4	ug/L	2
		Thallium, dissolved	ND	ug/L	0.1
		Vanadium, dissolved	6.5	ug/L	1
		Zinc, dissolved	13	ug/L	5
		Mercury, dissolved	ND	ug/L	0.2
		Chloride	130	mg/L	5
		Fluoride	0.32	mg/L	0.1
		Nitrate as N	3.7	mg/L	0.2
		Sulfate as SO4	220	mg/L	5
		Perchlorate	ND	ug/L	2
		Bromodichloromethane	ND	ug/L	1
		Bromoform	ND	ug/L	1
		Chloroform	ND	ug/L	1
		Dibromochloromethane	ND	ug/L	1
		Trihalomethanes (total)	ND	ug/L	1
		Bromofluorobenzene	24.8	ug/L	
		Dibromofluoromethane	23.6	ug/L	
		Toluene-d8	24.1	ug/L	
		Monobromoacetic Acid	ND	ug/L	1
		Monochloroacetic Acid	ND	ug/L	2
		Dibromoacetic Acid	ND	ug/L	1
		Dichloroacetic Acid	ND	ug/L	1
		Trichloroacetic Acid	ND	ug/L	1
		Total Haloacetic Acids (HAA5)	ND	ug/L	1
		2,3-Dibromopropionic Acid	10.4	ug/L	
		2-Bromopropionic Acid	12.3	ug/L	
		Color	ND	CU	5
		Turbidity	0.1	NTU	0.1
		Bicarbonate Alkalinity as CaCO3	310	mg/L	5
		Carbonate Alkalinity as CaCO3	ND	mg/L	5
		Hydroxide Alkalinity as CaCO3	ND	mg/L	5
		Total Alkalinity as CaCO3	310	mg/L	5
		Hardness, Total	384	mg/L	5
		Total Dissolved Solids	940	mg/L	10
		Sulfide	ND	mg/L	0.1
		MBAS, calculated as LAS, mw 340	ND	mg/L	0.05
		E. Coli	ND	MPN/100mL	1
		Total Coliforms	ND	MPN/100mL	1
		Calcium	47	mg/L	0.05
		Magnesium	53	mg/L	0.05
		Hardness, Total	336	mg/L	1
12-5-23A20	08/18/2021 09:55:00	Calcium, dissolved	38	mg/L	1
		Iron, dissolved	ND	mg/L	0.1
		Potassium, dissolved	2.4	mg/L	1
		Magnesium, dissolved	51	mg/L	1
		Sodium, dissolved	210	mg/L	1
		Silver, dissolved	ND	ug/L	0.1
		Aluminum, dissolved	ND	ug/L	10
		Arsenic, dissolved	7.2	ug/L	0.5
		Boron, dissolved	4100	ug/L	500

Table 10. Laboratory Water Quality Results, Wells Near Simulated Injection and ASR MAR Locations

Well ID	Sample Date	Analyte	Result	Units	Reporting Limit
		Barium, dissolved	62	ug/L	0.5
		Beryllium, dissolved	ND	ug/L	0.1
		Cadmium, dissolved	ND	ug/L	0.1
		Chromium, dissolved	6.8	ug/L	0.5
		Copper, dissolved	2	ug/L	0.5
		Manganese, dissolved	ND	ug/L	5
		Molybdenum, dissolved	9.4	ug/L	0.25
		Nickel, dissolved	0.77	ug/L	0.5
		Lead, dissolved	ND	ug/L	0.25
		Antimony, dissolved	ND	ug/L	0.5
		Selenium, dissolved	ND	ug/L	2
		Thallium, dissolved	ND	ug/L	0.1
		Vanadium, dissolved	7.3	ug/L	1
		Zinc, dissolved	ND	ug/L	5
		Mercury, dissolved	ND	ug/L	0.2
		Chloride	180	mg/L	5
		Fluoride	0.41	mg/L	0.1
		Nitrate as N	0.82	mg/L	0.2
		Sulfate as SO4	120	mg/L	5
		Perchlorate	ND	ug/L	2
		Bromodichloromethane	ND	ug/L	1
		Bromoform	ND	ug/L	1
		Chloroform	ND	ug/L	1
		Dibromochloromethane	ND	ug/L	1
		Trihalomethanes (total)	ND	ug/L	1
		Bromofluorobenzene	24	ug/L	
		Dibromofluoromethane	21.2	ug/L	
		Toluene-d8	24.2	ug/L	
		Monobromoacetic Acid	ND	ug/L	1
		Monochloroacetic Acid	ND	ug/L	2
		Dibromoacetic Acid	ND	ug/L	1
		Dichloroacetic Acid	ND	ug/L	1
		Trichloroacetic Acid	ND	ug/L	1
		Total Haloacetic Acids (HAA5)	ND	ug/L	1
		2,3-Dibromopropionic Acid	10	ug/L	
		2-Bromopropionic Acid	11.7	ug/L	
		Color	ND	CU	5
		Turbidity	0.1	NTU	0.1
		Bicarbonate Alkalinity as CaCO3	340	mg/L	5
		Carbonate Alkalinity as CaCO3	ND	mg/L	5
		Hydroxide Alkalinity as CaCO3	ND	mg/L	5
		Total Alkalinity as CaCO3	340	mg/L	5
		Hardness, Total	306	mg/L	5
		Total Dissolved Solids	920	mg/L	10
		Sulfide	ND	mg/L	0.1
		MBAS, calculated as LAS, mw 340	ND	mg/L	0.05
		E. Coli	ND	MPN/100mL	1
		Total Coliforms	ND	MPN/100mL	1
		Calcium	33	mg/L	0.05
		Magnesium	46	mg/L	0.05
		Hardness, Total	271	mg/L	1
3357	08/18/2021 10:30:00	Calcium, dissolved	45	mg/L	1
		Iron, dissolved	ND	mg/L	0.1
		Potassium, dissolved	2.6	mg/L	1
		Magnesium, dissolved	44	mg/L	1
		Sodium, dissolved	170	mg/L	1
		Silver, dissolved	ND	ug/L	0.1
		Aluminum, dissolved	ND	ug/L	10
		Arsenic, dissolved	4.4	ug/L	0.5
		Boron, dissolved	1500	ug/L	500
		Barium, dissolved	34	ug/L	0.5
		Beryllium, dissolved	ND	ug/L	0.1
		Cadmium, dissolved	ND	ug/L	0.1
		Chromium, dissolved	3	ug/L	0.5
		Copper, dissolved	5.7	ug/L	0.5
		Manganese, dissolved	ND	ug/L	5
		Molybdenum, dissolved	5.1	ug/L	0.25
		Nickel, dissolved	1.5	ug/L	0.5
		Lead, dissolved	ND	ug/L	0.25
		Antimony, dissolved	ND	ug/L	0.5
		Selenium, dissolved	2.7	ug/L	2
		Thallium, dissolved	ND	ug/L	0.1
		Vanadium, dissolved	5.9	ug/L	1
		Zinc, dissolved	32	ug/L	5
		Mercury, dissolved	ND	ug/L	0.2
		Chloride	130	mg/L	5
		Fluoride	0.21	mg/L	0.1
		Nitrate as N	3.1	mg/L	0.2
		Sulfate as SO4	190	mg/L	5
		Perchlorate	ND	ug/L	2
		Bromodichloromethane	ND	ug/L	1
		Bromoform	ND	ug/L	1
		Chloroform	ND	ug/L	1
		Dibromochloromethane	ND	ug/L	1
		Trihalomethanes (total)	ND	ug/L	1
		Bromofluorobenzene	25.6	ug/L	
		Dibromofluoromethane	24.5	ug/L	
		Toluene-d8	23.7	ug/L	
		Monobromoacetic Acid	ND	ug/L	1
		Monochloroacetic Acid	ND	ug/L	2
		Dibromoacetic Acid	ND	ug/L	1
		Dichloroacetic Acid	ND	ug/L	1
		Trichloroacetic Acid	ND	ug/L	1
		Total Haloacetic Acids (HAA5)	ND	ug/L	1
		2,3-Dibromopropionic Acid	10.5	ug/L	
		2-Bromopropionic Acid	14.4	ug/L	
		Color	ND	CU	5
		Turbidity	ND	NTU	0.1
		Bicarbonate Alkalinity as CaCO3	250	mg/L	5
		Carbonate Alkalinity as CaCO3	ND	mg/L	5

Table 10. Laboratory Water Quality Results, Wells Near Simulated Injection and ASR MAR Locations

Well ID	Sample Date	Analyte	Result	Units	Reporting Limit
		Hydroxide Alkalinity as CaCO3	ND	mg/L	5
		Total Alkalinity as CaCO3	250	mg/L	5
		Hardness, Total	294	mg/L	5
		Total Dissolved Solids	850	mg/L	10
		Sulfide	ND	mg/L	0.1
		MBAS, calculated as LAS, mw 340	ND	mg/L	0.05
		E. Coli	ND	MPN/100mL	1
		Total Coliforms	ND	MPN/100mL	1
		Calcium	39	mg/L	0.05
		Magnesium	39	mg/L	0.05
		Hardness, Total	259	mg/L	1
3123	08/18/2021 11:50:00	Calcium, dissolved	38	mg/L	1
		Iron, dissolved	ND	mg/L	0.1
		Potassium, dissolved	3.3	mg/L	1
		Magnesium, dissolved	20	mg/L	1
		Sodium, dissolved	320	mg/L	1
		Silver, dissolved	ND	ug/L	0.1
		Aluminum, dissolved	ND	ug/L	10
		Arsenic, dissolved	14	ug/L	0.5
		Boron, dissolved	4200	ug/L	500
		Barium, dissolved	180	ug/L	0.5
		Beryllium, dissolved	ND	ug/L	0.1
		Cadmium, dissolved	ND	ug/L	0.1
		Chromium, dissolved	ND	ug/L	0.5
		Copper, dissolved	3.6	ug/L	0.5
		Manganese, dissolved	50	ug/L	5
		Molybdenum, dissolved	29	ug/L	0.25
		Nickel, dissolved	0.87	ug/L	0.5
		Lead, dissolved	ND	ug/L	0.25
		Antimony, dissolved	0.52	ug/L	0.5
		Selenium, dissolved	ND	ug/L	2
		Thallium, dissolved	ND	ug/L	0.1
		Vanadium, dissolved	3.2	ug/L	1
		Zinc, dissolved	ND	ug/L	5
		Mercury, dissolved	ND	ug/L	0.2
		Chloride	340	mg/L	25
		Fluoride	ND	mg/L	0.1
		Nitrate as N	1.2	mg/L	0.2
		Sulfate as SO4	65	mg/L	5
		Perchlorate	ND	ug/L	2
		Bromodichloromethane	ND	ug/L	1
		Bromoform	ND	ug/L	1
		Chloroform	ND	ug/L	1
		Dibromochloromethane	ND	ug/L	1
		Trihalomethanes (total)	ND	ug/L	1
		Bromofluorobenzene	24.5	ug/L	
		Dibromofluoromethane	23.8	ug/L	
		Toluene-d8	23.8	ug/L	
		Monobromoacetic Acid	ND	ug/L	1
		Monochloroacetic Acid	ND	ug/L	2
		Dibromoacetic Acid	ND	ug/L	1
		Dichloroacetic Acid	ND	ug/L	1
		Trichloroacetic Acid	ND	ug/L	1
		Total Haloacetic Acids (HAA5)	ND	ug/L	1
		2,3-Dibromopropionic Acid	10.8	ug/L	
		2-Bromopropionic Acid	11	ug/L	
		Color	ND	CU	5
		Turbidity	17	NTU	0.1
		Bicarbonate Alkalinity as CaCO3	300	mg/L	5
		Carbonate Alkalinity as CaCO3	ND	mg/L	5
		Hydroxide Alkalinity as CaCO3	ND	mg/L	5
		Total Alkalinity as CaCO3	300	mg/L	5
		Hardness, Total	178	mg/L	5
		Total Dissolved Solids	1100	mg/L	10
		Sulfide	ND	mg/L	0.1
		MBAS, calculated as LAS, mw 340	ND	mg/L	0.05
		E. Coli	ND	MPN/100mL	1
		Total Coliforms	ND	MPN/100mL	1
		Calcium	42	mg/L	0.05
		Magnesium	25	mg/L	0.05
		Hardness, Total	209	mg/L	1
		Calcium	44	mg/L	1
		Magnesium	25	mg/L	1
		Silica (SiO2)	33	mg/L	1
		Cobalt	1.8	ug/L	0.4
		Uranium	ND	pCi/l	1
		Chromium, hexavalent	11	ug/L	1
		Acetone	ND	ug/L	5
		Acrylonitrile	ND	ug/L	5
		Benzene	ND	ug/L	0.5
		Bromobenzene	ND	ug/L	0.5
		Bromochloromethane	ND	ug/L	0.5
		Bromodichloromethane	ND	ug/L	1
		Bromoform	ND	ug/L	1
		Bromomethane	ND	ug/L	0.5
		n-Butylbenzene	ND	ug/L	0.5
		sec-Butylbenzene	ND	ug/L	0.5
		tert-Butylbenzene	ND	ug/L	0.5
		Carbon disulfide	ND	ug/L	0.5
		Carbon tetrachloride	ND	ug/L	0.5
		Chlorobenzene	ND	ug/L	0.5
		Chloroethane	ND	ug/L	0.5
		Chloroform	ND	ug/L	1
		Chloromethane	ND	ug/L	0.5
		2-Chlorotoluene	ND	ug/L	0.5
		4-Chlorotoluene	ND	ug/L	0.5
		Dibromochloromethane	ND	ug/L	1
		Dibromomethane	ND	ug/L	0.5
		1,2-Dichlorobenzene	ND	ug/L	0.5
		1,3-Dichlorobenzene	ND	ug/L	0.5

Table 10. Laboratory Water Quality Results, Wells Near Simulated Injection and ASR MAR Locations

Well ID	Sample Date	Analyte	Result	Units	Reporting Limit
		1,4-Dichlorobenzene	ND	ug/L	0.5
		Dichlorodifluoromethane	ND	ug/L	0.5
		1,1-Dichloroethane	ND	ug/L	0.5
		1,2-Dichloroethane	ND	ug/L	0.5
		1,1-Dichloroethene	ND	ug/L	0.5
		cis-1,2-Dichloroethene	ND	ug/L	0.5
		trans-1,2-Dichloroethene	ND	ug/L	0.5
		1,3-Dichloropropene (total)	ND	ug/L	0.5
		1,2-Dichloropropane	ND	ug/L	0.5
		1,3-Dichloropropane	ND	ug/L	0.5
		2,2-Dichloropropane	ND	ug/L	0.5
		1,1-Dichloropropene	ND	ug/L	0.5
		cis-1,3-Dichloropropene	ND	ug/L	0.5
		trans-1,3-Dichloropropene	ND	ug/L	0.5
		Ethylbenzene	ND	ug/L	0.5
		Hexachlorobutadiene	ND	ug/L	0.5
		Isopropylbenzene	ND	ug/L	0.5
		p-Isopropyltoluene	ND	ug/L	0.5
		Methyl ethyl ketone	ND	ug/L	5
		Methyl isobutyl ketone	ND	ug/L	5
		Methyl tert-butyl ether	ND	ug/L	3
		Methylene chloride	ND	ug/L	0.5
		Naphthalene	ND	ug/L	0.5
		n-Propylbenzene	ND	ug/L	0.5
		Styrene	ND	ug/L	0.5
		1,1,1,2-Tetrachloroethane	ND	ug/L	0.5
		1,1,2,2-Tetrachloroethane	ND	ug/L	0.5
		Tetrachloroethene	ND	ug/L	0.5
		Toluene	ND	ug/L	0.5
		1,2,3-Trichlorobenzene	ND	ug/L	0.5
		1,2,4-Trichlorobenzene	ND	ug/L	0.5
		1,1,1-Trichloroethane	ND	ug/L	0.5
		1,1,2-Trichloroethane	ND	ug/L	0.5
		Trichloroethene	ND	ug/L	0.5
		Trichlorofluoromethane	ND	ug/L	5
		Trichlorotrifluoroethane	ND	ug/L	10
		1,2,4-Trimethylbenzene	ND	ug/L	0.5
		1,3,5-Trimethylbenzene	ND	ug/L	0.5
		Vinyl chloride	ND	ug/L	0.5
		m,p-Xylene	ND	ug/L	0.5
		o-Xylene	ND	ug/L	0.5
		Xylenes (total)	ND	ug/L	0.5
		Trihalomethanes (total)	ND	ug/L	0.5
		Bromofluorobenzene	28	ug/L	
		Dibromofluoromethane	23.6	ug/L	
		Toluene-d8	25.1	ug/L	
		Hardness, Total	213	mg/L	5
		Ammonia as NH3	ND	mg/L	0.5
		Phosphorus, total	0.2	mg/L	0.04
		Total Organic Carbon	ND	mg/L	1
3127	08/18/2021 12:25:00	Calcium, dissolved	47	mg/L	1
		Iron, dissolved	ND	mg/L	0.1
		Potassium, dissolved	2.9	mg/L	1
		Magnesium, dissolved	54	mg/L	1
		Sodium, dissolved	190	mg/L	1
		Silver, dissolved	ND	ug/L	0.1
		Aluminum, dissolved	ND	ug/L	10
		Arsenic, dissolved	7.7	ug/L	0.5
		Boron, dissolved	2500	ug/L	500
		Barium, dissolved	65	ug/L	0.5
		Beryllium, dissolved	ND	ug/L	0.1
		Cadmium, dissolved	ND	ug/L	0.1
		Chromium, dissolved	ND	ug/L	0.5
		Copper, dissolved	3	ug/L	0.5
		Manganese, dissolved	430	ug/L	5
		Molybdenum, dissolved	8.6	ug/L	0.25
		Nickel, dissolved	7.1	ug/L	0.5
		Lead, dissolved	ND	ug/L	0.25
		Antimony, dissolved	ND	ug/L	0.5
		Selenium, dissolved	ND	ug/L	2
		Thallium, dissolved	ND	ug/L	0.1
		Vanadium, dissolved	5.3	ug/L	1
		Zinc, dissolved	7.9	ug/L	5
		Mercury, dissolved	ND	ug/L	0.2
		Chloride	150	mg/L	5
		Fluoride	0.46	mg/L	0.1
		Nitrate as N	0.27	mg/L	0.2
		Sulfate as SO4	150	mg/L	5
		Perchlorate	ND	ug/L	2
		Bromodichloromethane	ND	ug/L	1
		Bromoform	ND	ug/L	1
		Chloroform	ND	ug/L	1
		Dibromochloromethane	ND	ug/L	1
		Trihalomethanes (total)	ND	ug/L	1
		Bromofluorobenzene	23.7	ug/L	
		Dibromofluoromethane	22.5	ug/L	
		Toluene-d8	24.9	ug/L	
		Monobromoacetic Acid	ND	ug/L	1
		Monochloroacetic Acid	ND	ug/L	2
		Dibromoacetic Acid	ND	ug/L	1
		Dichloroacetic Acid	ND	ug/L	1
		Trichloroacetic Acid	ND	ug/L	1
		Total Haloacetic Acids (HAA5)	ND	ug/L	1
		2,3-Dibromopropionic Acid	12.1	ug/L	
		2-Bromopropionic Acid	12.8	ug/L	
		Color	ND	CU	5
		Turbidity	0.6	NTU	0.1
		Bicarbonate Alkalinity as CaCO3	330	mg/L	5
		Carbonate Alkalinity as CaCO3	ND	mg/L	5
		Hydroxide Alkalinity as CaCO3	ND	mg/L	5

Table 10. Laboratory Water Quality Results, Wells Near Simulated Injection and ASR MAR Locations

Well ID	Sample Date	Analyte	Result	Units	Reporting Limit
		Total Alkalinity as CaCO3	330	mg/L	5
		Hardness, Total	340	mg/L	5
		Total Dissolved Solids	880	mg/L	10
		Sulfide	ND	mg/L	0.1
		MBAS, calculated as LAS, mw 340	ND	mg/L	0.05
		E. Coli	ND	MPN/100mL	1
		Total Coliforms	1	MPN/100mL	1
		Calcium	41	mg/L	0.05
		Magnesium	48	mg/L	0.05
		Hardness, Total	300	mg/L	1
Hollister Bundeson Road Well 2	08/18/2021 13:15:00	Calcium, dissolved	71	mg/L	1
		Iron, dissolved	ND	mg/L	0.1
		Potassium, dissolved	3.2	mg/L	1
		Magnesium, dissolved	84	mg/L	1
		Sodium, dissolved	140	mg/L	1
		Silver, dissolved	ND	ug/L	0.1
		Aluminum, dissolved	ND	ug/L	10
		Arsenic, dissolved	1.9	ug/L	0.5
		Boron, dissolved	820	ug/L	50
		Barium, dissolved	31	ug/L	0.5
		Beryllium, dissolved	ND	ug/L	0.1
		Cadmium, dissolved	ND	ug/L	0.1
		Chromium, dissolved	12	ug/L	0.5
		Copper, dissolved	23	ug/L	0.5
		Manganese, dissolved	ND	ug/L	5
		Molybdenum, dissolved	3.4	ug/L	0.25
		Nickel, dissolved	2.4	ug/L	0.5
		Lead, dissolved	ND	ug/L	0.25
		Antimony, dissolved	ND	ug/L	0.5
		Selenium, dissolved	4.1	ug/L	2
		Thallium, dissolved	ND	ug/L	0.1
		Vanadium, dissolved	2.9	ug/L	1
		Zinc, dissolved	8.5	ug/L	5
		Mercury, dissolved	ND	ug/L	0.2
		Chloride	120	mg/L	5
		Fluoride	0.33	mg/L	0.1
		Nitrate as N	3.8	mg/L	0.2
		Sulfate as SO4	280	mg/L	5
		Perchlorate	ND	ug/L	2
		Bromodichloromethane	ND	ug/L	1
		Bromoform	ND	ug/L	1
		Chloroform	ND	ug/L	1
		Dibromochloromethane	ND	ug/L	1
		Trihalomethanes (total)	ND	ug/L	1
		Bromofluorobenzene	24.2	ug/L	
		Dibromofluoromethane	23.3	ug/L	
		Toluene-d8	24.1	ug/L	
		Monobromoacetic Acid	ND	ug/L	1
		Monochloroacetic Acid	ND	ug/L	2
		Dibromoacetic Acid	ND	ug/L	1
		Dichloroacetic Acid	ND	ug/L	1
		Trichloroacetic Acid	ND	ug/L	1
		Total Haloacetic Acids (HAA5)	ND	ug/L	1
		2,3-Dibromopropionic Acid	11.1	ug/L	
		2-Bromopropionic Acid	12.7	ug/L	
		Color	ND	CU	5
		Turbidity	ND	NTU	0.1
		Bicarbonate Alkalinity as CaCO3	320	mg/L	5
		Carbonate Alkalinity as CaCO3	ND	mg/L	5
		Hydroxide Alkalinity as CaCO3	ND	mg/L	5
		Total Alkalinity as CaCO3	320	mg/L	5
		Hardness, Total	525	mg/L	5
		Total Dissolved Solids	1000	mg/L	10
		Sulfide	ND	mg/L	0.1
		MBAS, calculated as LAS, mw 340	ND	mg/L	0.05
		E. Coli	ND	MPN/100mL	1
		Total Coliforms	ND	MPN/100mL	1
		Calcium	64	mg/L	0.05
		Magnesium	76	mg/L	0.05
		Hardness, Total	473	mg/L	1
13-5-10L1	08/19/2021 08:30:00	Calcium, dissolved	81	mg/L	1
		Iron, dissolved	ND	mg/L	0.1
		Potassium, dissolved	3.2	mg/L	1
		Magnesium, dissolved	98	mg/L	1
		Sodium, dissolved	160	mg/L	1
		Silver, dissolved	ND	ug/L	0.1
		Aluminum, dissolved	ND	ug/L	10
		Arsenic, dissolved	1.7	ug/L	0.5
		Boron, dissolved	910	ug/L	50
		Barium, dissolved	30	ug/L	0.5
		Beryllium, dissolved	ND	ug/L	0.1
		Cadmium, dissolved	ND	ug/L	0.1
		Chromium, dissolved	20	ug/L	0.5
		Copper, dissolved	7.5	ug/L	0.5
		Manganese, dissolved	ND	ug/L	5
		Molybdenum, dissolved	4.1	ug/L	0.25
		Nickel, dissolved	3	ug/L	0.5
		Lead, dissolved	ND	ug/L	0.25
		Antimony, dissolved	ND	ug/L	0.5
		Selenium, dissolved	3.6	ug/L	2
		Thallium, dissolved	ND	ug/L	0.1
		Vanadium, dissolved	2.1	ug/L	1
		Zinc, dissolved	33	ug/L	5
		Mercury, dissolved	ND	ug/L	0.2
		Chloride	130	mg/L	10
		Fluoride	0.37	mg/L	0.1
		Nitrate as N	6.8	mg/L	0.2
		Sulfate as SO4	280	mg/L	10
		Perchlorate	ND	ug/L	2
		Bromodichloromethane	ND	ug/L	1

Table 10. Laboratory Water Quality Results, Wells Near Simulated Injection and ASR MAR Locations

Well ID	Sample Date	Analyte	Result	Units	Reporting Limit
		Bromoform	ND	ug/L	1
		Chloroform	3.09	ug/L	1
		Dibromochloromethane	ND	ug/L	1
		Trihalomethanes (total)	3.09	ug/L	1
		Bromofluorobenzene	23.5	ug/L	
		Dibromofluoromethane	21.8	ug/L	
		Toluene-d8	24.6	ug/L	
		Monobromoacetic Acid	ND	ug/L	1
		Monochloroacetic Acid	ND	ug/L	2
		Dibromoacetic Acid	ND	ug/L	1
		Dichloroacetic Acid	ND	ug/L	1
		Trichloroacetic Acid	ND	ug/L	1
		Total Haloacetic Acids (HAA5)	ND	ug/L	1
		2,3-Dibromopropionic Acid	12.2	ug/L	
		2-Bromopropionic Acid	13	ug/L	
		Color	ND	CU	5
		Turbidity	0.15	NTU	0.1
		Bicarbonate Alkalinity as CaCO3	400	mg/L	5
		Carbonate Alkalinity as CaCO3	ND	mg/L	5
		Hydroxide Alkalinity as CaCO3	ND	mg/L	5
		Total Alkalinity as CaCO3	400	mg/L	5
		Hardness, Total	603	mg/L	5
		Total Dissolved Solids	1100	mg/L	10
		Sulfide	ND	mg/L	0.1
		MBAS, calculated as LAS, mw 340	ND	mg/L	0.05
		E. Coli	ND	MPN/100mL	1
		Total Coliforms	ND	MPN/100mL	1
		Calcium	73	mg/L	0.05
		Magnesium	88	mg/L	0.05
		Hardness, Total	542	mg/L	1
12-5-23A20	08/26/2021 09:30:00	Calcium	40	mg/L	1
		Magnesium	52	mg/L	1
		Silica (SiO2)	27	mg/L	1
		Cobalt	ND	ug/L	0.4
		Uranium	1.3	pCi/l	1
		Chromium, hexavalent	5	ug/L	1
		Acetone	ND	ug/L	5
		Acrylonitrile	ND	ug/L	5
		Benzene	ND	ug/L	0.5
		Bromobenzene	ND	ug/L	0.5
		Bromochloromethane	ND	ug/L	0.5
		Bromodichloromethane	ND	ug/L	1
		Bromoform	ND	ug/L	1
		Bromomethane	ND	ug/L	0.5
		n-Butylbenzene	ND	ug/L	0.5
		sec-Butylbenzene	ND	ug/L	0.5
		tert-Butylbenzene	ND	ug/L	0.5
		Carbon disulfide	ND	ug/L	0.5
		Carbon tetrachloride	ND	ug/L	0.5
		Chlorobenzene	ND	ug/L	0.5
		Chloroethane	ND	ug/L	0.5
		Chloroform	ND	ug/L	1
		Chloromethane	ND	ug/L	0.5
		2-Chlorotoluene	ND	ug/L	0.5
		4-Chlorotoluene	ND	ug/L	0.5
		Dibromochloromethane	ND	ug/L	1
		Dibromomethane	ND	ug/L	0.5
		1,2-Dichlorobenzene	ND	ug/L	0.5
		1,3-Dichlorobenzene	ND	ug/L	0.5
		1,4-Dichlorobenzene	ND	ug/L	0.5
		Dichlorodifluoromethane	ND	ug/L	0.5
		1,1-Dichloroethane	ND	ug/L	0.5
		1,2-Dichloroethane	ND	ug/L	0.5
		1,1-Dichloroethene	ND	ug/L	0.5
		cis-1,2-Dichloroethene	ND	ug/L	0.5
		trans-1,2-Dichloroethene	ND	ug/L	0.5
		1,3-Dichloropropene (total)	ND	ug/L	0.5
		1,2-Dichloropropane	ND	ug/L	0.5
		1,3-Dichloropropane	ND	ug/L	0.5
		2,2-Dichloropropane	ND	ug/L	0.5
		1,1-Dichloropropene	ND	ug/L	0.5
		cis-1,3-Dichloropropene	ND	ug/L	0.5
		trans-1,3-Dichloropropene	ND	ug/L	0.5
		Ethylbenzene	ND	ug/L	0.5
		Hexachlorobutadiene	ND	ug/L	0.5
		Isopropylbenzene	ND	ug/L	0.5
		p-Isopropyltoluene	ND	ug/L	0.5
		Methyl ethyl ketone	ND	ug/L	5
		Methyl isobutyl ketone	ND	ug/L	5
		Methyl tert-butyl ether	ND	ug/L	3
		Methylene chloride	ND	ug/L	0.5
		Naphthalene	ND	ug/L	0.5
		n-Propylbenzene	ND	ug/L	0.5
		Styrene	ND	ug/L	0.5
		1,1,1,2-Tetrachloroethane	ND	ug/L	0.5
		1,1,2,2-Tetrachloroethane	ND	ug/L	0.5
		Tetrachloroethene	ND	ug/L	0.5
		Toluene	ND	ug/L	0.5
		1,2,3-Trichlorobenzene	ND	ug/L	0.5
		1,2,4-Trichlorobenzene	ND	ug/L	0.5
		1,1,1-Trichloroethane	ND	ug/L	0.5
		1,1,2-Trichloroethane	ND	ug/L	0.5
		Trichloroethene	ND	ug/L	0.5
		Trichlorofluoromethane	ND	ug/L	5
		Trichlorotrifluoroethane	ND	ug/L	10
		1,2,4-Trimethylbenzene	ND	ug/L	0.5
		1,3,5-Trimethylbenzene	ND	ug/L	0.5
		Vinyl chloride	ND	ug/L	0.5
		m,p-Xylene	ND	ug/L	0.5
		o-Xylene	ND	ug/L	0.5

Table 10. Laboratory Water Quality Results, Wells Near Simulated Injection and ASR MAR Locations

Well ID	Sample Date	Analyte	Result	Units	Reporting Limit
		Xylenes (total)	ND	ug/L	0.5
		Trihalomethanes (total)	ND	ug/L	0.5
		Bromofluorobenzene	25.8	ug/L	
		Dibromofluoromethane	22.8	ug/L	
		Toluene-d8	26.7	ug/L	
		Hardness, Total	315	mg/L	5
		Ammonia as NH3	ND	mg/L	0.5
		Phosphorus, total	0.095	mg/L	0.04
		Total Organic Carbon	ND	mg/L	1

9. PRELIMINARY FACILITY PLANNING

In an effort parallel to the MAR feasibility assessment described above, SBCWD has conducted regional water and wastewater planning that identified the need for additional high quality CVP water to meet future water demands and to improve water quality (HDR 2017). In 2021, HDR prepared a Draft Evaluation of Water Supply and Storage Alternatives that considered alternatives to beneficially use available CVP water and concluded that ASR is the most advantageous and cost-effective method to utilize the excess CVP water for dry year demands.

These two efforts were combined in this MAR assessment study. Preliminary facility planning was completed by HDR as described in *Groundwater Recharge Alternatives Facility Plan, San Benito County Water District* (**Appendix B**, HDR 2022). The preliminary Facility Plan addresses goals, well siting, ASR, MAR, evaluation of alternatives, and implementation plan.

9.1 Goals

The preliminary Facility Plan was conducted with the following goals:

- Identify location and capacity of ASR and MAR wells
- Evaluate facilities required for ASR and MAR options including wells, pipelines, treatment, and pumping facilities
- Develop an opinion of capital cost estimate (OPCC)
- Perform alternatives evaluation to maximize use of CVP supply and provide a sustainable, long-term water supply
- Recommend one alternative and develop an implementation plan.

9.2 Well Siting

Preliminary well locations for both the ASR and MAR wells are discussed and presented above and shown in **Figure 18**. As indicated above, selection of these locations was based on hydrogeological considerations and model simulations. As shown, the ASR and MAR wells are aligned along existing roads and close to CVP conveyance pipelines.

9.3 Injection-Only MAR

The injection-only MAR facilities include 11 wells with a total capacity of 6,000 AFY and dedicated pipelines to connect the wells to the West Hills Water Treatment Plant (WTP). The planned injection wells are located away from streams and upgradient of municipal wells to minimize any potential losses and to maximize recovery, including capture of high-quality injection water.

A pilot injection program could direct up to 800 AFY to one well to demonstrate the injection operability. Phase I would involve treatment of 3,000 AFY of CVP water at the West Hills WTP and another five injection wells, and Phase II would treat the entire 6,000 AFY of CVP water for recharge through all eleven injection wells.

9.4 ASR MAR

The ASR facilities include 11 ASR wells for injection of up to 6,000 AF of treated CVP water and recovery of stored water, a new WTP to treat CVP water prior to injection and to treat ASR output to drinking water standard prior to distribution, and pipelines that connect the ASR wells, WTP, and the Hollister Urban Area (HUA) distribution system.

The overall ASR program will be developed through a pilot program followed by two phases to reach full-scale operations. The initial pilot phase of the ASR facilities will consist of one ASR well and piping, while Phase I will add four wells, a 2.5 million gallon per day (MGD) treatment plant and pipeline to convey water among wells, the WTP and the distribution system. Phase II provides full program capacity by completing the remaining six wells and expanding the WTP's capacity to 5.5 MGD to process 6,000 AFY of excess CVP water.

9.5 Evaluation of Alternatives

The ASR and MAR alternatives were evaluated based on the criteria summarized below:

- Increase ability to use CVP allocation
- Increase overall water supply
- Increase dry year reliability
- Improve groundwater basin levels and quality including long-term salt balance
- Minimizes cost.

Both alternatives provide benefits relative to the above criteria. As described in the preliminary facility plan, the ASR alternative is more advantageous for the first three criteria, while the MAR alternative provides more benefit to groundwater basin levels and quality and has slightly lower capital cost. The ASR program is recommended as the preferred water supply and groundwater recharge alternative, while recognizing the MAR alternative as a useful groundwater management option for long term sustainability of levels and quality.

9.6 Implementation Plan

The recommended phasing approach to implement the ASR program is summarized as follows:

- Pilot Phase (2022) – Develop a pilot well in the north area to inject water supplied from the distribution system. Install pipe to connect the ASR well to the distribution system. Total capital cost of facilities required for this phase is \$5.3 million.
- Phase I – Implement Phase I of ASR that adds four injection/recovery wells, a new water treatment plant and associated pipelines to obtain up to 3,000 AFY of ASR capacity. The total capital cost of facilities required for this phase is \$39.4 million.
- Phase II – Implement Phase II that adds up to 2,200 AFY capacity. Expand the water treatment plant capacity, add six injection/recovery wells and associated pipelines. The total capital cost of the facilities required for this phase is \$41.6 million.

The preliminary facility plan report (Appendix B, HDR 2022) also outlines environmental compliance and permitting for each phase.

10. REFERENCES

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APPENDIX A

Laboratory Water Quality Reports



Alpha Analytical Laboratories, Inc. email: clientservices@alpha-labs.com
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16 August 2021

Todd Groundwater

Attn: Nicole Grimm

2490 Mariner Square Loop, Suite 215

Alameda, CA 94501

RE: Round 3 ASR Water Quality Baseline

Work Order: 21G3255

Enclosed are the results of analyses for samples received by the laboratory on 07/26/21 22:45. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Jeanette L. Poplin For David S. Pingatore
Project Manager



Alpha Analytical Laboratories, Inc. email: clientservices@alpha-labs.com
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Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: Round 3 ASR Water Quality Baseline

Reported:
08/16/21 10:41

Bay Area: 262 Rickenbacker Circle | Livermore, CA 94551 | T: 925-828-6226 | F: 925-828-6309 | ELAP# 2728
Central Valley: 9090 Union Park Way Suite 113 | Elk Grove, CA 95624 | T: 916-686-5190 | F: 916-686-5192 | ELAP# 2922
North Bay: 110 Liberty Street | Petaluma, CA 94952 | T: 707-769-3128 | F: 707-769-8093 | ELAP# 2303
San Diego: 2722 Loker Avenue West Suite A | Carlsbad, CA 92010 | T: 760-930-2555 | F: 760-930-2510 | ELAP# 3055

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SSWD 5	21G3255-01	Water	07/26/21 09:20	07/26/21 22:45
SSWD 7	21G3255-02	Water	07/26/21 10:00	07/26/21 22:45
SSWD #11	21G3255-03	Water	07/26/21 10:15	07/26/21 22:45
SSWD #2	21G3255-04	Water	07/26/21 10:30	07/26/21 22:45



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Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: Round 3 ASR Water Quality Baseline

Reported:
08/16/21 10:41

	Result	Reporting Limit	Dilution	Batch	Prepared	Analyzed	ELAP#	Method	Note
SSWD 5 (21G3255-01)									
Sample Type: Water				Sampled: 07/26/21 09:20					
Metals (Dissolved) by EPA 200 Series Methods									FILT
Mercury, dissolved	ND ug/L	0.20	1	AG14588	07/28/21 07:05	07/28/21 12:52	1551	EPA 245.1	
Calcium, dissolved	71 mg/L	1.0	1	AH13835	08/12/21 12:40	08/13/21 12:23	1551	EPA 200.7	
Iron, dissolved	ND mg/L	0.10	1	AH13835	08/12/21 12:40	08/13/21 12:23	1551	EPA 200.7	
Magnesium, dissolved	57 mg/L	1.0	1	AH13835	08/12/21 12:40	08/13/21 12:23	1551	EPA 200.7	
Potassium, dissolved	2.9 mg/L	1.0	1	AH13835	08/12/21 12:40	08/13/21 12:23	1551	EPA 200.7	
Sodium, dissolved	120 mg/L	1.0	1	AH13835	08/12/21 12:40	08/13/21 12:23	1551	EPA 200.7	
Metals (Dissolved) by EPA Method 200.8 ICP/MS									FILT
Aluminum, dissolved	ND ug/L	10	1	AG14507	07/27/21 14:35	07/28/21 16:11	1551	EPA 200.8	
Antimony, dissolved	ND ug/L	0.50	1	AG14507	07/27/21 14:35	07/28/21 16:11	1551	EPA 200.8	
Arsenic, dissolved	2.9 ug/L	0.50	1	AG14507	07/27/21 14:35	07/28/21 16:11	1551	EPA 200.8	
Barium, dissolved	35 ug/L	0.50	1	AG14507	07/27/21 14:35	07/28/21 16:11	1551	EPA 200.8	
Beryllium, dissolved	ND ug/L	0.10	1	AG14507	07/27/21 14:35	07/28/21 16:11	1551	EPA 200.8	
Boron, dissolved	940 ug/L	50	1	AG14507	07/27/21 14:35	07/28/21 16:11	1551	EPA 200.8	
Cadmium, dissolved	ND ug/L	0.10	1	AG14507	07/27/21 14:35	07/28/21 16:11	1551	EPA 200.8	
Chromium, dissolved	10 ug/L	0.50	1	AG14507	07/27/21 14:35	07/28/21 16:11	1551	EPA 200.8	
Copper, dissolved	2.4 ug/L	0.50	1	AG14507	07/27/21 14:35	07/28/21 16:11	1551	EPA 200.8	
Lead, dissolved	ND ug/L	0.25	1	AG14507	07/27/21 14:35	07/28/21 16:11	1551	EPA 200.8	
Manganese, dissolved	ND ug/L	5.0	1	AG14507	07/27/21 14:35	07/28/21 16:11	1551	EPA 200.8	
Molybdenum, dissolved	1.7 ug/L	0.25	1	AG14507	07/27/21 14:35	07/28/21 16:11	1551	EPA 200.8	
Nickel, dissolved	2.4 ug/L	0.50	1	AG14507	07/27/21 14:35	07/28/21 16:11	1551	EPA 200.8	
Selenium, dissolved	ND ug/L	2.0	1	AG14507	07/27/21 14:35	07/28/21 16:11	1551	EPA 200.8	
Silver, dissolved	ND ug/L	0.10	1	AG14507	07/27/21 14:35	07/28/21 16:11	1551	EPA 200.8	
Thallium, dissolved	ND ug/L	0.10	1	AG14507	07/27/21 14:35	07/28/21 16:11	1551	EPA 200.8	
Vanadium, dissolved	5.1 ug/L	1.0	1	AG14507	07/27/21 14:35	07/28/21 16:11	1551	EPA 200.8	
Zinc, dissolved	6.8 ug/L	5.0	1	AG14507	07/27/21 14:35	07/28/21 16:11	1551	EPA 200.8	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



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Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: Round 3 ASR Water Quality Baseline

Reported:
08/16/21 10:41

	Result			Reporting Limit	Dilution	Batch	Prepared	Analyzed	ELAP#	Method	Note
SSWD 5 (21G3255-01)											
				Sample Type: Water			Sampled: 07/26/21 09:20				
Conventional Chemistry Parameters by APHA/EPA Methods											
Color	ND CU	5.0	1	AG14652	07/26/21 17:30	07/26/21 17:30	2728	SM2120B			
MBAS, calculated as LAS, mw 340	ND mg/L	0.050	1	AG14585	07/28/21 07:00	07/28/21 15:15	1551	SM5540C			
Perchlorate	ND ug/L	2.0	1	AG14736	07/29/21 08:00	07/29/21 12:30	2303	EPA 314.0			
Sulfide	ND mg/L	0.10	1	AG14583	07/28/21 07:00	07/28/21 09:30	1551	SM4500-S2 D			
Total Dissolved Solids	800 mg/L	10	1	AG14661	07/29/21 05:45	08/06/21 08:07	1551	SM2540C			
Turbidity	0.15 NTU	0.10	1	AG14641	07/26/21 18:52	07/26/21 18:52	2728	SM2130B			
Bicarbonate Alkalinity as CaCO3	300 mg/L	5.0	1	AH13265	08/03/21 08:00	08/03/21 17:00	1551	SM2320B			
Carbonate Alkalinity as CaCO3	ND mg/L	5.0	1	AH13265	08/03/21 08:00	08/03/21 17:00	1551	SM2320B			
Hydroxide Alkalinity as CaCO3	ND mg/L	5.0	1	AH13265	08/03/21 08:00	08/03/21 17:00	1551	SM2320B			
Total Alkalinity as CaCO3	300 mg/L	5.0	1	AH13265	08/03/21 08:00	08/03/21 17:00	1551	SM2320B			
Anions by EPA Method 300.0											
Chloride	130 mg/L	5.0	10	AG14442	07/27/21 12:45	07/27/21 12:45	1551	EPA 300.0			
Fluoride	0.26 mg/L	0.10	1	AG14442	07/27/21 12:28	07/27/21 12:28	1551	EPA 300.0			
Nitrate as N	2.4 mg/L	0.20	1	AG14442	07/27/21 12:28	07/27/21 12:28	1551	EPA 300.0			
Sulfate as SO4	200 mg/L	5.0	10	AG14442	07/27/21 12:45	07/27/21 12:45	1551	EPA 300.0			
Microbiological Parameters by APHA Standard Methods											
Total Coliforms	ND MPN/100mL	1.0	1	AG14786	07/26/21 16:40	07/27/21 16:40	2728	SM9223B			
E. Coli	ND MPN/100mL	1.0	1	AG14786	07/26/21 16:40	07/27/21 16:40	2728	SM9223B			
Volatile Organic Compounds by EPA Method 524.2											
Bromodichloromethane	ND ug/L	1.00	1	AG14707	07/30/21 08:00	07/31/21 03:26	1551	EPA 524.2			
Bromoform	ND ug/L	1.00	1	AG14707	07/30/21 08:00	07/31/21 03:26	1551	EPA 524.2			
Chloroform	ND ug/L	1.00	1	AG14707	07/30/21 08:00	07/31/21 03:26	1551	EPA 524.2			
Dibromochloromethane	ND ug/L	1.00	1	AG14707	07/30/21 08:00	07/31/21 03:26	1551	EPA 524.2			
Trihalomethanes (total)	ND ug/L	1.00	1	AG14707	07/30/21 08:00	07/31/21 03:26	1551	EPA 524.2			
Surrogate: Bromofluorobenzene	111 %	70-130		AG14707	07/30/21 08:00	07/31/21 03:26	1551	EPA 524.2			
Surrogate: Dibromofluoromethane	92.2 %	70-130		AG14707	07/30/21 08:00	07/31/21 03:26	1551	EPA 524.2			
Surrogate: Toluene-d8	107 %	70-130		AG14707	07/30/21 08:00	07/31/21 03:26	1551	EPA 524.2			



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Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: Round 3 ASR Water Quality Baseline

Reported:
08/16/21 10:41

	Result	Reporting Limit	Dilution	Batch	Prepared	Analyzed	ELAP#	Method	Note
SSWD 5 (21G3255-01)									
Sample Type: Water				Sampled: 07/26/21 09:20					
Haloacetic Acids by EPA Method 552.2									
Monobromoacetic Acid	ND ug/L	1.0	1	AG14624	07/29/21 01:00	07/30/21 05:20	1551	EPA 552.2	
Monochloroacetic Acid	ND ug/L	2.0	1	AG14624	07/29/21 01:00	07/30/21 05:20	1551	EPA 552.2	
Dibromoacetic Acid	ND ug/L	1.0	1	AG14624	07/29/21 01:00	07/30/21 05:20	1551	EPA 552.2	
Dichloroacetic Acid	ND ug/L	1.0	1	AG14624	07/29/21 01:00	07/30/21 05:20	1551	EPA 552.2	
Trichloroacetic Acid	ND ug/L	1.0	1	AG14624	07/29/21 01:00	07/30/21 05:20	1551	EPA 552.2	
Total Haloacetic Acids (HAA5)	ND ug/L	1.0	1	AG14624	07/29/21 01:00	07/30/21 05:20	1551	EPA 552.2	
Surrogate: 2,3-Dibromopropionic Acid	84.0 %	70-130		AG14624	07/29/21 01:00	07/30/21 05:20	1551	EPA 552.2	
Surrogate: 2-Bromopropionic Acid	88.3 %	70-130		AG14624	07/29/21 01:00	07/30/21 05:20	1551	EPA 552.2	
SSWD 7 (21G3255-02)									
Sample Type: Water				Sampled: 07/26/21 10:00					
Metals (Dissolved) by EPA 200 Series Methods									
Mercury, dissolved	ND ug/L	0.20	1	AG14588	07/28/21 07:05	07/28/21 12:54	1551	EPA 245.1	FILT
Calcium, dissolved	73 mg/L	1.0	1	AH13835	08/12/21 12:40	08/13/21 12:27	1551	EPA 200.7	
Iron, dissolved	ND mg/L	0.10	1	AH13835	08/12/21 12:40	08/13/21 12:27	1551	EPA 200.7	
Magnesium, dissolved	63 mg/L	1.0	1	AH13835	08/12/21 12:40	08/13/21 12:27	1551	EPA 200.7	
Potassium, dissolved	3.2 mg/L	1.0	1	AH13835	08/12/21 12:40	08/13/21 12:27	1551	EPA 200.7	
Sodium, dissolved	120 mg/L	1.0	1	AH13835	08/12/21 12:40	08/13/21 12:27	1551	EPA 200.7	
Metals (Dissolved) by EPA Method 200.8 ICP/MS									
Aluminum, dissolved	ND ug/L	10	1	AG14507	07/27/21 14:35	07/28/21 16:19	1551	EPA 200.8	FILT
Antimony, dissolved	ND ug/L	0.50	1	AG14507	07/27/21 14:35	07/28/21 16:19	1551	EPA 200.8	
Arsenic, dissolved	3.4 ug/L	0.50	1	AG14507	07/27/21 14:35	07/28/21 16:19	1551	EPA 200.8	
Barium, dissolved	30 ug/L	0.50	1	AG14507	07/27/21 14:35	07/28/21 16:19	1551	EPA 200.8	
Beryllium, dissolved	ND ug/L	0.10	1	AG14507	07/27/21 14:35	07/28/21 16:19	1551	EPA 200.8	
Boron, dissolved	900 ug/L	50	1	AG14507	07/27/21 14:35	07/28/21 16:19	1551	EPA 200.8	
Cadmium, dissolved	ND ug/L	0.10	1	AG14507	07/27/21 14:35	07/28/21 16:19	1551	EPA 200.8	
Chromium, dissolved	14 ug/L	0.50	1	AG14507	07/27/21 14:35	07/28/21 16:19	1551	EPA 200.8	
Copper, dissolved	4.9 ug/L	0.50	1	AG14507	07/27/21 14:35	07/28/21 16:19	1551	EPA 200.8	
Lead, dissolved	ND ug/L	0.25	1	AG14507	07/27/21 14:35	07/28/21 16:19	1551	EPA 200.8	
Manganese, dissolved	ND ug/L	5.0	1	AG14507	07/27/21 14:35	07/28/21 16:19	1551	EPA 200.8	
Molybdenum, dissolved	1.5 ug/L	0.25	1	AG14507	07/27/21 14:35	07/28/21 16:19	1551	EPA 200.8	
Nickel, dissolved	7.8 ug/L	0.50	1	AG14507	07/27/21 14:35	07/28/21 16:19	1551	EPA 200.8	
Selenium, dissolved	4.1 ug/L	2.0	1	AG14507	07/27/21 14:35	07/28/21 16:19	1551	EPA 200.8	
Silver, dissolved	ND ug/L	0.10	1	AG14507	07/27/21 14:35	07/28/21 16:19	1551	EPA 200.8	
Thallium, dissolved	ND ug/L	0.10	1	AG14507	07/27/21 14:35	07/28/21 16:19	1551	EPA 200.8	
Vanadium, dissolved	5.0 ug/L	1.0	1	AG14507	07/27/21 14:35	07/28/21 16:19	1551	EPA 200.8	
Zinc, dissolved	ND ug/L	5.0	1	AG14507	07/27/21 14:35	07/28/21 16:19	1551	EPA 200.8	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



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Todd Groundwater
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Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: Round 3 ASR Water Quality Baseline

Reported:
08/16/21 10:41

	Result	Reporting Limit	Dilution	Batch	Prepared	Analyzed	ELAP#	Method	Note
SSWD 7 (21G3255-02)									
Sample Type: Water				Sampled: 07/26/21 10:00					
Conventional Chemistry Parameters by APHA/EPA Methods									
Color	ND CU	5.0	1	AG14652	07/26/21 17:30	07/26/21 17:30	2728	SM2120B	
MBAS, calculated as LAS, mw 340	ND mg/L	0.050	1	AG14585	07/28/21 07:00	07/28/21 15:15	1551	SM5540C	
Perchlorate	ND ug/L	2.0	1	AG14736	07/29/21 08:00	07/29/21 12:47	2303	EPA 314.0	
Sulfide	ND mg/L	0.10	1	AG14583	07/28/21 07:00	07/28/21 09:30	1551	SM4500-S2 D	
Total Dissolved Solids	760 mg/L	10	1	AG14661	07/29/21 05:45	08/06/21 08:07	1551	SM2540C	
Turbidity	ND NTU	0.10	1	AG14641	07/26/21 18:52	07/26/21 18:52	2728	SM2130B	
Bicarbonate Alkalinity as CaCO3	280 mg/L	5.0	1	AH13265	08/03/21 08:00	08/03/21 17:00	1551	SM2320B	
Carbonate Alkalinity as CaCO3	ND mg/L	5.0	1	AH13265	08/03/21 08:00	08/03/21 17:00	1551	SM2320B	
Hydroxide Alkalinity as CaCO3	ND mg/L	5.0	1	AH13265	08/03/21 08:00	08/03/21 17:00	1551	SM2320B	
Total Alkalinity as CaCO3	280 mg/L	5.0	1	AH13265	08/03/21 08:00	08/03/21 17:00	1551	SM2320B	
Anions by EPA Method 300.0									
Chloride	110 mg/L	5.0	10	AG14442	07/27/21 13:18	07/27/21 13:18	1551	EPA 300.0	
Fluoride	0.20 mg/L	0.10	1	AG14442	07/27/21 13:01	07/27/21 13:01	1551	EPA 300.0	
Nitrate as N	4.3 mg/L	0.20	1	AG14442	07/27/21 13:01	07/27/21 13:01	1551	EPA 300.0	
Sulfate as SO4	230 mg/L	5.0	10	AG14442	07/27/21 13:18	07/27/21 13:18	1551	EPA 300.0	
Microbiological Parameters by APHA Standard Methods									
Total Coliforms	ND MPN/100mL	1.0	1	AG14786	07/26/21 16:40	07/27/21 16:40	2728	SM9223B	
E. Coli	ND MPN/100mL	1.0	1	AG14786	07/26/21 16:40	07/27/21 16:40	2728	SM9223B	
Volatile Organic Compounds by EPA Method 524.2									
Bromodichloromethane	ND ug/L	1.00	1	AG14707	07/30/21 08:00	07/31/21 03:58	1551	EPA 524.2	
Bromoform	ND ug/L	1.00	1	AG14707	07/30/21 08:00	07/31/21 03:58	1551	EPA 524.2	
Chloroform	ND ug/L	1.00	1	AG14707	07/30/21 08:00	07/31/21 03:58	1551	EPA 524.2	
Dibromochloromethane	ND ug/L	1.00	1	AG14707	07/30/21 08:00	07/31/21 03:58	1551	EPA 524.2	
Trihalomethanes (total)	ND ug/L	1.00	1	AG14707	07/30/21 08:00	07/31/21 03:58	1551	EPA 524.2	
Surrogate: Bromofluorobenzene	111 %	70-130		AG14707	07/30/21 08:00	07/31/21 03:58	1551	EPA 524.2	
Surrogate: Dibromofluoromethane	89.0 %	70-130		AG14707	07/30/21 08:00	07/31/21 03:58	1551	EPA 524.2	
Surrogate: Toluene-d8	107 %	70-130		AG14707	07/30/21 08:00	07/31/21 03:58	1551	EPA 524.2	

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Corporate: 208 Mason Street | Ukiah, CA 95482 | T: 707-468-0401 | F: 707-468-5267 | ELAP# 1551

Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: Round 3 ASR Water Quality Baseline

Reported:
08/16/21 10:41

	Result	Reporting Limit	Dilution	Batch	Prepared	Analyzed	ELAP#	Method	Note
SSWD 7 (21G3255-02)									
Sample Type: Water				Sampled: 07/26/21 10:00					
Haloacetic Acids by EPA Method 552.2									
Monobromoacetic Acid	ND ug/L	1.0	1	AG14624	07/29/21 01:00	07/30/21 06:03	1551	EPA 552.2	
Monochloroacetic Acid	ND ug/L	2.0	1	AG14624	07/29/21 01:00	07/30/21 06:03	1551	EPA 552.2	
Dibromoacetic Acid	ND ug/L	1.0	1	AG14624	07/29/21 01:00	07/30/21 06:03	1551	EPA 552.2	
Dichloroacetic Acid	ND ug/L	1.0	1	AG14624	07/29/21 01:00	07/30/21 06:03	1551	EPA 552.2	
Trichloroacetic Acid	ND ug/L	1.0	1	AG14624	07/29/21 01:00	07/30/21 06:03	1551	EPA 552.2	
Total Haloacetic Acids (HAA5)	ND ug/L	1.0	1	AG14624	07/29/21 01:00	07/30/21 06:03	1551	EPA 552.2	
Surrogate: 2,3-Dibromopropionic Acid	105 %	70-130		AG14624	07/29/21 01:00	07/30/21 06:03	1551	EPA 552.2	
Surrogate: 2-Bromopropionic Acid	117 %	70-130		AG14624	07/29/21 01:00	07/30/21 06:03	1551	EPA 552.2	
SSWD #11 (21G3255-03)									
Sample Type: Water				Sampled: 07/26/21 10:15					
Metals (Dissolved) by EPA 200 Series Methods									
Mercury, dissolved	ND ug/L	0.20	1	AG14588	07/28/21 07:05	07/28/21 13:02	1551	EPA 245.1	FILT
Calcium, dissolved	62 mg/L	1.0	1	AH13835	08/12/21 12:40	08/13/21 12:32	1551	EPA 200.7	
Iron, dissolved	ND mg/L	0.10	1	AH13835	08/12/21 12:40	08/13/21 12:32	1551	EPA 200.7	
Magnesium, dissolved	60 mg/L	1.0	1	AH13835	08/12/21 12:40	08/13/21 12:32	1551	EPA 200.7	
Potassium, dissolved	3.4 mg/L	1.0	1	AH13835	08/12/21 12:40	08/13/21 12:32	1551	EPA 200.7	
Sodium, dissolved	140 mg/L	1.0	1	AH13835	08/12/21 12:40	08/13/21 12:32	1551	EPA 200.7	
Metals (Dissolved) by EPA Method 200.8 ICP/MS									
Aluminum, dissolved	ND ug/L	10	1	AG14507	07/27/21 14:35	07/28/21 14:30	1551	EPA 200.8	FILT
Antimony, dissolved	ND ug/L	0.50	1	AG14507	07/27/21 14:35	07/28/21 14:30	1551	EPA 200.8	
Arsenic, dissolved	3.1 ug/L	0.50	1	AG14507	07/27/21 14:35	07/28/21 14:30	1551	EPA 200.8	
Barium, dissolved	27 ug/L	0.50	1	AG14507	07/27/21 14:35	07/28/21 14:30	1551	EPA 200.8	
Beryllium, dissolved	ND ug/L	0.10	1	AG14507	07/27/21 14:35	07/28/21 14:30	1551	EPA 200.8	
Boron, dissolved	780 ug/L	50	1	AG14507	07/27/21 14:35	07/28/21 14:30	1551	EPA 200.8	
Cadmium, dissolved	ND ug/L	0.10	1	AG14507	07/27/21 14:35	07/28/21 14:30	1551	EPA 200.8	
Chromium, dissolved	4.0 ug/L	0.50	1	AG14507	07/27/21 14:35	07/28/21 14:30	1551	EPA 200.8	
Copper, dissolved	5.5 ug/L	0.50	1	AG14507	07/27/21 14:35	07/28/21 14:30	1551	EPA 200.8	
Lead, dissolved	ND ug/L	0.25	1	AG14507	07/27/21 14:35	07/28/21 14:30	1551	EPA 200.8	
Manganese, dissolved	ND ug/L	5.0	1	AG14507	07/27/21 14:35	07/28/21 14:30	1551	EPA 200.8	
Molybdenum, dissolved	3.1 ug/L	0.25	1	AG14507	07/27/21 14:35	07/28/21 14:30	1551	EPA 200.8	
Nickel, dissolved	2.2 ug/L	0.50	1	AG14507	07/27/21 14:35	07/28/21 14:30	1551	EPA 200.8	
Selenium, dissolved	2.1 ug/L	2.0	1	AG14507	07/27/21 14:35	07/28/21 14:30	1551	EPA 200.8	
Silver, dissolved	ND ug/L	0.10	1	AG14507	07/27/21 14:35	07/28/21 14:30	1551	EPA 200.8	
Thallium, dissolved	ND ug/L	0.10	1	AG14507	07/27/21 14:35	07/28/21 14:30	1551	EPA 200.8	
Vanadium, dissolved	4.7 ug/L	1.0	1	AG14507	07/27/21 14:35	07/28/21 14:30	1551	EPA 200.8	
Zinc, dissolved	ND ug/L	5.0	1	AG14507	07/27/21 14:35	07/28/21 14:30	1551	EPA 200.8	

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Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: Round 3 ASR Water Quality Baseline

Reported:
08/16/21 10:41

	Result		Reporting Limit	Dilution	Batch	Prepared	Analyzed	ELAP#	Method	Note
SSWD #11 (21G3255-03)										
				Sample Type: Water		Sampled: 07/26/21 10:15				
Conventional Chemistry Parameters by APHA/EPA Methods										
Color	ND CU	5.0	1	AG14652	07/26/21 17:30	07/26/21 17:30	2728	SM2120B		
MBAS, calculated as LAS, mw 340	ND mg/L	0.050	1	AG14585	07/28/21 07:00	07/28/21 15:15	1551	SM5540C		
Perchlorate	ND ug/L	2.0	1	AG14736	07/29/21 08:00	07/29/21 13:03	2303	EPA 314.0		
Sulfide	ND mg/L	0.10	1	AG14583	07/28/21 07:00	07/28/21 09:30	1551	SM4500-S2 D		
Total Dissolved Solids	820 mg/L	10	1	AG14661	07/29/21 05:45	08/06/21 08:07	1551	SM2540C		
Turbidity	0.15 NTU	0.10	1	AG14641	07/26/21 18:52	07/26/21 18:52	2728	SM2130B		
Bicarbonate Alkalinity as CaCO3	260 mg/L	5.0	1	AH13265	08/03/21 08:00	08/03/21 17:00	1551	SM2320B		
Carbonate Alkalinity as CaCO3	ND mg/L	5.0	1	AH13265	08/03/21 08:00	08/03/21 17:00	1551	SM2320B		
Hydroxide Alkalinity as CaCO3	ND mg/L	5.0	1	AH13265	08/03/21 08:00	08/03/21 17:00	1551	SM2320B		
Total Alkalinity as CaCO3	260 mg/L	5.0	1	AH13265	08/03/21 08:00	08/03/21 17:00	1551	SM2320B		
Anions by EPA Method 300.0										
Chloride	160 mg/L	5.0	10	AG14442	07/27/21 13:52	07/27/21 13:52	1551	EPA 300.0		
Fluoride	0.19 mg/L	0.10	1	AG14442	07/27/21 13:35	07/27/21 13:35	1551	EPA 300.0		
Nitrate as N	1.5 mg/L	0.20	1	AG14442	07/27/21 13:35	07/27/21 13:35	1551	EPA 300.0		
Sulfate as SO4	210 mg/L	5.0	10	AG14442	07/27/21 13:52	07/27/21 13:52	1551	EPA 300.0		
Microbiological Parameters by APHA Standard Methods										
Total Coliforms	ND MPN/100mL	1.0	1	AG14786	07/26/21 16:40	07/27/21 16:40	2728	SM9223B		
E. Coli	ND MPN/100mL	1.0	1	AG14786	07/26/21 16:40	07/27/21 16:40	2728	SM9223B		
Volatile Organic Compounds by EPA Method 524.2										
Bromodichloromethane	ND ug/L	1.00	1	AG14707	07/30/21 08:00	07/31/21 04:31	1551	EPA 524.2		
Bromoform	ND ug/L	1.00	1	AG14707	07/30/21 08:00	07/31/21 04:31	1551	EPA 524.2		
Chloroform	ND ug/L	1.00	1	AG14707	07/30/21 08:00	07/31/21 04:31	1551	EPA 524.2		
Dibromochloromethane	ND ug/L	1.00	1	AG14707	07/30/21 08:00	07/31/21 04:31	1551	EPA 524.2		
Trihalomethanes (total)	ND ug/L	1.00	1	AG14707	07/30/21 08:00	07/31/21 04:31	1551	EPA 524.2		
Surrogate: Bromofluorobenzene	113 %	70-130		AG14707	07/30/21 08:00	07/31/21 04:31	1551	EPA 524.2		
Surrogate: Dibromofluoromethane	92.4 %	70-130		AG14707	07/30/21 08:00	07/31/21 04:31	1551	EPA 524.2		
Surrogate: Toluene-d8	109 %	70-130		AG14707	07/30/21 08:00	07/31/21 04:31	1551	EPA 524.2		

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Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: Round 3 ASR Water Quality Baseline

Reported:
08/16/21 10:41

	Result	Reporting Limit	Dilution	Batch	Prepared	Analyzed	ELAP#	Method	Note
SSWD #11 (21G3255-03)									
Sample Type: Water				Sampled: 07/26/21 10:15					
Haloacetic Acids by EPA Method 552.2									
Monobromoacetic Acid	ND ug/L	1.0	1	AG14624	07/29/21 01:00	07/30/21 06:45	1551	EPA 552.2	
Monochloroacetic Acid	ND ug/L	2.0	1	AG14624	07/29/21 01:00	07/30/21 06:45	1551	EPA 552.2	
Dibromoacetic Acid	ND ug/L	1.0	1	AG14624	07/29/21 01:00	07/30/21 06:45	1551	EPA 552.2	
Dichloroacetic Acid	ND ug/L	1.0	1	AG14624	07/29/21 01:00	07/30/21 06:45	1551	EPA 552.2	
Trichloroacetic Acid	ND ug/L	1.0	1	AG14624	07/29/21 01:00	07/30/21 06:45	1551	EPA 552.2	
Total Haloacetic Acids (HAA5)	ND ug/L	1.0	1	AG14624	07/29/21 01:00	07/30/21 06:45	1551	EPA 552.2	
Surrogate: 2,3-Dibromopropionic Acid	107 %	70-130		AG14624	07/29/21 01:00	07/30/21 06:45	1551	EPA 552.2	
Surrogate: 2-Bromopropionic Acid	113 %	70-130		AG14624	07/29/21 01:00	07/30/21 06:45	1551	EPA 552.2	
SSWD #2 (21G3255-04)									
Sample Type: Water				Sampled: 07/26/21 10:30					
Metals (Dissolved) by EPA 200 Series Methods									
Mercury, dissolved	ND ug/L	0.20	1	AG14588	07/28/21 07:05	07/28/21 13:05	1551	EPA 245.1	FILT
Calcium, dissolved	57 mg/L	1.0	1	AH13835	08/12/21 12:40	08/13/21 12:44	1551	EPA 200.7	
Iron, dissolved	ND mg/L	0.10	1	AH13835	08/12/21 12:40	08/13/21 12:44	1551	EPA 200.7	
Magnesium, dissolved	72 mg/L	1.0	1	AH13835	08/12/21 12:40	08/13/21 12:44	1551	EPA 200.7	
Potassium, dissolved	3.0 mg/L	1.0	1	AH13835	08/12/21 12:40	08/13/21 12:44	1551	EPA 200.7	
Sodium, dissolved	130 mg/L	1.0	1	AH13835	08/12/21 12:40	08/13/21 12:44	1551	EPA 200.7	
Metals (Dissolved) by EPA Method 200.8 ICP/MS									
Aluminum, dissolved	ND ug/L	10	1	AG14507	07/27/21 14:35	07/28/21 16:27	1551	EPA 200.8	FILT
Antimony, dissolved	ND ug/L	0.50	1	AG14507	07/27/21 14:35	07/28/21 16:27	1551	EPA 200.8	
Arsenic, dissolved	2.5 ug/L	0.50	1	AG14507	07/27/21 14:35	07/28/21 16:27	1551	EPA 200.8	
Barium, dissolved	23 ug/L	0.50	1	AG14507	07/27/21 14:35	07/28/21 16:27	1551	EPA 200.8	
Beryllium, dissolved	ND ug/L	0.10	1	AG14507	07/27/21 14:35	07/28/21 16:27	1551	EPA 200.8	
Boron, dissolved	900 ug/L	50	1	AG14507	07/27/21 14:35	07/28/21 16:27	1551	EPA 200.8	
Cadmium, dissolved	ND ug/L	0.10	1	AG14507	07/27/21 14:35	07/28/21 16:27	1551	EPA 200.8	
Chromium, dissolved	9.9 ug/L	0.50	1	AG14507	07/27/21 14:35	07/28/21 16:27	1551	EPA 200.8	
Copper, dissolved	6.8 ug/L	0.50	1	AG14507	07/27/21 14:35	07/28/21 16:27	1551	EPA 200.8	
Lead, dissolved	ND ug/L	0.25	1	AG14507	07/27/21 14:35	07/28/21 16:27	1551	EPA 200.8	
Manganese, dissolved	ND ug/L	5.0	1	AG14507	07/27/21 14:35	07/28/21 16:27	1551	EPA 200.8	
Molybdenum, dissolved	2.4 ug/L	0.25	1	AG14507	07/27/21 14:35	07/28/21 16:27	1551	EPA 200.8	
Nickel, dissolved	4.1 ug/L	0.50	1	AG14507	07/27/21 14:35	07/28/21 16:27	1551	EPA 200.8	
Selenium, dissolved	ND ug/L	2.0	1	AG14507	07/27/21 14:35	07/28/21 16:27	1551	EPA 200.8	
Silver, dissolved	ND ug/L	0.10	1	AG14507	07/27/21 14:35	07/28/21 16:27	1551	EPA 200.8	
Thallium, dissolved	ND ug/L	0.10	1	AG14507	07/27/21 14:35	07/28/21 16:27	1551	EPA 200.8	
Vanadium, dissolved	3.7 ug/L	1.0	1	AG14507	07/27/21 14:35	07/28/21 16:27	1551	EPA 200.8	
Zinc, dissolved	13 ug/L	5.0	1	AG14507	07/27/21 14:35	07/28/21 16:27	1551	EPA 200.8	

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Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: Round 3 ASR Water Quality Baseline

Reported:
08/16/21 10:41

	Result	Reporting Limit	Dilution	Batch	Prepared	Analyzed	ELAP#	Method	Note
SSWD #2 (21G3255-04)		Sample Type: Water			Sampled: 07/26/21 10:30				
Conventional Chemistry Parameters by APHA/EPA Methods									
Color	ND CU	5.0	1	AG14652	07/26/21 17:30	07/26/21 17:30	2728	SM2120B	
MBAS, calculated as LAS, mw 340	ND mg/L	0.050	1	AG14585	07/28/21 07:00	07/28/21 15:15	1551	SM5540C	
Perchlorate	ND ug/L	2.0	1	AG14736	07/29/21 08:00	07/29/21 13:19	2303	EPA 314.0	
Sulfide	ND mg/L	0.10	1	AG14583	07/28/21 07:00	07/28/21 09:30	1551	SM4500-S2 D	
Total Dissolved Solids	830 mg/L	10	1	AG14661	07/29/21 05:45	08/06/21 08:07	1551	SM2540C	
Turbidity	0.10 NTU	0.10	1	AG14641	07/26/21 18:52	07/26/21 18:52	2728	SM2130B	
Bicarbonate Alkalinity as CaCO3	300 mg/L	5.0	1	AH13265	08/03/21 08:00	08/03/21 17:00	1551	SM2320B	
Carbonate Alkalinity as CaCO3	ND mg/L	5.0	1	AH13265	08/03/21 08:00	08/03/21 17:00	1551	SM2320B	
Hydroxide Alkalinity as CaCO3	ND mg/L	5.0	1	AH13265	08/03/21 08:00	08/03/21 17:00	1551	SM2320B	
Total Alkalinity as CaCO3	300 mg/L	5.0	1	AH13265	08/03/21 08:00	08/03/21 17:00	1551	SM2320B	
Anions by EPA Method 300.0									
Chloride	110 mg/L	5.0	10	AG14442	07/27/21 14:25	07/27/21 14:25	1551	EPA 300.0	
Fluoride	0.32 mg/L	0.10	1	AG14442	07/27/21 14:08	07/27/21 14:08	1551	EPA 300.0	
Nitrate as N	2.6 mg/L	0.20	1	AG14442	07/27/21 14:08	07/27/21 14:08	1551	EPA 300.0	
Sulfate as SO4	260 mg/L	5.0	10	AG14442	07/27/21 14:25	07/27/21 14:25	1551	EPA 300.0	
Microbiological Parameters by APHA Standard Methods									
Total Coliforms	ND MPN/100mL	1.0	1	AG14786	07/26/21 16:40	07/27/21 16:40	2728	SM9223B	
E. Coli	ND MPN/100mL	1.0	1	AG14786	07/26/21 16:40	07/27/21 16:40	2728	SM9223B	
Volatile Organic Compounds by EPA Method 524.2									
Bromodichloromethane	ND ug/L	1.00	1	AG14707	07/30/21 08:00	07/31/21 05:04	1551	EPA 524.2	
Bromoform	ND ug/L	1.00	1	AG14707	07/30/21 08:00	07/31/21 05:04	1551	EPA 524.2	
Chloroform	ND ug/L	1.00	1	AG14707	07/30/21 08:00	07/31/21 05:04	1551	EPA 524.2	
Dibromochloromethane	ND ug/L	1.00	1	AG14707	07/30/21 08:00	07/31/21 05:04	1551	EPA 524.2	
Trihalomethanes (total)	ND ug/L	1.00	1	AG14707	07/30/21 08:00	07/31/21 05:04	1551	EPA 524.2	
Surrogate: Bromofluorobenzene	113 %	70-130		AG14707	07/30/21 08:00	07/31/21 05:04	1551	EPA 524.2	
Surrogate: Dibromofluoromethane	91.0 %	70-130		AG14707	07/30/21 08:00	07/31/21 05:04	1551	EPA 524.2	
Surrogate: Toluene-d8	108 %	70-130		AG14707	07/30/21 08:00	07/31/21 05:04	1551	EPA 524.2	



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Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: Round 3 ASR Water Quality Baseline

Reported:
08/16/21 10:41

	Result	Reporting Limit	Dilution	Batch	Prepared	Analyzed	ELAP#	Method	Note
SSWD #2 (21G3255-04)									
Sample Type: Water				Sampled: 07/26/21 10:30					
Haloacetic Acids by EPA Method 552.2									
Monobromoacetic Acid	ND ug/L	1.0	1	AG14624	07/29/21 01:00	07/30/21 07:27	1551	EPA 552.2	
Monochloroacetic Acid	ND ug/L	2.0	1	AG14624	07/29/21 01:00	07/30/21 07:27	1551	EPA 552.2	
Dibromoacetic Acid	ND ug/L	1.0	1	AG14624	07/29/21 01:00	07/30/21 07:27	1551	EPA 552.2	
Dichloroacetic Acid	ND ug/L	1.0	1	AG14624	07/29/21 01:00	07/30/21 07:27	1551	EPA 552.2	
Trichloroacetic Acid	ND ug/L	1.0	1	AG14624	07/29/21 01:00	07/30/21 07:27	1551	EPA 552.2	
Total Haloacetic Acids (HAA5)	ND ug/L	1.0	1	AG14624	07/29/21 01:00	07/30/21 07:27	1551	EPA 552.2	
Surrogate: 2,3-Dibromopropionic Acid	93.2 %	70-130		AG14624	07/29/21 01:00	07/30/21 07:27	1551	EPA 552.2	
Surrogate: 2-Bromopropionic Acid	95.7 %	70-130		AG14624	07/29/21 01:00	07/30/21 07:27	1551	EPA 552.2	



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Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: Round 3 ASR Water Quality Baseline

Reported:
08/16/21 10:41

Metals (Dissolved) by EPA 200 Series Methods - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	Limit	RPD	RPD Limit	Flag
Batch AG14588 - EPA 245.1 Hg Water										
Blank (AG14588-BLK1)				Prepared & Analyzed: 07/28/21						
Mercury, dissolved	ND	0.20	ug/L							
LCS (AG14588-BS1)				Prepared & Analyzed: 07/28/21						
Mercury, dissolved	2.42	0.20	ug/L	2.50		96.8	85-115			
Duplicate (AG14588-DUP1)				Source: 21G2026-04			Prepared & Analyzed: 07/28/21			
Mercury, dissolved	ND	0.20	ug/L		ND				20	
Matrix Spike (AG14588-MS1)				Source: 21G2026-04			Prepared & Analyzed: 07/28/21			
Mercury, dissolved	2.52	0.20	ug/L	2.50	ND	101	70-130			
Matrix Spike Dup (AG14588-MSD1)				Source: 21G2026-04			Prepared & Analyzed: 07/28/21			
Mercury, dissolved	2.64	0.20	ug/L	2.50	ND	105	70-130	4.74	20	
Batch AH13835 - Metals Digest (D)										
Blank (AH13835-BLK1)				Prepared: 08/12/21 Analyzed: 08/13/21						
Calcium, dissolved	ND	1.0	mg/L							
Iron, dissolved	ND	0.10	mg/L							
Magnesium, dissolved	ND	1.0	mg/L							
Potassium, dissolved	ND	1.0	mg/L							
Sodium, dissolved	ND	1.0	mg/L							
LCS (AH13835-BS1)				Prepared: 08/12/21 Analyzed: 08/13/21						
Calcium, dissolved	8.00	1.0	mg/L	8.00		100	85-115			
Iron, dissolved	1.96	0.10	mg/L	2.00		97.8	85-115			
Magnesium, dissolved	8.00	1.0	mg/L	8.00		100	85-115			
Potassium, dissolved	7.66	1.0	mg/L	8.00		95.7	85-115			
Sodium, dissolved	7.87	1.0	mg/L	8.00		98.3	85-115			



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Reported:
08/16/21 10:41

Metals (Dissolved) by EPA 200 Series Methods - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch AH13835 - Metals Digest (D)										
Duplicate (AH13835-DUP1)		Source: 21G3255-01		Prepared: 08/12/21		Analyzed: 08/13/21				
Calcium, dissolved	71.2	1.0	mg/L		70.9			0.473	20	
Iron, dissolved	ND	0.10	mg/L		ND				20	
Magnesium, dissolved	57.7	1.0	mg/L		57.3			0.743	20	
Potassium, dissolved	2.91	1.0	mg/L		2.89			0.543	20	
Sodium, dissolved	124	1.0	mg/L		125			0.750	20	
Matrix Spike (AH13835-MS1)		Source: 21G3255-01		Prepared: 08/12/21		Analyzed: 08/13/21				
Calcium, dissolved	78.9	1.0	mg/L	8.00	70.9	101	70-130			
Iron, dissolved	2.00	0.10	mg/L	2.00	ND	99.9	70-130			
Magnesium, dissolved	66.0	1.0	mg/L	8.00	57.3	109	70-130			
Potassium, dissolved	10.8	1.0	mg/L	8.00	2.89	98.9	70-130			
Sodium, dissolved	131	1.0	mg/L	8.00	125	76.8	70-130			
Matrix Spike Dup (AH13835-MSD1)		Source: 21G3255-01		Prepared: 08/12/21		Analyzed: 08/13/21				
Calcium, dissolved	80.3	1.0	mg/L	8.00	70.9	118	70-130	1.68	20	
Iron, dissolved	2.00	0.10	mg/L	2.00	ND	99.9	70-130	0.00220	20	
Magnesium, dissolved	66.7	1.0	mg/L	8.00	57.3	118	70-130	1.05	20	
Potassium, dissolved	10.8	1.0	mg/L	8.00	2.89	98.5	70-130	0.281	20	
Sodium, dissolved	133	1.0	mg/L	8.00	125	101	70-130	1.48	20	



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Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: Round 3 ASR Water Quality Baseline

Reported:
08/16/21 10:41

Metals (Dissolved) by EPA Method 200.8 ICP/MS - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Flag
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Batch AG14507 - EPA 200.8 (D)

Blank (AG14507-BLK1)

Prepared: 07/27/21 Analyzed: 07/28/21

Aluminum, dissolved	ND	10	ug/L
Antimony, dissolved	ND	0.50	ug/L
Arsenic, dissolved	ND	0.50	ug/L
Barium, dissolved	ND	0.50	ug/L
Beryllium, dissolved	ND	0.10	ug/L
Boron, dissolved	ND	50	ug/L
Cadmium, dissolved	ND	0.10	ug/L
Chromium, dissolved	ND	0.50	ug/L
Copper, dissolved	ND	0.50	ug/L
Lead, dissolved	ND	0.25	ug/L
Manganese, dissolved	ND	5.0	ug/L
Molybdenum, dissolved	ND	0.25	ug/L
Nickel, dissolved	ND	0.50	ug/L
Selenium, dissolved	ND	2.0	ug/L
Silver, dissolved	ND	0.10	ug/L
Thallium, dissolved	ND	0.10	ug/L
Vanadium, dissolved	ND	1.0	ug/L
Zinc, dissolved	ND	5.0	ug/L

LCS (AG14507-BS1)

Prepared: 07/27/21 Analyzed: 07/28/21

Aluminum, dissolved	590	10	ug/L	520	113	85-115
Antimony, dissolved	21.3	0.50	ug/L	20.0	106	85-115
Arsenic, dissolved	20.3	0.50	ug/L	20.0	102	85-115
Barium, dissolved	20.2	0.50	ug/L	20.0	101	85-115
Beryllium, dissolved	20.9	0.10	ug/L	20.0	104	85-115
Boron, dissolved	99.8	50	ug/L	100	99.8	85-115
Cadmium, dissolved	21.0	0.10	ug/L	20.0	105	85-115
Chromium, dissolved	22.3	0.50	ug/L	20.0	111	85-115
Copper, dissolved	21.1	0.50	ug/L	20.0	105	85-115
Lead, dissolved	20.9	0.25	ug/L	20.0	105	85-115
Manganese, dissolved	19.7	5.0	ug/L	20.0	98.7	85-115
Molybdenum, dissolved	21.7	0.25	ug/L	20.0	108	85-115
Nickel, dissolved	20.9	0.50	ug/L	20.0	104	85-115
Selenium, dissolved	18.9	2.0	ug/L	20.0	94.6	85-115
Silver, dissolved	20.3	0.10	ug/L	20.0	101	85-115

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Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: Round 3 ASR Water Quality Baseline

Reported:
08/16/21 10:41

Metals (Dissolved) by EPA Method 200.8 ICP/MS - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch AG14507 - EPA 200.8 (D)										
LCS (AG14507-BS1)				Prepared: 07/27/21		Analyzed: 07/28/21				
Thallium, dissolved	20.5	0.10	ug/L	20.0		102	85-115			
Vanadium, dissolved	20.7	1.0	ug/L	20.0		104	85-115			
Zinc, dissolved	91.5	5.0	ug/L	100		91.5	85-115			
Duplicate (AG14507-DUP1)				Source: 21G3255-03		Prepared: 07/27/21		Analyzed: 07/28/21		
Aluminum, dissolved	ND	10	ug/L		ND			22.4	20	
Antimony, dissolved	ND	0.50	ug/L		ND				20	
Arsenic, dissolved	3.16	0.50	ug/L		3.10			1.92	20	
Barium, dissolved	26.2	0.50	ug/L		27.4			4.48	20	
Beryllium, dissolved	ND	0.10	ug/L		ND				20	
Boron, dissolved	791	50	ug/L		784			0.917	20	
Cadmium, dissolved	ND	0.10	ug/L		ND			0.318	20	
Chromium, dissolved	4.01	0.50	ug/L		3.97			1.10	20	
Copper, dissolved	5.43	0.50	ug/L		5.52			1.71	20	
Lead, dissolved	ND	0.25	ug/L		ND			0.637	20	
Manganese, dissolved	ND	5.0	ug/L		ND				20	
Molybdenum, dissolved	3.00	0.25	ug/L		3.06			1.92	20	
Nickel, dissolved	2.34	0.50	ug/L		2.22			5.44	20	
Selenium, dissolved	ND	2.0	ug/L		2.08			11.7	20	
Silver, dissolved	ND	0.10	ug/L		ND			200	20	
Thallium, dissolved	ND	0.10	ug/L		ND			200	20	
Vanadium, dissolved	4.81	1.0	ug/L		4.69			2.52	20	
Zinc, dissolved	ND	5.0	ug/L		ND			0.815	20	
Matrix Spike (AG14507-MS1)				Source: 21G3255-03		Prepared: 07/27/21		Analyzed: 07/28/21		
Aluminum, dissolved	642	10	ug/L	520	ND	122	70-130			
Antimony, dissolved	20.6	0.50	ug/L	20.0	ND	103	70-130			
Arsenic, dissolved	23.5	0.50	ug/L	20.0	3.10	102	70-130			
Barium, dissolved	43.8	0.50	ug/L	20.0	27.4	82.0	70-130			
Beryllium, dissolved	22.2	0.10	ug/L	20.0	ND	111	70-130			
Boron, dissolved	917	50	ug/L	100	784	133	70-130			QM-01
Cadmium, dissolved	19.7	0.10	ug/L	20.0	ND	98.1	70-130			
Chromium, dissolved	25.8	0.50	ug/L	20.0	3.97	109	70-130			
Copper, dissolved	24.4	0.50	ug/L	20.0	5.52	94.4	70-130			
Lead, dissolved	19.0	0.25	ug/L	20.0	ND	93.7	70-130			
Manganese, dissolved	18.8	5.0	ug/L	20.0	ND	94.0	70-130			

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Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: Round 3 ASR Water Quality Baseline

Reported:
08/16/21 10:41

Metals (Dissolved) by EPA Method 200.8 ICP/MS - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch AG14507 - EPA 200.8 (D)										
Matrix Spike (AG14507-MS1)		Source: 21G3255-03		Prepared: 07/27/21		Analyzed: 07/28/21				
Molybdenum, dissolved	24.7	0.25	ug/L	20.0	3.06	108	70-130			
Nickel, dissolved	21.1	0.50	ug/L	20.0	2.22	94.5	70-130			
Selenium, dissolved	20.9	2.0	ug/L	20.0	2.08	94.2	70-130			
Silver, dissolved	18.6	0.10	ug/L	20.0	ND	92.4	70-130			
Thallium, dissolved	18.6	0.10	ug/L	20.0	ND	92.7	70-130			
Vanadium, dissolved	25.8	1.0	ug/L	20.0	4.69	105	70-130			
Zinc, dissolved	85.6	5.0	ug/L	100	ND	80.7	70-130			
Matrix Spike Dup (AG14507-MSD1)		Source: 21G3255-03		Prepared: 07/27/21		Analyzed: 07/28/21				
Aluminum, dissolved	656	10	ug/L	520	ND	125	70-130	2.12	20	
Antimony, dissolved	20.8	0.50	ug/L	20.0	ND	104	70-130	0.764	20	
Arsenic, dissolved	23.6	0.50	ug/L	20.0	3.10	103	70-130	0.652	20	
Barium, dissolved	44.1	0.50	ug/L	20.0	27.4	83.3	70-130	0.575	20	
Beryllium, dissolved	22.9	0.10	ug/L	20.0	ND	114	70-130	2.95	20	
Boron, dissolved	947	50	ug/L	100	784	163	70-130	3.18	20	QM-01
Cadmium, dissolved	19.7	0.10	ug/L	20.0	ND	98.1	70-130	0.0234	20	
Chromium, dissolved	26.5	0.50	ug/L	20.0	3.97	113	70-130	2.57	20	
Copper, dissolved	24.5	0.50	ug/L	20.0	5.52	95.1	70-130	0.586	20	
Lead, dissolved	19.2	0.25	ug/L	20.0	ND	94.9	70-130	1.30	20	
Manganese, dissolved	19.0	5.0	ug/L	20.0	ND	95.1	70-130	1.15	20	
Molybdenum, dissolved	24.7	0.25	ug/L	20.0	3.06	108	70-130	0.279	20	
Nickel, dissolved	21.2	0.50	ug/L	20.0	2.22	94.7	70-130	0.125	20	
Selenium, dissolved	21.2	2.0	ug/L	20.0	2.08	95.5	70-130	1.25	20	
Silver, dissolved	18.7	0.10	ug/L	20.0	ND	92.9	70-130	0.460	20	
Thallium, dissolved	18.7	0.10	ug/L	20.0	ND	93.4	70-130	0.768	20	
Vanadium, dissolved	25.8	1.0	ug/L	20.0	4.69	105	70-130	0.0392	20	
Zinc, dissolved	85.7	5.0	ug/L	100	ND	80.8	70-130	0.0858	20	

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Todd Groundwater 2490 Mariner Square Loop, Suite 215 Alameda, CA 94501	Project Manager: Nicole Grimm Project: Round 3 ASR Water Quality Baseline Project Number: Round 3 ASR Water Quality Baseline	Reported: 08/16/21 10:41
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Conventional Chemistry Parameters by APHA/EPA Methods - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch AG14583 - General Preparation										
Blank (AG14583-BLK1)				Prepared & Analyzed: 07/28/21						
Sulfide	ND	0.10	mg/L							
LCS (AG14583-BS1)				Prepared & Analyzed: 07/28/21						
Sulfide	0.209	0.10	mg/L	0.200		105	85-115			
Duplicate (AG14583-DUP1)				Source: 21G3255-01		Prepared & Analyzed: 07/28/21				
Sulfide	ND	0.10	mg/L		ND				15	
Matrix Spike (AG14583-MS1)				Source: 21G3255-01		Prepared & Analyzed: 07/28/21				
Sulfide	0.167	0.10	mg/L	0.200	ND	83.7	80-120			
Matrix Spike Dup (AG14583-MSD1)				Source: 21G3255-01		Prepared & Analyzed: 07/28/21				
Sulfide	0.165	0.10	mg/L	0.200	ND	82.7	80-120	1.20	15	
Batch AG14585 - General Preparation										
Blank (AG14585-BLK1)				Prepared & Analyzed: 07/28/21						
MBAS, calculated as LAS, mw 340	ND	0.050	mg/L							
LCS (AG14585-BS1)				Prepared & Analyzed: 07/28/21						
MBAS, calculated as LAS, mw 340	0.192	0.050	mg/L	0.200		95.8	80-120			
Matrix Spike (AG14585-MS1)				Source: 21G3255-01		Prepared & Analyzed: 07/28/21				
MBAS, calculated as LAS, mw 340	0.197	0.050	mg/L	0.200	ND	98.7	80-120			
Matrix Spike Dup (AG14585-MSD1)				Source: 21G3255-01		Prepared & Analyzed: 07/28/21				
MBAS, calculated as LAS, mw 340	0.183	0.050	mg/L	0.200	ND	91.4	80-120	7.73	20	

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2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: Round 3 ASR Water Quality Baseline

Reported:
08/16/21 10:41

Conventional Chemistry Parameters by APHA/EPA Methods - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch AG14641 - General Prep (BAL)										
Duplicate (AG14641-DUP1)		Source: 21G3284-04		Prepared & Analyzed: 07/26/21						
Turbidity	18.0	0.10	NTU		20.0			10.5	15	
Duplicate (AG14641-DUP2)		Source: 21G3255-03		Prepared & Analyzed: 07/26/21						
Turbidity	0.200	0.10	NTU		0.150			28.6	15	A-01
Batch AG14661 - General Preparation										
Blank (AG14661-BLK1)		Prepared: 07/29/21 Analyzed: 08/06/21								
Total Dissolved Solids	ND	10	mg/L							
Duplicate (AG14661-DUP1)		Source: 21G2939-01		Prepared: 07/29/21 Analyzed: 08/06/21						
Total Dissolved Solids	308	10	mg/L		306			0.651	15	
Duplicate (AG14661-DUP2)		Source: 21G2983-01		Prepared: 07/29/21 Analyzed: 08/06/21						
Total Dissolved Solids	188	10	mg/L		194			3.14	15	
Batch AG14736 - NB General Prep										
Blank (AG14736-BLK1)		Prepared & Analyzed: 07/29/21								
Perchlorate	ND	2.0	ug/L							
LCS (AG14736-BS1)		Prepared & Analyzed: 07/29/21								
Perchlorate	9.67	2.0	ug/L	10.0		96.7	85-115			
Duplicate (AG14736-DUP1)		Source: 21G3279-01		Prepared & Analyzed: 07/29/21						
Perchlorate	ND	2.0	ug/L		ND				15	



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Todd Groundwater	Project Manager: Nicole Grimm	Reported:
2490 Mariner Square Loop, Suite 215	Project: Round 3 ASR Water Quality Baseline	08/16/21 10:41
Alameda, CA 94501	Project Number: Round 3 ASR Water Quality Baseline	

Conventional Chemistry Parameters by APHA/EPA Methods - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch AG14736 - NB General Prep										
Matrix Spike (AG14736-MS1)		Source: 21G3255-01		Prepared & Analyzed: 07/29/21						
Perchlorate	10.2	2.0	ug/L	10.0	ND	102	70-130			
Matrix Spike Dup (AG14736-MSD1)		Source: 21G3255-01		Prepared & Analyzed: 07/29/21						
Perchlorate	10.0	2.0	ug/L	10.0	ND	100	70-130	1.58	15	
Batch AH13265 - General Preparation										
Blank (AH13265-BLK1)		Prepared & Analyzed: 08/03/21								
Carbonate Alkalinity as CaCO ₃	ND	5.0	mg/L							
Bicarbonate Alkalinity as CaCO ₃	ND	5.0	mg/L							
Total Alkalinity as CaCO ₃	ND	5.0	mg/L							
Hydroxide Alkalinity as CaCO ₃	ND	5.0	mg/L							
LCS (AH13265-BS1)		Prepared & Analyzed: 08/03/21								
Total Alkalinity as CaCO ₃	75.0	5.0	mg/L	80.0		93.8	70-130			
Duplicate (AH13265-DUP1)		Source: 21G3284-01		Prepared & Analyzed: 08/03/21						
Hydroxide Alkalinity as CaCO ₃	ND	5.0	mg/L		ND				20	
Carbonate Alkalinity as CaCO ₃	ND	5.0	mg/L		ND				20	
Bicarbonate Alkalinity as CaCO ₃	76.0	5.0	mg/L		78.0			2.60	20	
Total Alkalinity as CaCO ₃	76.0	5.0	mg/L		78.0			2.60	20	



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2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: Round 3 ASR Water Quality Baseline

Reported:
08/16/21 10:41

Anions by EPA Method 300.0 - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch AG14442 - EPA 300.0										
Blank (AG14442-BLK1)				Prepared & Analyzed: 07/27/21						
Sulfate as SO ₄	ND	0.50	mg/L							
Nitrate as N	ND	0.20	mg/L							
Fluoride	ND	0.10	mg/L							
Chloride	ND	0.50	mg/L							
LCS (AG14442-BS1)				Prepared & Analyzed: 07/27/21						
Fluoride	6.07	0.10	mg/L	5.56		109	90-110			
Chloride	11.9	0.50	mg/L	11.1		107	90-110			
Sulfate as SO ₄	24.2	0.50	mg/L	22.2		109	90-110			
Nitrate as N	5.99	0.20	mg/L	5.56		108	90-110			
Duplicate (AG14442-DUP1)				Source: 21G3262-01		Prepared & Analyzed: 07/27/21				
Chloride	ND	0.50	mg/L		ND			0.976	20	
Fluoride	ND	0.10	mg/L		ND				20	
Sulfate as SO ₄	ND	0.50	mg/L		ND				20	
Nitrate as N	ND	0.20	mg/L		ND				20	
Matrix Spike (AG14442-MS1)				Source: 21G3262-01		Prepared & Analyzed: 07/27/21				
Chloride	10.6	5.0	mg/L	11.1	ND	95.8	80-120			
Sulfate as SO ₄	20.7	5.0	mg/L	22.2	ND	93.1	80-120			
Fluoride	5.30	1.0	mg/L	5.56	ND	95.4	80-120			
Nitrate as N	5.50	2.0	mg/L	5.56	ND	99.0	80-120			
Matrix Spike (AG14442-MS2)				Source: 21G3284-05		Prepared & Analyzed: 07/27/21				
Nitrate as N	5.78	2.0	mg/L	5.56	ND	104	80-120			
Sulfate as SO ₄	25.9	5.0	mg/L	22.2	ND	116	80-120			
Chloride	57.9	5.0	mg/L	11.1	49.6	75.0	80-120			QM-01
Fluoride	5.04	1.0	mg/L	5.56	ND	90.8	80-120			



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Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: Round 3 ASR Water Quality Baseline

Reported:
08/16/21 10:41

Anions by EPA Method 300.0 - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
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Batch AG14442 - EPA 300.0

Matrix Spike Dup (AG14442-MSD1)

Source: 21G3262-01

Prepared & Analyzed: 07/27/21

Chloride	10.7	5.0	mg/L	11.1	ND	96.7	80-120	0.935	20	
Sulfate as SO ₄	21.1	5.0	mg/L	22.2	ND	95.0	80-120	2.02	20	
Nitrate as N	5.52	2.0	mg/L	5.56	ND	99.4	80-120	0.319	20	
Fluoride	5.33	1.0	mg/L	5.56	ND	96.0	80-120	0.627	20	



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2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: Round 3 ASR Water Quality Baseline

Reported:
08/16/21 10:41

Volatile Organic Compounds by EPA Method 524.2 - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch AG14707 - VOAs in Water GCMS										
Blank (AG14707-BLK1)				Prepared & Analyzed: 07/30/21						
Bromodichloromethane	ND	1.00	ug/L							
Bromoform	ND	1.00	ug/L							
Chloroform	ND	1.00	ug/L							
Dibromochloromethane	ND	1.00	ug/L							
Trihalomethanes (total)	ND	1.00	ug/L							
Surrogate: Bromofluorobenzene	26.6		ug/L	25.0		106	70-130			
Surrogate: Dibromofluoromethane	21.4		ug/L	25.0		85.6	70-130			
Surrogate: Toluene-d8	28.2		ug/L	25.0		113	70-130			
LCS (AG14707-BS1)				Prepared & Analyzed: 07/30/21						
Bromodichloromethane	4.22	1.00	ug/L	5.00		84.4	70-130			
Bromoform	4.61	1.00	ug/L	5.00		92.2	70-130			
Chloroform	4.14	1.00	ug/L	5.00		82.8	70-130			
Dibromochloromethane	4.54	1.00	ug/L	5.00		90.8	70-130			
Surrogate: Bromofluorobenzene	28.8		ug/L	25.0		115	70-130			
Surrogate: Dibromofluoromethane	22.7		ug/L	25.0		90.7	70-130			
Surrogate: Toluene-d8	28.2		ug/L	25.0		113	70-130			
LCS Dup (AG14707-BSD1)				Prepared & Analyzed: 07/30/21						
Bromodichloromethane	4.25	1.00	ug/L	5.00		85.0	70-130	0.708	30	
Bromoform	4.21	1.00	ug/L	5.00		84.2	70-130	9.07	30	
Chloroform	4.04	1.00	ug/L	5.00		80.8	70-130	2.44	30	
Dibromochloromethane	4.45	1.00	ug/L	5.00		89.0	70-130	2.00	30	
Surrogate: Bromofluorobenzene	27.9		ug/L	25.0		112	70-130			
Surrogate: Dibromofluoromethane	21.9		ug/L	25.0		87.6	70-130			
Surrogate: Toluene-d8	27.9		ug/L	25.0		112	70-130			



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Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: Round 3 ASR Water Quality Baseline

Reported:
08/16/21 10:41

Haloacetic Acids by EPA Method 552.2 - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch AG14624 - EPA 552.2										
Blank (AG14624-BLK1)				Prepared & Analyzed: 07/29/21						
Monobromoacetic Acid	ND	1.0	ug/L							
Monochloroacetic Acid	ND	2.0	ug/L							
Dibromoacetic Acid	ND	1.0	ug/L							
Dichloroacetic Acid	ND	1.0	ug/L							
Trichloroacetic Acid	ND	1.0	ug/L							
Total Haloacetic Acids (HAA5)	ND	1.0	ug/L							
Surrogate: 2,3-Dibromopropionic Acid	9.63		ug/L	9.85		97.7	70-130			
Surrogate: 2-Bromopropionic Acid	10.6		ug/L	10.0		106	70-130			
LCS (AG14624-BS1)				Prepared: 07/29/21 Analyzed: 07/30/21						
Monobromoacetic Acid	24.1	1.0	ug/L	25.0		96.5	70-130			
Monochloroacetic Acid	24.8	2.0	ug/L	25.0		99.2	70-130			
Dibromoacetic Acid	23.8	1.0	ug/L	25.0		95.0	70-130			
Dichloroacetic Acid	24.6	1.0	ug/L	25.0		98.4	70-130			
Trichloroacetic Acid	22.5	1.0	ug/L	25.0		90.0	70-130			
Surrogate: 2,3-Dibromopropionic Acid	10.5		ug/L	9.85		106	70-130			
Surrogate: 2-Bromopropionic Acid	11.0		ug/L	10.0		110	70-130			
LCS Dup (AG14624-BSD1)				Prepared: 07/29/21 Analyzed: 07/30/21						
Monobromoacetic Acid	24.1	1.0	ug/L	25.0		96.5	70-130	0.0174	20	
Monochloroacetic Acid	24.3	2.0	ug/L	25.0		97.0	70-130	2.21	20	
Dibromoacetic Acid	24.8	1.0	ug/L	25.0		99.2	70-130	4.31	20	
Dichloroacetic Acid	24.8	1.0	ug/L	25.0		99.2	70-130	0.767	20	
Trichloroacetic Acid	24.7	1.0	ug/L	25.0		98.9	70-130	9.42	20	
Surrogate: 2,3-Dibromopropionic Acid	10.5		ug/L	9.85		107	70-130			
Surrogate: 2-Bromopropionic Acid	10.8		ug/L	10.0		108	70-130			
Matrix Spike (AG14624-MS1)				Source: 21G3255-01 Prepared: 07/29/21 Analyzed: 07/30/21						
Monobromoacetic Acid	28.8	1.0	ug/L	25.0	ND	115	70-130			
Monochloroacetic Acid	30.5	2.0	ug/L	25.0	ND	122	70-130			
Dibromoacetic Acid	29.2	1.0	ug/L	25.0	ND	117	70-130			
Dichloroacetic Acid	29.1	1.0	ug/L	25.0	ND	116	70-130			
Trichloroacetic Acid	27.7	1.0	ug/L	25.0	ND	111	70-130			
Surrogate: 2,3-Dibromopropionic Acid	12.7		ug/L	9.85		129	70-130			

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



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Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: Round 3 ASR Water Quality Baseline

Reported:
08/16/21 10:41

Haloacetic Acids by EPA Method 552.2 - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch AG14624 - EPA 552.2										
Matrix Spike (AG14624-MS1)		Source: 21G3255-01		Prepared: 07/29/21		Analyzed: 07/30/21				
Surrogate: 2-Bromopropionic Acid	11.6		ug/L	10.0		116	70-130			
Matrix Spike (AG14624-MS2)		Source: 21G3287-01		Prepared: 07/29/21		Analyzed: 07/30/21				
Monobromoacetic Acid	31.2	1.0	ug/L	25.0	ND	125	70-130			
Monochloroacetic Acid	177	2.0	ug/L	25.0	ND	709	70-130			QM-07
Dibromoacetic Acid	32.5	1.0	ug/L	25.0	2.34	121	70-130			
Dichloroacetic Acid	41.8	1.0	ug/L	25.0	9.49	129	70-130			
Trichloroacetic Acid	37.4	1.0	ug/L	25.0	6.12	125	70-130			
Surrogate: 2,3-Dibromopropionic Acid	10.4		ug/L	9.85		106	70-130			
Surrogate: 2-Bromopropionic Acid	10.5		ug/L	10.0		105	70-130			



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Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: Round 3 ASR Water Quality Baseline

Reported:
08/16/21 10:41

Notes and Definitions

A-01	Duplicate RPD outside of allowed limit, however, sample result is close to reporting limit and difference between replicates is less than reporting limit for the analysis.
FILT	The sample was filtered in the lab prior to analysis.
QM-01	The spike recovery for this QC sample is outside of established control limits possibly due to a sample matrix interference.
QM-07	The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.
ND	Analyte NOT DETECTED at or above the reporting limit
dry	Sample results reported on a dry weight basis
REC	Recovery
RPD	Relative Percent Difference

[illegible]

[illegible]

[illegible]

[illegible]

21G3255

Alpha Analytical Laboratories Ukiah to North Bay Chain of Custody

Client: **Todd Groundwater** Client Code: **DP_TODENG** Bid: **Round 3 ASR Water Quality**
Project: **Round 3 ASR Water Quality Baseline** Project Number: **Round 3 ASR Water Quality PO #:**

Date Due: 08/10/21 15:00 (10 day TAT)

Received By: Martin J. Henebury

Date Received: 07/26/21 22:45

Logged In By: Sheri L. Speaks

Date Logged: 07/27/21 07:13

Samples Received at: _____ deg C

All containers received and intact: YES NO

Analysis	Department	Expires	Comments
21G3255-01 SSWD 5 [Water] Sampled 07/26/21 09:20			
NB Perchlorate EPA 314.0	NB Wet Chem	08/23/21 23:59	
21G3255-02 SSWD 7 [Water] Sampled 07/26/21 10:00			
NB Perchlorate EPA 314.0	NB Wet Chem	08/23/21 23:59	
21G3255-03 SSWD #11 [Water] Sampled 07/26/21 10:15			
NB Perchlorate EPA 314.0	NB Wet Chem	08/23/21 23:59	
21G3255-04 SSWD #2 [Water] Sampled 07/26/21 10:30			
NB Perchlorate EPA 314.0	NB Wet Chem	08/23/21 23:59	

Containers Supplied:

250mL Poly Unpres (C)

250mL Poly Unpres (C)

250mL Poly Unpres (C)

250mL Poly Unpres (C)

Speaks 7-27-21
Relinquished By _____ Date _____ Time _____

7/28/21 7:20
Received By _____ Date _____ Time _____

7/28/21 12:00
Relinquished By _____ Date _____ Time _____

7/28/21 12:00
Received By _____ Date _____ Time _____



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29 September 2021

Todd Groundwater
Attn: Nicole Grimm
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501
RE: Round 3 ASR Water Quality Baseline
Work Order: 21G3255

Enclosed are the results of analyses for samples received by the laboratory on 07/26/21 22:45. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Jeanette L. Poplin For David S. Pingatore
Project Manager



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Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: Round 3 ASR Water Quality Baseline

Reported:
09/29/21 09:55

Bay Area: 262 Rickenbacker Circle | Livermore, CA 94551 | T: 925-828-6226 | F: 925-828-6309 | ELAP# 2728
Central Valley: 9090 Union Park Way Suite 113 | Elk Grove, CA 95624 | T: 916-686-5190 | F: 916-686-5192 | ELAP# 2922
North Bay: 110 Liberty Street | Petaluma, CA 94952 | T: 707-769-3128 | F: 707-769-8093 | ELAP# 2303
San Diego: 2722 Loker Avenue West Suite A | Carlsbad, CA 92010 | T: 760-930-2555 | F: 760-930-2510 | ELAP# 3055

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SSWD 5	21G3255-01	Water	07/26/21 09:20	07/26/21 22:45
SSWD 7	21G3255-02	Water	07/26/21 10:00	07/26/21 22:45
SSWD #11	21G3255-03	Water	07/26/21 10:15	07/26/21 22:45
SSWD #2	21G3255-04	Water	07/26/21 10:30	07/26/21 22:45

This represents an amended copy of the original report.
Dissolved hardness reported on all samples at client request.



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Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: Round 3 ASR Water Quality Baseline

Reported:
09/29/21 09:55

	Result	Reporting Limit	Dilution	Batch	Prepared	Analyzed	ELAP#	Method	Note
SSWD 5 (21G3255-01)		Sample Type: Water			Sampled: 07/26/21 09:20				
Metals (Dissolved) by EPA 200 Series Methods									FILT
Mercury, dissolved	ND ug/L	0.20	1	AG14588	07/28/21 07:05	07/28/21 12:52	1551	EPA 245.1	
Calcium, dissolved	71 mg/L	1.0	1	AH13835	08/12/21 12:40	08/13/21 12:23	1551	EPA 200.7	
Iron, dissolved	ND mg/L	0.10	1	AH13835	08/12/21 12:40	08/13/21 12:23	1551	EPA 200.7	
Magnesium, dissolved	57 mg/L	1.0	1	AH13835	08/12/21 12:40	08/13/21 12:23	1551	EPA 200.7	
Potassium, dissolved	2.9 mg/L	1.0	1	AH13835	08/12/21 12:40	08/13/21 12:23	1551	EPA 200.7	
Sodium, dissolved	120 mg/L	1.0	1	AH13835	08/12/21 12:40	08/13/21 12:23	1551	EPA 200.7	
Metals (Dissolved) by EPA Method 200.8 ICP/MS									FILT
Aluminum, dissolved	ND ug/L	10	1	AG14507	07/27/21 14:35	07/28/21 16:11	1551	EPA 200.8	
Antimony, dissolved	ND ug/L	0.50	1	AG14507	07/27/21 14:35	07/28/21 16:11	1551	EPA 200.8	
Arsenic, dissolved	2.9 ug/L	0.50	1	AG14507	07/27/21 14:35	07/28/21 16:11	1551	EPA 200.8	
Barium, dissolved	35 ug/L	0.50	1	AG14507	07/27/21 14:35	07/28/21 16:11	1551	EPA 200.8	
Beryllium, dissolved	ND ug/L	0.10	1	AG14507	07/27/21 14:35	07/28/21 16:11	1551	EPA 200.8	
Boron, dissolved	940 ug/L	50	1	AG14507	07/27/21 14:35	07/28/21 16:11	1551	EPA 200.8	
Cadmium, dissolved	ND ug/L	0.10	1	AG14507	07/27/21 14:35	07/28/21 16:11	1551	EPA 200.8	
Chromium, dissolved	10 ug/L	0.50	1	AG14507	07/27/21 14:35	07/28/21 16:11	1551	EPA 200.8	
Copper, dissolved	2.4 ug/L	0.50	1	AG14507	07/27/21 14:35	07/28/21 16:11	1551	EPA 200.8	
Lead, dissolved	ND ug/L	0.25	1	AG14507	07/27/21 14:35	07/28/21 16:11	1551	EPA 200.8	
Manganese, dissolved	ND ug/L	5.0	1	AG14507	07/27/21 14:35	07/28/21 16:11	1551	EPA 200.8	
Molybdenum, dissolved	1.7 ug/L	0.25	1	AG14507	07/27/21 14:35	07/28/21 16:11	1551	EPA 200.8	
Nickel, dissolved	2.4 ug/L	0.50	1	AG14507	07/27/21 14:35	07/28/21 16:11	1551	EPA 200.8	
Selenium, dissolved	ND ug/L	2.0	1	AG14507	07/27/21 14:35	07/28/21 16:11	1551	EPA 200.8	
Silver, dissolved	ND ug/L	0.10	1	AG14507	07/27/21 14:35	07/28/21 16:11	1551	EPA 200.8	
Thallium, dissolved	ND ug/L	0.10	1	AG14507	07/27/21 14:35	07/28/21 16:11	1551	EPA 200.8	
Vanadium, dissolved	5.1 ug/L	1.0	1	AG14507	07/27/21 14:35	07/28/21 16:11	1551	EPA 200.8	
Zinc, dissolved	6.8 ug/L	5.0	1	AG14507	07/27/21 14:35	07/28/21 16:11	1551	EPA 200.8	



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Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: Round 3 ASR Water Quality Baseline

Reported:
09/29/21 09:55

	Result	Reporting Limit	Dilution	Batch	Prepared	Analyzed	ELAP#	Method	Note
SSWD 5 (21G3255-01)									
Sample Type: Water				Sampled: 07/26/21 09:20					
Conventional Chemistry Parameters by APHA/EPA Methods									
Color	ND CU	5.0	1	AG14652	07/26/21 17:30	07/26/21 17:30	2728	SM2120B	
MBAS, calculated as LAS, mw 340	ND mg/L	0.050	1	AG14585	07/28/21 07:00	07/28/21 15:15	1551	SM5540C	
Perchlorate	ND ug/L	2.0	1	AG14736	07/29/21 08:00	07/29/21 12:30	2303	EPA 314.0	
Sulfide	ND mg/L	0.10	1	AG14583	07/28/21 07:00	07/28/21 09:30	1551	SM4500-S2 D	
Total Dissolved Solids	800 mg/L	10	1	AG14661	07/29/21 05:45	08/06/21 08:07	1551	SM2540C	
Turbidity	0.15 NTU	0.10	1	AG14641	07/26/21 18:52	07/26/21 18:52	2728	SM2130B	
Bicarbonate Alkalinity as CaCO3	300 mg/L	5.0	1	AH13265	08/03/21 08:00	08/03/21 17:00	1551	SM2320B	
Carbonate Alkalinity as CaCO3	ND mg/L	5.0	1	AH13265	08/03/21 08:00	08/03/21 17:00	1551	SM2320B	
Hydroxide Alkalinity as CaCO3	ND mg/L	5.0	1	AH13265	08/03/21 08:00	08/03/21 17:00	1551	SM2320B	
Total Alkalinity as CaCO3	300 mg/L	5.0	1	AH13265	08/03/21 08:00	08/03/21 17:00	1551	SM2320B	
Hardness, Total	413 mg/L	5	1	AH13835	08/12/21 12:40	08/13/21 12:23	1551	SM2340B	FILT
Anions by EPA Method 300.0									
Chloride	130 mg/L	5.0	10	AG14442	07/27/21 12:45	07/27/21 12:45	1551	EPA 300.0	
Fluoride	0.26 mg/L	0.10	1	AG14442	07/27/21 12:28	07/27/21 12:28	1551	EPA 300.0	
Nitrate as N	2.4 mg/L	0.20	1	AG14442	07/27/21 12:28	07/27/21 12:28	1551	EPA 300.0	
Sulfate as SO4	200 mg/L	5.0	10	AG14442	07/27/21 12:45	07/27/21 12:45	1551	EPA 300.0	
Microbiological Parameters by APHA Standard Methods									
Total Coliforms	ND MPN/100mL	1.0	1	AG14786	07/26/21 16:40	07/27/21 16:40	2728	SM9223B	
E. Coli	ND MPN/100mL	1.0	1	AG14786	07/26/21 16:40	07/27/21 16:40	2728	SM9223B	
Volatile Organic Compounds by EPA Method 524.2									
Bromodichloromethane	ND ug/L	1.00	1	AG14707	07/30/21 08:00	07/31/21 03:26	1551	EPA 524.2	
Bromoform	ND ug/L	1.00	1	AG14707	07/30/21 08:00	07/31/21 03:26	1551	EPA 524.2	
Chloroform	ND ug/L	1.00	1	AG14707	07/30/21 08:00	07/31/21 03:26	1551	EPA 524.2	
Dibromochloromethane	ND ug/L	1.00	1	AG14707	07/30/21 08:00	07/31/21 03:26	1551	EPA 524.2	
Trihalomethanes (total)	ND ug/L	1.00	1	AG14707	07/30/21 08:00	07/31/21 03:26	1551	EPA 524.2	
Surrogate: Bromofluorobenzene	111 %	70-130		AG14707	07/30/21 08:00	07/31/21 03:26	1551	EPA 524.2	
Surrogate: Dibromofluoromethane	92.2 %	70-130		AG14707	07/30/21 08:00	07/31/21 03:26	1551	EPA 524.2	
Surrogate: Toluene-d8	107 %	70-130		AG14707	07/30/21 08:00	07/31/21 03:26	1551	EPA 524.2	

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Corporate: 208 Mason Street | Ukiah, CA 95482 | T: 707-468-0401 | F: 707-468-5267 | ELAP# 1551

Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: Round 3 ASR Water Quality Baseline

Reported:
09/29/21 09:55

	Result	Reporting Limit	Dilution	Batch	Prepared	Analyzed	ELAP#	Method	Note
SSWD 5 (21G3255-01)									
Sample Type: Water				Sampled: 07/26/21 09:20					
Haloacetic Acids by EPA Method 552.2									
Monobromoacetic Acid	ND ug/L	1.0	1	AG14624	07/29/21 01:00	07/30/21 05:20	1551	EPA 552.2	
Monochloroacetic Acid	ND ug/L	2.0	1	AG14624	07/29/21 01:00	07/30/21 05:20	1551	EPA 552.2	
Dibromoacetic Acid	ND ug/L	1.0	1	AG14624	07/29/21 01:00	07/30/21 05:20	1551	EPA 552.2	
Dichloroacetic Acid	ND ug/L	1.0	1	AG14624	07/29/21 01:00	07/30/21 05:20	1551	EPA 552.2	
Trichloroacetic Acid	ND ug/L	1.0	1	AG14624	07/29/21 01:00	07/30/21 05:20	1551	EPA 552.2	
Total Haloacetic Acids (HAA5)	ND ug/L	1.0	1	AG14624	07/29/21 01:00	07/30/21 05:20	1551	EPA 552.2	
Surrogate: 2,3-Dibromopropionic Acid	84.0 %	70-130		AG14624	07/29/21 01:00	07/30/21 05:20	1551	EPA 552.2	
Surrogate: 2-Bromopropionic Acid	88.3 %	70-130		AG14624	07/29/21 01:00	07/30/21 05:20	1551	EPA 552.2	
SSWD 7 (21G3255-02)									
Sample Type: Water				Sampled: 07/26/21 10:00					
Metals (Dissolved) by EPA 200 Series Methods									
Mercury, dissolved	ND ug/L	0.20	1	AG14588	07/28/21 07:05	07/28/21 12:54	1551	EPA 245.1	FILT
Calcium, dissolved	73 mg/L	1.0	1	AH13835	08/12/21 12:40	08/13/21 12:27	1551	EPA 200.7	
Iron, dissolved	ND mg/L	0.10	1	AH13835	08/12/21 12:40	08/13/21 12:27	1551	EPA 200.7	
Magnesium, dissolved	63 mg/L	1.0	1	AH13835	08/12/21 12:40	08/13/21 12:27	1551	EPA 200.7	
Potassium, dissolved	3.2 mg/L	1.0	1	AH13835	08/12/21 12:40	08/13/21 12:27	1551	EPA 200.7	
Sodium, dissolved	120 mg/L	1.0	1	AH13835	08/12/21 12:40	08/13/21 12:27	1551	EPA 200.7	
Metals (Dissolved) by EPA Method 200.8 ICP/MS									
Aluminum, dissolved	ND ug/L	10	1	AG14507	07/27/21 14:35	07/28/21 16:19	1551	EPA 200.8	FILT
Antimony, dissolved	ND ug/L	0.50	1	AG14507	07/27/21 14:35	07/28/21 16:19	1551	EPA 200.8	
Arsenic, dissolved	3.4 ug/L	0.50	1	AG14507	07/27/21 14:35	07/28/21 16:19	1551	EPA 200.8	
Barium, dissolved	30 ug/L	0.50	1	AG14507	07/27/21 14:35	07/28/21 16:19	1551	EPA 200.8	
Beryllium, dissolved	ND ug/L	0.10	1	AG14507	07/27/21 14:35	07/28/21 16:19	1551	EPA 200.8	
Boron, dissolved	900 ug/L	50	1	AG14507	07/27/21 14:35	07/28/21 16:19	1551	EPA 200.8	
Cadmium, dissolved	ND ug/L	0.10	1	AG14507	07/27/21 14:35	07/28/21 16:19	1551	EPA 200.8	
Chromium, dissolved	14 ug/L	0.50	1	AG14507	07/27/21 14:35	07/28/21 16:19	1551	EPA 200.8	
Copper, dissolved	4.9 ug/L	0.50	1	AG14507	07/27/21 14:35	07/28/21 16:19	1551	EPA 200.8	
Lead, dissolved	ND ug/L	0.25	1	AG14507	07/27/21 14:35	07/28/21 16:19	1551	EPA 200.8	
Manganese, dissolved	ND ug/L	5.0	1	AG14507	07/27/21 14:35	07/28/21 16:19	1551	EPA 200.8	
Molybdenum, dissolved	1.5 ug/L	0.25	1	AG14507	07/27/21 14:35	07/28/21 16:19	1551	EPA 200.8	
Nickel, dissolved	7.8 ug/L	0.50	1	AG14507	07/27/21 14:35	07/28/21 16:19	1551	EPA 200.8	
Selenium, dissolved	4.1 ug/L	2.0	1	AG14507	07/27/21 14:35	07/28/21 16:19	1551	EPA 200.8	
Silver, dissolved	ND ug/L	0.10	1	AG14507	07/27/21 14:35	07/28/21 16:19	1551	EPA 200.8	
Thallium, dissolved	ND ug/L	0.10	1	AG14507	07/27/21 14:35	07/28/21 16:19	1551	EPA 200.8	
Vanadium, dissolved	5.0 ug/L	1.0	1	AG14507	07/27/21 14:35	07/28/21 16:19	1551	EPA 200.8	
Zinc, dissolved	ND ug/L	5.0	1	AG14507	07/27/21 14:35	07/28/21 16:19	1551	EPA 200.8	

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Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: Round 3 ASR Water Quality Baseline

Reported:
09/29/21 09:55

	Result	Reporting Limit	Dilution	Batch	Prepared	Analyzed	ELAP#	Method	Note
SSWD 7 (21G3255-02)									
Sample Type: Water									
Sampled: 07/26/21 10:00									
Conventional Chemistry Parameters by APHA/EPA Methods									
Color	ND CU	5.0	1	AG14652	07/26/21 17:30	07/26/21 17:30	2728	SM2120B	
MBAS, calculated as LAS, mw 340	ND mg/L	0.050	1	AG14585	07/28/21 07:00	07/28/21 15:15	1551	SM5540C	
Perchlorate	ND ug/L	2.0	1	AG14736	07/29/21 08:00	07/29/21 12:47	2303	EPA 314.0	
Sulfide	ND mg/L	0.10	1	AG14583	07/28/21 07:00	07/28/21 09:30	1551	SM4500-S2 D	
Total Dissolved Solids	760 mg/L	10	1	AG14661	07/29/21 05:45	08/06/21 08:07	1551	SM2540C	
Turbidity	ND NTU	0.10	1	AG14641	07/26/21 18:52	07/26/21 18:52	2728	SM2130B	
Bicarbonate Alkalinity as CaCO3	280 mg/L	5.0	1	AH13265	08/03/21 08:00	08/03/21 17:00	1551	SM2320B	
Carbonate Alkalinity as CaCO3	ND mg/L	5.0	1	AH13265	08/03/21 08:00	08/03/21 17:00	1551	SM2320B	
Hydroxide Alkalinity as CaCO3	ND mg/L	5.0	1	AH13265	08/03/21 08:00	08/03/21 17:00	1551	SM2320B	
Total Alkalinity as CaCO3	280 mg/L	5.0	1	AH13265	08/03/21 08:00	08/03/21 17:00	1551	SM2320B	
Hardness, Total	440 mg/L	5	1	AH13835	08/12/21 12:40	08/13/21 12:27	1551	SM2340B	FILT
Anions by EPA Method 300.0									
Chloride	110 mg/L	5.0	10	AG14442	07/27/21 13:18	07/27/21 13:18	1551	EPA 300.0	
Fluoride	0.20 mg/L	0.10	1	AG14442	07/27/21 13:01	07/27/21 13:01	1551	EPA 300.0	
Nitrate as N	4.3 mg/L	0.20	1	AG14442	07/27/21 13:01	07/27/21 13:01	1551	EPA 300.0	
Sulfate as SO4	230 mg/L	5.0	10	AG14442	07/27/21 13:18	07/27/21 13:18	1551	EPA 300.0	
Microbiological Parameters by APHA Standard Methods									
Total Coliforms	ND MPN/100mL	1.0	1	AG14786	07/26/21 16:40	07/27/21 16:40	2728	SM9223B	
E. Coli	ND MPN/100mL	1.0	1	AG14786	07/26/21 16:40	07/27/21 16:40	2728	SM9223B	
Volatile Organic Compounds by EPA Method 524.2									
Bromodichloromethane	ND ug/L	1.00	1	AG14707	07/30/21 08:00	07/31/21 03:58	1551	EPA 524.2	
Bromoform	ND ug/L	1.00	1	AG14707	07/30/21 08:00	07/31/21 03:58	1551	EPA 524.2	
Chloroform	ND ug/L	1.00	1	AG14707	07/30/21 08:00	07/31/21 03:58	1551	EPA 524.2	
Dibromochloromethane	ND ug/L	1.00	1	AG14707	07/30/21 08:00	07/31/21 03:58	1551	EPA 524.2	
Trihalomethanes (total)	ND ug/L	1.00	1	AG14707	07/30/21 08:00	07/31/21 03:58	1551	EPA 524.2	
Surrogate: Bromofluorobenzene	111 %	70-130		AG14707	07/30/21 08:00	07/31/21 03:58	1551	EPA 524.2	
Surrogate: Dibromofluoromethane	89.0 %	70-130		AG14707	07/30/21 08:00	07/31/21 03:58	1551	EPA 524.2	
Surrogate: Toluene-d8	107 %	70-130		AG14707	07/30/21 08:00	07/31/21 03:58	1551	EPA 524.2	

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Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: Round 3 ASR Water Quality Baseline

Reported:
09/29/21 09:55

	Result	Reporting Limit	Dilution	Batch	Prepared	Analyzed	ELAP#	Method	Note
SSWD 7 (21G3255-02)									
Sample Type: Water				Sampled: 07/26/21 10:00					
Haloacetic Acids by EPA Method 552.2									
Monobromoacetic Acid	ND ug/L	1.0	1	AG14624	07/29/21 01:00	07/30/21 06:03	1551	EPA 552.2	
Monochloroacetic Acid	ND ug/L	2.0	1	AG14624	07/29/21 01:00	07/30/21 06:03	1551	EPA 552.2	
Dibromoacetic Acid	ND ug/L	1.0	1	AG14624	07/29/21 01:00	07/30/21 06:03	1551	EPA 552.2	
Dichloroacetic Acid	ND ug/L	1.0	1	AG14624	07/29/21 01:00	07/30/21 06:03	1551	EPA 552.2	
Trichloroacetic Acid	ND ug/L	1.0	1	AG14624	07/29/21 01:00	07/30/21 06:03	1551	EPA 552.2	
Total Haloacetic Acids (HAA5)	ND ug/L	1.0	1	AG14624	07/29/21 01:00	07/30/21 06:03	1551	EPA 552.2	
Surrogate: 2,3-Dibromopropionic Acid	105 %	70-130		AG14624	07/29/21 01:00	07/30/21 06:03	1551	EPA 552.2	
Surrogate: 2-Bromopropionic Acid	117 %	70-130		AG14624	07/29/21 01:00	07/30/21 06:03	1551	EPA 552.2	
SSWD #11 (21G3255-03)									
Sample Type: Water				Sampled: 07/26/21 10:15					
Metals (Dissolved) by EPA 200 Series Methods									
Mercury, dissolved	ND ug/L	0.20	1	AG14588	07/28/21 07:05	07/28/21 13:02	1551	EPA 245.1	FILT
Calcium, dissolved	62 mg/L	1.0	1	AH13835	08/12/21 12:40	08/13/21 12:32	1551	EPA 200.7	
Iron, dissolved	ND mg/L	0.10	1	AH13835	08/12/21 12:40	08/13/21 12:32	1551	EPA 200.7	
Magnesium, dissolved	60 mg/L	1.0	1	AH13835	08/12/21 12:40	08/13/21 12:32	1551	EPA 200.7	
Potassium, dissolved	3.4 mg/L	1.0	1	AH13835	08/12/21 12:40	08/13/21 12:32	1551	EPA 200.7	
Sodium, dissolved	140 mg/L	1.0	1	AH13835	08/12/21 12:40	08/13/21 12:32	1551	EPA 200.7	
Metals (Dissolved) by EPA Method 200.8 ICP/MS									
Aluminum, dissolved	ND ug/L	10	1	AG14507	07/27/21 14:35	07/28/21 14:30	1551	EPA 200.8	FILT
Antimony, dissolved	ND ug/L	0.50	1	AG14507	07/27/21 14:35	07/28/21 14:30	1551	EPA 200.8	
Arsenic, dissolved	3.1 ug/L	0.50	1	AG14507	07/27/21 14:35	07/28/21 14:30	1551	EPA 200.8	
Barium, dissolved	27 ug/L	0.50	1	AG14507	07/27/21 14:35	07/28/21 14:30	1551	EPA 200.8	
Beryllium, dissolved	ND ug/L	0.10	1	AG14507	07/27/21 14:35	07/28/21 14:30	1551	EPA 200.8	
Boron, dissolved	780 ug/L	50	1	AG14507	07/27/21 14:35	07/28/21 14:30	1551	EPA 200.8	
Cadmium, dissolved	ND ug/L	0.10	1	AG14507	07/27/21 14:35	07/28/21 14:30	1551	EPA 200.8	
Chromium, dissolved	4.0 ug/L	0.50	1	AG14507	07/27/21 14:35	07/28/21 14:30	1551	EPA 200.8	
Copper, dissolved	5.5 ug/L	0.50	1	AG14507	07/27/21 14:35	07/28/21 14:30	1551	EPA 200.8	
Lead, dissolved	ND ug/L	0.25	1	AG14507	07/27/21 14:35	07/28/21 14:30	1551	EPA 200.8	
Manganese, dissolved	ND ug/L	5.0	1	AG14507	07/27/21 14:35	07/28/21 14:30	1551	EPA 200.8	
Molybdenum, dissolved	3.1 ug/L	0.25	1	AG14507	07/27/21 14:35	07/28/21 14:30	1551	EPA 200.8	
Nickel, dissolved	2.2 ug/L	0.50	1	AG14507	07/27/21 14:35	07/28/21 14:30	1551	EPA 200.8	
Selenium, dissolved	2.1 ug/L	2.0	1	AG14507	07/27/21 14:35	07/28/21 14:30	1551	EPA 200.8	
Silver, dissolved	ND ug/L	0.10	1	AG14507	07/27/21 14:35	07/28/21 14:30	1551	EPA 200.8	
Thallium, dissolved	ND ug/L	0.10	1	AG14507	07/27/21 14:35	07/28/21 14:30	1551	EPA 200.8	
Vanadium, dissolved	4.7 ug/L	1.0	1	AG14507	07/27/21 14:35	07/28/21 14:30	1551	EPA 200.8	
Zinc, dissolved	ND ug/L	5.0	1	AG14507	07/27/21 14:35	07/28/21 14:30	1551	EPA 200.8	

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Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: Round 3 ASR Water Quality Baseline

Reported:
09/29/21 09:55

	Result	Reporting Limit	Dilution	Batch	Prepared	Analyzed	ELAP#	Method	Note
SSWD #11 (21G3255-03)									
Sample Type: Water				Sampled: 07/26/21 10:15					
Conventional Chemistry Parameters by APHA/EPA Methods									
Color	ND CU	5.0	1	AG14652	07/26/21 17:30	07/26/21 17:30	2728	SM2120B	
MBAS, calculated as LAS, mw 340	ND mg/L	0.050	1	AG14585	07/28/21 07:00	07/28/21 15:15	1551	SM5540C	
Perchlorate	ND ug/L	2.0	1	AG14736	07/29/21 08:00	07/29/21 13:03	2303	EPA 314.0	
Sulfide	ND mg/L	0.10	1	AG14583	07/28/21 07:00	07/28/21 09:30	1551	SM4500-S2 D	
Total Dissolved Solids	820 mg/L	10	1	AG14661	07/29/21 05:45	08/06/21 08:07	1551	SM2540C	
Turbidity	0.15 NTU	0.10	1	AG14641	07/26/21 18:52	07/26/21 18:52	2728	SM2130B	
Bicarbonate Alkalinity as CaCO3	260 mg/L	5.0	1	AH13265	08/03/21 08:00	08/03/21 17:00	1551	SM2320B	
Carbonate Alkalinity as CaCO3	ND mg/L	5.0	1	AH13265	08/03/21 08:00	08/03/21 17:00	1551	SM2320B	
Hydroxide Alkalinity as CaCO3	ND mg/L	5.0	1	AH13265	08/03/21 08:00	08/03/21 17:00	1551	SM2320B	
Total Alkalinity as CaCO3	260 mg/L	5.0	1	AH13265	08/03/21 08:00	08/03/21 17:00	1551	SM2320B	
Hardness, Total	401 mg/L	5	1	AH13835	08/12/21 12:40	08/13/21 12:32	1551	SM2340B	FILT
Anions by EPA Method 300.0									
Chloride	160 mg/L	5.0	10	AG14442	07/27/21 13:52	07/27/21 13:52	1551	EPA 300.0	
Fluoride	0.19 mg/L	0.10	1	AG14442	07/27/21 13:35	07/27/21 13:35	1551	EPA 300.0	
Nitrate as N	1.5 mg/L	0.20	1	AG14442	07/27/21 13:35	07/27/21 13:35	1551	EPA 300.0	
Sulfate as SO4	210 mg/L	5.0	10	AG14442	07/27/21 13:52	07/27/21 13:52	1551	EPA 300.0	
Microbiological Parameters by APHA Standard Methods									
Total Coliforms	ND MPN/100mL	1.0	1	AG14786	07/26/21 16:40	07/27/21 16:40	2728	SM9223B	
E. Coli	ND MPN/100mL	1.0	1	AG14786	07/26/21 16:40	07/27/21 16:40	2728	SM9223B	
Volatile Organic Compounds by EPA Method 524.2									
Bromodichloromethane	ND ug/L	1.00	1	AG14707	07/30/21 08:00	07/31/21 04:31	1551	EPA 524.2	
Bromoform	ND ug/L	1.00	1	AG14707	07/30/21 08:00	07/31/21 04:31	1551	EPA 524.2	
Chloroform	ND ug/L	1.00	1	AG14707	07/30/21 08:00	07/31/21 04:31	1551	EPA 524.2	
Dibromochloromethane	ND ug/L	1.00	1	AG14707	07/30/21 08:00	07/31/21 04:31	1551	EPA 524.2	
Trihalomethanes (total)	ND ug/L	1.00	1	AG14707	07/30/21 08:00	07/31/21 04:31	1551	EPA 524.2	
Surrogate: Bromofluorobenzene	113 %	70-130		AG14707	07/30/21 08:00	07/31/21 04:31	1551	EPA 524.2	
Surrogate: Dibromofluoromethane	92.4 %	70-130		AG14707	07/30/21 08:00	07/31/21 04:31	1551	EPA 524.2	
Surrogate: Toluene-d8	109 %	70-130		AG14707	07/30/21 08:00	07/31/21 04:31	1551	EPA 524.2	

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Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: Round 3 ASR Water Quality Baseline

Reported:
09/29/21 09:55

	Result	Reporting Limit	Dilution	Batch	Prepared	Analyzed	ELAP#	Method	Note
SSWD #11 (21G3255-03)									
Sample Type: Water				Sampled: 07/26/21 10:15					
Haloacetic Acids by EPA Method 552.2									
Monobromoacetic Acid	ND ug/L	1.0	1	AG14624	07/29/21 01:00	07/30/21 06:45	1551	EPA 552.2	
Monochloroacetic Acid	ND ug/L	2.0	1	AG14624	07/29/21 01:00	07/30/21 06:45	1551	EPA 552.2	
Dibromoacetic Acid	ND ug/L	1.0	1	AG14624	07/29/21 01:00	07/30/21 06:45	1551	EPA 552.2	
Dichloroacetic Acid	ND ug/L	1.0	1	AG14624	07/29/21 01:00	07/30/21 06:45	1551	EPA 552.2	
Trichloroacetic Acid	ND ug/L	1.0	1	AG14624	07/29/21 01:00	07/30/21 06:45	1551	EPA 552.2	
Total Haloacetic Acids (HAA5)	ND ug/L	1.0	1	AG14624	07/29/21 01:00	07/30/21 06:45	1551	EPA 552.2	
Surrogate: 2,3-Dibromopropionic Acid	107 %	70-130		AG14624	07/29/21 01:00	07/30/21 06:45	1551	EPA 552.2	
Surrogate: 2-Bromopropionic Acid	113 %	70-130		AG14624	07/29/21 01:00	07/30/21 06:45	1551	EPA 552.2	
SSWD #2 (21G3255-04)									
Sample Type: Water				Sampled: 07/26/21 10:30					
Metals (Dissolved) by EPA 200 Series Methods									
Mercury, dissolved	ND ug/L	0.20	1	AG14588	07/28/21 07:05	07/28/21 13:05	1551	EPA 245.1	FILT
Calcium, dissolved	57 mg/L	1.0	1	AH13835	08/12/21 12:40	08/13/21 12:44	1551	EPA 200.7	
Iron, dissolved	ND mg/L	0.10	1	AH13835	08/12/21 12:40	08/13/21 12:44	1551	EPA 200.7	
Magnesium, dissolved	72 mg/L	1.0	1	AH13835	08/12/21 12:40	08/13/21 12:44	1551	EPA 200.7	
Potassium, dissolved	3.0 mg/L	1.0	1	AH13835	08/12/21 12:40	08/13/21 12:44	1551	EPA 200.7	
Sodium, dissolved	130 mg/L	1.0	1	AH13835	08/12/21 12:40	08/13/21 12:44	1551	EPA 200.7	
Metals (Dissolved) by EPA Method 200.8 ICP/MS									
Aluminum, dissolved	ND ug/L	10	1	AG14507	07/27/21 14:35	07/28/21 16:27	1551	EPA 200.8	FILT
Antimony, dissolved	ND ug/L	0.50	1	AG14507	07/27/21 14:35	07/28/21 16:27	1551	EPA 200.8	
Arsenic, dissolved	2.5 ug/L	0.50	1	AG14507	07/27/21 14:35	07/28/21 16:27	1551	EPA 200.8	
Barium, dissolved	23 ug/L	0.50	1	AG14507	07/27/21 14:35	07/28/21 16:27	1551	EPA 200.8	
Beryllium, dissolved	ND ug/L	0.10	1	AG14507	07/27/21 14:35	07/28/21 16:27	1551	EPA 200.8	
Boron, dissolved	900 ug/L	50	1	AG14507	07/27/21 14:35	07/28/21 16:27	1551	EPA 200.8	
Cadmium, dissolved	ND ug/L	0.10	1	AG14507	07/27/21 14:35	07/28/21 16:27	1551	EPA 200.8	
Chromium, dissolved	9.9 ug/L	0.50	1	AG14507	07/27/21 14:35	07/28/21 16:27	1551	EPA 200.8	
Copper, dissolved	6.8 ug/L	0.50	1	AG14507	07/27/21 14:35	07/28/21 16:27	1551	EPA 200.8	
Lead, dissolved	ND ug/L	0.25	1	AG14507	07/27/21 14:35	07/28/21 16:27	1551	EPA 200.8	
Manganese, dissolved	ND ug/L	5.0	1	AG14507	07/27/21 14:35	07/28/21 16:27	1551	EPA 200.8	
Molybdenum, dissolved	2.4 ug/L	0.25	1	AG14507	07/27/21 14:35	07/28/21 16:27	1551	EPA 200.8	
Nickel, dissolved	4.1 ug/L	0.50	1	AG14507	07/27/21 14:35	07/28/21 16:27	1551	EPA 200.8	
Selenium, dissolved	ND ug/L	2.0	1	AG14507	07/27/21 14:35	07/28/21 16:27	1551	EPA 200.8	
Silver, dissolved	ND ug/L	0.10	1	AG14507	07/27/21 14:35	07/28/21 16:27	1551	EPA 200.8	
Thallium, dissolved	ND ug/L	0.10	1	AG14507	07/27/21 14:35	07/28/21 16:27	1551	EPA 200.8	
Vanadium, dissolved	3.7 ug/L	1.0	1	AG14507	07/27/21 14:35	07/28/21 16:27	1551	EPA 200.8	
Zinc, dissolved	13 ug/L	5.0	1	AG14507	07/27/21 14:35	07/28/21 16:27	1551	EPA 200.8	

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Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: Round 3 ASR Water Quality Baseline

Reported:
09/29/21 09:55

	Result	Reporting Limit	Dilution	Batch	Prepared	Analyzed	ELAP#	Method	Note
SSWD #2 (21G3255-04)									
Conventional Chemistry Parameters by APHA/EPA Methods									
Color	ND CU	5.0	1	AG14652	07/26/21 17:30	07/26/21 17:30	2728	SM2120B	
MBAS, calculated as LAS, mw 340	ND mg/L	0.050	1	AG14585	07/28/21 07:00	07/28/21 15:15	1551	SM5540C	
Perchlorate	ND ug/L	2.0	1	AG14736	07/29/21 08:00	07/29/21 13:19	2303	EPA 314.0	
Sulfide	ND mg/L	0.10	1	AG14583	07/28/21 07:00	07/28/21 09:30	1551	SM4500-S2 D	
Total Dissolved Solids	830 mg/L	10	1	AG14661	07/29/21 05:45	08/06/21 08:07	1551	SM2540C	
Turbidity	0.10 NTU	0.10	1	AG14641	07/26/21 18:52	07/26/21 18:52	2728	SM2130B	
Bicarbonate Alkalinity as CaCO3	300 mg/L	5.0	1	AH13265	08/03/21 08:00	08/03/21 17:00	1551	SM2320B	
Carbonate Alkalinity as CaCO3	ND mg/L	5.0	1	AH13265	08/03/21 08:00	08/03/21 17:00	1551	SM2320B	
Hydroxide Alkalinity as CaCO3	ND mg/L	5.0	1	AH13265	08/03/21 08:00	08/03/21 17:00	1551	SM2320B	
Total Alkalinity as CaCO3	300 mg/L	5.0	1	AH13265	08/03/21 08:00	08/03/21 17:00	1551	SM2320B	
Hardness, Total	439 mg/L	5	1	AH13835	08/12/21 12:40	08/13/21 12:44	1551	SM2340B	FILT
Anions by EPA Method 300.0									
Chloride	110 mg/L	5.0	10	AG14442	07/27/21 14:25	07/27/21 14:25	1551	EPA 300.0	
Fluoride	0.32 mg/L	0.10	1	AG14442	07/27/21 14:08	07/27/21 14:08	1551	EPA 300.0	
Nitrate as N	2.6 mg/L	0.20	1	AG14442	07/27/21 14:08	07/27/21 14:08	1551	EPA 300.0	
Sulfate as SO4	260 mg/L	5.0	10	AG14442	07/27/21 14:25	07/27/21 14:25	1551	EPA 300.0	
Microbiological Parameters by APHA Standard Methods									
Total Coliforms	ND MPN/100mL	1.0	1	AG14786	07/26/21 16:40	07/27/21 16:40	2728	SM9223B	
E. Coli	ND MPN/100mL	1.0	1	AG14786	07/26/21 16:40	07/27/21 16:40	2728	SM9223B	
Volatile Organic Compounds by EPA Method 524.2									
Bromodichloromethane	ND ug/L	1.00	1	AG14707	07/30/21 08:00	07/31/21 05:04	1551	EPA 524.2	
Bromoform	ND ug/L	1.00	1	AG14707	07/30/21 08:00	07/31/21 05:04	1551	EPA 524.2	
Chloroform	ND ug/L	1.00	1	AG14707	07/30/21 08:00	07/31/21 05:04	1551	EPA 524.2	
Dibromochloromethane	ND ug/L	1.00	1	AG14707	07/30/21 08:00	07/31/21 05:04	1551	EPA 524.2	
Trihalomethanes (total)	ND ug/L	1.00	1	AG14707	07/30/21 08:00	07/31/21 05:04	1551	EPA 524.2	
Surrogate: Bromofluorobenzene	113 %	70-130		AG14707	07/30/21 08:00	07/31/21 05:04	1551	EPA 524.2	
Surrogate: Dibromofluoromethane	91.0 %	70-130		AG14707	07/30/21 08:00	07/31/21 05:04	1551	EPA 524.2	
Surrogate: Toluene-d8	108 %	70-130		AG14707	07/30/21 08:00	07/31/21 05:04	1551	EPA 524.2	



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Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: Round 3 ASR Water Quality Baseline

Reported:
09/29/21 09:55

	Result	Reporting Limit	Dilution	Batch	Prepared	Analyzed	ELAP#	Method	Note
SSWD #2 (21G3255-04)									
			Sample Type: Water		Sampled: 07/26/21 10:30				
Haloacetic Acids by EPA Method 552.2									
Monobromoacetic Acid	ND ug/L	1.0	1	AG14624	07/29/21 01:00	07/30/21 07:27	1551	EPA 552.2	
Monochloroacetic Acid	ND ug/L	2.0	1	AG14624	07/29/21 01:00	07/30/21 07:27	1551	EPA 552.2	
Dibromoacetic Acid	ND ug/L	1.0	1	AG14624	07/29/21 01:00	07/30/21 07:27	1551	EPA 552.2	
Dichloroacetic Acid	ND ug/L	1.0	1	AG14624	07/29/21 01:00	07/30/21 07:27	1551	EPA 552.2	
Trichloroacetic Acid	ND ug/L	1.0	1	AG14624	07/29/21 01:00	07/30/21 07:27	1551	EPA 552.2	
Total Haloacetic Acids (HAA5)	ND ug/L	1.0	1	AG14624	07/29/21 01:00	07/30/21 07:27	1551	EPA 552.2	
Surrogate: 2,3-Dibromopropionic Acid	93.2 %	70-130		AG14624	07/29/21 01:00	07/30/21 07:27	1551	EPA 552.2	
Surrogate: 2-Bromopropionic Acid	95.7 %	70-130		AG14624	07/29/21 01:00	07/30/21 07:27	1551	EPA 552.2	



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Project Number: Round 3 ASR Water Quality Baseline

Reported:
09/29/21 09:55

Metals (Dissolved) by EPA 200 Series Methods - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	Limit	RPD	RPD Limit	Flag
Batch AG14588 - EPA 245.1 Hg Water										
Blank (AG14588-BLK1)				Prepared & Analyzed: 07/28/21						
Mercury, dissolved	ND	0.20	ug/L							
LCS (AG14588-BS1)				Prepared & Analyzed: 07/28/21						
Mercury, dissolved	2.42	0.20	ug/L	2.50		96.8	85-115			
Duplicate (AG14588-DUP1)				Source: 21G2026-04		Prepared & Analyzed: 07/28/21				
Mercury, dissolved	ND	0.20	ug/L		ND				20	
Matrix Spike (AG14588-MS1)				Source: 21G2026-04		Prepared & Analyzed: 07/28/21				
Mercury, dissolved	2.52	0.20	ug/L	2.50	ND	101	70-130			
Matrix Spike Dup (AG14588-MSD1)				Source: 21G2026-04		Prepared & Analyzed: 07/28/21				
Mercury, dissolved	2.64	0.20	ug/L	2.50	ND	105	70-130	4.74	20	
Batch AH13835 - Metals Digest (D)										
Blank (AH13835-BLK1)				Prepared: 08/12/21 Analyzed: 08/13/21						
Calcium, dissolved	ND	1.0	mg/L							
Iron, dissolved	ND	0.10	mg/L							
Magnesium, dissolved	ND	1.0	mg/L							
Potassium, dissolved	ND	1.0	mg/L							
Sodium, dissolved	ND	1.0	mg/L							
LCS (AH13835-BS1)				Prepared: 08/12/21 Analyzed: 08/13/21						
Calcium, dissolved	8.00	1.0	mg/L	8.00		100	85-115			
Iron, dissolved	1.96	0.10	mg/L	2.00		97.8	85-115			
Magnesium, dissolved	8.00	1.0	mg/L	8.00		100	85-115			
Potassium, dissolved	7.66	1.0	mg/L	8.00		95.7	85-115			
Sodium, dissolved	7.87	1.0	mg/L	8.00		98.3	85-115			



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Metals (Dissolved) by EPA 200 Series Methods - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
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Batch AH13835 - Metals Digest (D)

Duplicate (AH13835-DUP1)

Source: 21G3255-01

Prepared: 08/12/21 Analyzed: 08/13/21

Calcium, dissolved	71.2	1.0	mg/L		70.9			0.473	20	
Iron, dissolved	ND	0.10	mg/L		ND				20	
Magnesium, dissolved	57.7	1.0	mg/L		57.3			0.743	20	
Potassium, dissolved	2.91	1.0	mg/L		2.89			0.543	20	
Sodium, dissolved	124	1.0	mg/L		125			0.750	20	

Matrix Spike (AH13835-MS1)

Source: 21G3255-01

Prepared: 08/12/21 Analyzed: 08/13/21

Calcium, dissolved	78.9	1.0	mg/L	8.00	70.9	101	70-130			
Iron, dissolved	2.00	0.10	mg/L	2.00	ND	99.9	70-130			
Magnesium, dissolved	66.0	1.0	mg/L	8.00	57.3	109	70-130			
Potassium, dissolved	10.8	1.0	mg/L	8.00	2.89	98.9	70-130			
Sodium, dissolved	131	1.0	mg/L	8.00	125	76.8	70-130			

Matrix Spike Dup (AH13835-MSD1)

Source: 21G3255-01

Prepared: 08/12/21 Analyzed: 08/13/21

Calcium, dissolved	80.3	1.0	mg/L	8.00	70.9	118	70-130	1.68	20	
Iron, dissolved	2.00	0.10	mg/L	2.00	ND	99.9	70-130	0.00220	20	
Magnesium, dissolved	66.7	1.0	mg/L	8.00	57.3	118	70-130	1.05	20	
Potassium, dissolved	10.8	1.0	mg/L	8.00	2.89	98.5	70-130	0.281	20	
Sodium, dissolved	133	1.0	mg/L	8.00	125	101	70-130	1.48	20	



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Reported:
09/29/21 09:55

Metals (Dissolved) by EPA Method 200.8 ICP/MS - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
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Batch AG14507 - EPA 200.8 (D)

Blank (AG14507-BLK1)

Prepared: 07/27/21 Analyzed: 07/28/21

Aluminum, dissolved	ND	10	ug/L							
Antimony, dissolved	ND	0.50	ug/L							
Arsenic, dissolved	ND	0.50	ug/L							
Barium, dissolved	ND	0.50	ug/L							
Beryllium, dissolved	ND	0.10	ug/L							
Boron, dissolved	ND	50	ug/L							
Cadmium, dissolved	ND	0.10	ug/L							
Chromium, dissolved	ND	0.50	ug/L							
Copper, dissolved	ND	0.50	ug/L							
Lead, dissolved	ND	0.25	ug/L							
Manganese, dissolved	ND	5.0	ug/L							
Molybdenum, dissolved	ND	0.25	ug/L							
Nickel, dissolved	ND	0.50	ug/L							
Selenium, dissolved	ND	2.0	ug/L							
Silver, dissolved	ND	0.10	ug/L							
Thallium, dissolved	ND	0.10	ug/L							
Vanadium, dissolved	ND	1.0	ug/L							
Zinc, dissolved	ND	5.0	ug/L							

LCS (AG14507-BS1)

Prepared: 07/27/21 Analyzed: 07/28/21

Aluminum, dissolved	590	10	ug/L	520	113	85-115
Antimony, dissolved	21.3	0.50	ug/L	20.0	106	85-115
Arsenic, dissolved	20.3	0.50	ug/L	20.0	102	85-115
Barium, dissolved	20.2	0.50	ug/L	20.0	101	85-115
Beryllium, dissolved	20.9	0.10	ug/L	20.0	104	85-115
Boron, dissolved	99.8	50	ug/L	100	99.8	85-115
Cadmium, dissolved	21.0	0.10	ug/L	20.0	105	85-115
Chromium, dissolved	22.3	0.50	ug/L	20.0	111	85-115
Copper, dissolved	21.1	0.50	ug/L	20.0	105	85-115
Lead, dissolved	20.9	0.25	ug/L	20.0	105	85-115
Manganese, dissolved	19.7	5.0	ug/L	20.0	98.7	85-115
Molybdenum, dissolved	21.7	0.25	ug/L	20.0	108	85-115
Nickel, dissolved	20.9	0.50	ug/L	20.0	104	85-115
Selenium, dissolved	18.9	2.0	ug/L	20.0	94.6	85-115
Silver, dissolved	20.3	0.10	ug/L	20.0	101	85-115

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Project: Round 3 ASR Water Quality Baseline
Project Number: Round 3 ASR Water Quality Baseline

Reported:
09/29/21 09:55

Metals (Dissolved) by EPA Method 200.8 ICP/MS - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch AG14507 - EPA 200.8 (D)										
LCS (AG14507-BS1)				Prepared: 07/27/21		Analyzed: 07/28/21				
Thallium, dissolved	20.5	0.10	ug/L	20.0		102	85-115			
Vanadium, dissolved	20.7	1.0	ug/L	20.0		104	85-115			
Zinc, dissolved	91.5	5.0	ug/L	100		91.5	85-115			
Duplicate (AG14507-DUP1)				Source: 21G3255-03		Prepared: 07/27/21		Analyzed: 07/28/21		
Aluminum, dissolved	ND	10	ug/L		ND			22.4	20	
Antimony, dissolved	ND	0.50	ug/L		ND				20	
Arsenic, dissolved	3.16	0.50	ug/L		3.10			1.92	20	
Barium, dissolved	26.2	0.50	ug/L		27.4			4.48	20	
Beryllium, dissolved	ND	0.10	ug/L		ND				20	
Boron, dissolved	791	50	ug/L		784			0.917	20	
Cadmium, dissolved	ND	0.10	ug/L		ND			0.318	20	
Chromium, dissolved	4.01	0.50	ug/L		3.97			1.10	20	
Copper, dissolved	5.43	0.50	ug/L		5.52			1.71	20	
Lead, dissolved	ND	0.25	ug/L		ND			0.637	20	
Manganese, dissolved	ND	5.0	ug/L		ND				20	
Molybdenum, dissolved	3.00	0.25	ug/L		3.06			1.92	20	
Nickel, dissolved	2.34	0.50	ug/L		2.22			5.44	20	
Selenium, dissolved	ND	2.0	ug/L		2.08			11.7	20	
Silver, dissolved	ND	0.10	ug/L		ND			200	20	
Thallium, dissolved	ND	0.10	ug/L		ND			200	20	
Vanadium, dissolved	4.81	1.0	ug/L		4.69			2.52	20	
Zinc, dissolved	ND	5.0	ug/L		ND			0.815	20	
Matrix Spike (AG14507-MS1)				Source: 21G3255-03		Prepared: 07/27/21		Analyzed: 07/28/21		
Aluminum, dissolved	642	10	ug/L	520	ND	122	70-130			
Antimony, dissolved	20.6	0.50	ug/L	20.0	ND	103	70-130			
Arsenic, dissolved	23.5	0.50	ug/L	20.0	3.10	102	70-130			
Barium, dissolved	43.8	0.50	ug/L	20.0	27.4	82.0	70-130			
Beryllium, dissolved	22.2	0.10	ug/L	20.0	ND	111	70-130			
Boron, dissolved	917	50	ug/L	100	784	133	70-130			QM-01
Cadmium, dissolved	19.7	0.10	ug/L	20.0	ND	98.1	70-130			
Chromium, dissolved	25.8	0.50	ug/L	20.0	3.97	109	70-130			
Copper, dissolved	24.4	0.50	ug/L	20.0	5.52	94.4	70-130			
Lead, dissolved	19.0	0.25	ug/L	20.0	ND	93.7	70-130			
Manganese, dissolved	18.8	5.0	ug/L	20.0	ND	94.0	70-130			

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Reported:
09/29/21 09:55

Metals (Dissolved) by EPA Method 200.8 ICP/MS - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch AG14507 - EPA 200.8 (D)										
Matrix Spike (AG14507-MS1)		Source: 21G3255-03		Prepared: 07/27/21		Analyzed: 07/28/21				
Molybdenum, dissolved	24.7	0.25	ug/L	20.0	3.06	108	70-130			
Nickel, dissolved	21.1	0.50	ug/L	20.0	2.22	94.5	70-130			
Selenium, dissolved	20.9	2.0	ug/L	20.0	2.08	94.2	70-130			
Silver, dissolved	18.6	0.10	ug/L	20.0	ND	92.4	70-130			
Thallium, dissolved	18.6	0.10	ug/L	20.0	ND	92.7	70-130			
Vanadium, dissolved	25.8	1.0	ug/L	20.0	4.69	105	70-130			
Zinc, dissolved	85.6	5.0	ug/L	100	ND	80.7	70-130			
Matrix Spike Dup (AG14507-MSD1)		Source: 21G3255-03		Prepared: 07/27/21		Analyzed: 07/28/21				
Aluminum, dissolved	656	10	ug/L	520	ND	125	70-130	2.12	20	
Antimony, dissolved	20.8	0.50	ug/L	20.0	ND	104	70-130	0.764	20	
Arsenic, dissolved	23.6	0.50	ug/L	20.0	3.10	103	70-130	0.652	20	
Barium, dissolved	44.1	0.50	ug/L	20.0	27.4	83.3	70-130	0.575	20	
Beryllium, dissolved	22.9	0.10	ug/L	20.0	ND	114	70-130	2.95	20	
Boron, dissolved	947	50	ug/L	100	784	163	70-130	3.18	20	QM-01
Cadmium, dissolved	19.7	0.10	ug/L	20.0	ND	98.1	70-130	0.0234	20	
Chromium, dissolved	26.5	0.50	ug/L	20.0	3.97	113	70-130	2.57	20	
Copper, dissolved	24.5	0.50	ug/L	20.0	5.52	95.1	70-130	0.586	20	
Lead, dissolved	19.2	0.25	ug/L	20.0	ND	94.9	70-130	1.30	20	
Manganese, dissolved	19.0	5.0	ug/L	20.0	ND	95.1	70-130	1.15	20	
Molybdenum, dissolved	24.7	0.25	ug/L	20.0	3.06	108	70-130	0.279	20	
Nickel, dissolved	21.2	0.50	ug/L	20.0	2.22	94.7	70-130	0.125	20	
Selenium, dissolved	21.2	2.0	ug/L	20.0	2.08	95.5	70-130	1.25	20	
Silver, dissolved	18.7	0.10	ug/L	20.0	ND	92.9	70-130	0.460	20	
Thallium, dissolved	18.7	0.10	ug/L	20.0	ND	93.4	70-130	0.768	20	
Vanadium, dissolved	25.8	1.0	ug/L	20.0	4.69	105	70-130	0.0392	20	
Zinc, dissolved	85.7	5.0	ug/L	100	ND	80.8	70-130	0.0858	20	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



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Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: Round 3 ASR Water Quality Baseline

Reported:
09/29/21 09:55

Conventional Chemistry Parameters by APHA/EPA Methods - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch AG14583 - General Preparation										
Blank (AG14583-BLK1)				Prepared & Analyzed: 07/28/21						
Sulfide	ND	0.10	mg/L							
LCS (AG14583-BS1)				Prepared & Analyzed: 07/28/21						
Sulfide	0.209	0.10	mg/L	0.200		105	85-115			
Duplicate (AG14583-DUP1)				Source: 21G3255-01		Prepared & Analyzed: 07/28/21				
Sulfide	ND	0.10	mg/L		ND				15	
Matrix Spike (AG14583-MS1)				Source: 21G3255-01		Prepared & Analyzed: 07/28/21				
Sulfide	0.167	0.10	mg/L	0.200	ND	83.7	80-120			
Matrix Spike Dup (AG14583-MSD1)				Source: 21G3255-01		Prepared & Analyzed: 07/28/21				
Sulfide	0.165	0.10	mg/L	0.200	ND	82.7	80-120	1.20	15	
Batch AG14585 - General Preparation										
Blank (AG14585-BLK1)				Prepared & Analyzed: 07/28/21						
MBAS, calculated as LAS, mw 340	ND	0.050	mg/L							
LCS (AG14585-BS1)				Prepared & Analyzed: 07/28/21						
MBAS, calculated as LAS, mw 340	0.192	0.050	mg/L	0.200		95.8	80-120			
Matrix Spike (AG14585-MS1)				Source: 21G3255-01		Prepared & Analyzed: 07/28/21				
MBAS, calculated as LAS, mw 340	0.197	0.050	mg/L	0.200	ND	98.7	80-120			
Matrix Spike Dup (AG14585-MSD1)				Source: 21G3255-01		Prepared & Analyzed: 07/28/21				
MBAS, calculated as LAS, mw 340	0.183	0.050	mg/L	0.200	ND	91.4	80-120	7.73	20	

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Todd Groundwater	Project Manager: Nicole Grimm	Reported:
2490 Mariner Square Loop, Suite 215	Project: Round 3 ASR Water Quality Baseline	09/29/21 09:55
Alameda, CA 94501	Project Number: Round 3 ASR Water Quality Baseline	

Conventional Chemistry Parameters by APHA/EPA Methods - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch AG14641 - General Prep (BAL)										
Duplicate (AG14641-DUP1)	Source: 21G3284-04		Prepared & Analyzed: 07/26/21							
Turbidity	18.0	0.10	NTU		20.0			10.5	15	
Duplicate (AG14641-DUP2)	Source: 21G3255-03		Prepared & Analyzed: 07/26/21							
Turbidity	0.200	0.10	NTU		0.150			28.6	15	A-01
Batch AG14661 - General Preparation										
Blank (AG14661-BLK1)	Prepared: 07/29/21 Analyzed: 08/06/21									
Total Dissolved Solids	ND	10	mg/L							
Duplicate (AG14661-DUP1)	Source: 21G2939-01		Prepared: 07/29/21 Analyzed: 08/06/21							
Total Dissolved Solids	308	10	mg/L		306			0.651	15	
Duplicate (AG14661-DUP2)	Source: 21G2983-01		Prepared: 07/29/21 Analyzed: 08/06/21							
Total Dissolved Solids	188	10	mg/L		194			3.14	15	
Batch AG14736 - NB General Prep										
Blank (AG14736-BLK1)	Prepared & Analyzed: 07/29/21									
Perchlorate	ND	2.0	ug/L							
LCS (AG14736-BS1)	Prepared & Analyzed: 07/29/21									
Perchlorate	9.67	2.0	ug/L	10.0		96.7	85-115			
Duplicate (AG14736-DUP1)	Source: 21G3279-01		Prepared & Analyzed: 07/29/21							
Perchlorate	ND	2.0	ug/L		ND				15	



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Todd Groundwater	Project Manager: Nicole Grimm	Reported:
2490 Mariner Square Loop, Suite 215	Project: Round 3 ASR Water Quality Baseline	09/29/21 09:55
Alameda, CA 94501	Project Number: Round 3 ASR Water Quality Baseline	

Conventional Chemistry Parameters by APHA/EPA Methods - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
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Batch AG14736 - NB General Prep

Matrix Spike (AG14736-MS1)

Source: 21G3255-01

Prepared & Analyzed: 07/29/21

Perchlorate	10.2	2.0	ug/L	10.0	ND	102	70-130			
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Matrix Spike Dup (AG14736-MSD1)

Source: 21G3255-01

Prepared & Analyzed: 07/29/21

Perchlorate	10.0	2.0	ug/L	10.0	ND	100	70-130	1.58	15	
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Batch AH13265 - General Preparation

Blank (AH13265-BLK1)

Prepared & Analyzed: 08/03/21

Carbonate Alkalinity as CaCO ₃	ND	5.0	mg/L							
Total Alkalinity as CaCO ₃	ND	5.0	mg/L							
Hydroxide Alkalinity as CaCO ₃	ND	5.0	mg/L							
Bicarbonate Alkalinity as CaCO ₃	ND	5.0	mg/L							

LCS (AH13265-BS1)

Prepared & Analyzed: 08/03/21

Total Alkalinity as CaCO ₃	75.0	5.0	mg/L	80.0		93.8	70-130			
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Duplicate (AH13265-DUP1)

Source: 21G3284-01

Prepared & Analyzed: 08/03/21

Total Alkalinity as CaCO ₃	76.0	5.0	mg/L		78.0			2.60	20	
Hydroxide Alkalinity as CaCO ₃	ND	5.0	mg/L		ND				20	
Carbonate Alkalinity as CaCO ₃	ND	5.0	mg/L		ND				20	
Bicarbonate Alkalinity as CaCO ₃	76.0	5.0	mg/L		78.0			2.60	20	

Batch AH13835 - Metals Digest (D)

Blank (AH13835-BLK1)

Prepared: 08/12/21 Analyzed: 08/13/21

Hardness, Total	ND	5	mg/L							
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Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: Round 3 ASR Water Quality Baseline

Reported:
09/29/21 09:55

Anions by EPA Method 300.0 - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch AG14442 - EPA 300.0										
Blank (AG14442-BLK1)				Prepared & Analyzed: 07/27/21						
Chloride	ND	0.50	mg/L							
Nitrate as N	ND	0.20	mg/L							
Fluoride	ND	0.10	mg/L							
Sulfate as SO4	ND	0.50	mg/L							
LCS (AG14442-BS1)				Prepared & Analyzed: 07/27/21						
Chloride	11.9	0.50	mg/L	11.1		107	90-110			
Nitrate as N	5.99	0.20	mg/L	5.56		108	90-110			
Sulfate as SO4	24.2	0.50	mg/L	22.2		109	90-110			
Fluoride	6.07	0.10	mg/L	5.56		109	90-110			
Duplicate (AG14442-DUP1)				Source: 21G3262-01		Prepared & Analyzed: 07/27/21				
Nitrate as N	ND	0.20	mg/L		ND				20	
Chloride	ND	0.50	mg/L		ND			0.976	20	
Sulfate as SO4	ND	0.50	mg/L		ND				20	
Fluoride	ND	0.10	mg/L		ND				20	
Matrix Spike (AG14442-MS1)				Source: 21G3262-01		Prepared & Analyzed: 07/27/21				
Fluoride	5.30	1.0	mg/L	5.56	ND	95.4	80-120			
Sulfate as SO4	20.7	5.0	mg/L	22.2	ND	93.1	80-120			
Nitrate as N	5.50	2.0	mg/L	5.56	ND	99.0	80-120			
Chloride	10.6	5.0	mg/L	11.1	ND	95.8	80-120			
Matrix Spike (AG14442-MS2)				Source: 21G3284-05		Prepared: 07/27/21 Analyzed: 07/29/21				
Sulfate as SO4	25.9	5.0	mg/L	22.2	ND	116	80-120			
Chloride	57.9	5.0	mg/L	11.1	49.6	75.0	80-120			QM-01
Nitrate as N	5.78	2.0	mg/L	5.56	ND	104	80-120			
Fluoride	5.04	1.0	mg/L	5.56	ND	90.8	80-120			



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Project: Round 3 ASR Water Quality Baseline
Project Number: Round 3 ASR Water Quality Baseline

Reported:
09/29/21 09:55

Anions by EPA Method 300.0 - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
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Batch AG14442 - EPA 300.0

Matrix Spike Dup (AG14442-MSD1)

Source: 21G3262-01

Prepared & Analyzed: 07/27/21

Fluoride	5.33	1.0	mg/L	5.56	ND	96.0	80-120	0.627	20	
Nitrate as N	5.52	2.0	mg/L	5.56	ND	99.4	80-120	0.319	20	
Sulfate as SO ₄	21.1	5.0	mg/L	22.2	ND	95.0	80-120	2.02	20	
Chloride	10.7	5.0	mg/L	11.1	ND	96.7	80-120	0.935	20	



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Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: Round 3 ASR Water Quality Baseline

Reported:
09/29/21 09:55

Volatile Organic Compounds by EPA Method 524.2 - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch AG14707 - VOAs in Water GCMS										
Blank (AG14707-BLK1)				Prepared & Analyzed: 07/30/21						
Bromodichloromethane	ND	1.00	ug/L							
Bromoform	ND	1.00	ug/L							
Chloroform	ND	1.00	ug/L							
Dibromochloromethane	ND	1.00	ug/L							
Trihalomethanes (total)	ND	1.00	ug/L							
Surrogate: Bromofluorobenzene	26.6		ug/L	25.0		106	70-130			
Surrogate: Dibromofluoromethane	21.4		ug/L	25.0		85.6	70-130			
Surrogate: Toluene-d8	28.2		ug/L	25.0		113	70-130			
LCS (AG14707-BS1)				Prepared & Analyzed: 07/30/21						
Bromodichloromethane	4.22	1.00	ug/L	5.00		84.4	70-130			
Bromoform	4.61	1.00	ug/L	5.00		92.2	70-130			
Chloroform	4.14	1.00	ug/L	5.00		82.8	70-130			
Dibromochloromethane	4.54	1.00	ug/L	5.00		90.8	70-130			
Surrogate: Bromofluorobenzene	28.8		ug/L	25.0		115	70-130			
Surrogate: Dibromofluoromethane	22.7		ug/L	25.0		90.7	70-130			
Surrogate: Toluene-d8	28.2		ug/L	25.0		113	70-130			
LCS Dup (AG14707-BSD1)				Prepared & Analyzed: 07/30/21						
Bromodichloromethane	4.25	1.00	ug/L	5.00		85.0	70-130	0.708	30	
Bromoform	4.21	1.00	ug/L	5.00		84.2	70-130	9.07	30	
Chloroform	4.04	1.00	ug/L	5.00		80.8	70-130	2.44	30	
Dibromochloromethane	4.45	1.00	ug/L	5.00		89.0	70-130	2.00	30	
Surrogate: Bromofluorobenzene	27.9		ug/L	25.0		112	70-130			
Surrogate: Dibromofluoromethane	21.9		ug/L	25.0		87.6	70-130			
Surrogate: Toluene-d8	27.9		ug/L	25.0		112	70-130			



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Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: Round 3 ASR Water Quality Baseline

Reported:
09/29/21 09:55

Haloacetic Acids by EPA Method 552.2 - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch AG14624 - EPA 552.2										
Blank (AG14624-BLK1)				Prepared & Analyzed: 07/29/21						
Monobromoacetic Acid	ND	1.0	ug/L							
Monochloroacetic Acid	ND	2.0	ug/L							
Dibromoacetic Acid	ND	1.0	ug/L							
Dichloroacetic Acid	ND	1.0	ug/L							
Trichloroacetic Acid	ND	1.0	ug/L							
Total Haloacetic Acids (HAA5)	ND	1.0	ug/L							
Surrogate: 2,3-Dibromopropionic Acid	9.63		ug/L	9.85		97.7	70-130			
Surrogate: 2-Bromopropionic Acid	10.6		ug/L	10.0		106	70-130			
LCS (AG14624-BS1)				Prepared: 07/29/21 Analyzed: 07/30/21						
Monobromoacetic Acid	24.1	1.0	ug/L	25.0		96.5	70-130			
Monochloroacetic Acid	24.8	2.0	ug/L	25.0		99.2	70-130			
Dibromoacetic Acid	23.8	1.0	ug/L	25.0		95.0	70-130			
Dichloroacetic Acid	24.6	1.0	ug/L	25.0		98.4	70-130			
Trichloroacetic Acid	22.5	1.0	ug/L	25.0		90.0	70-130			
Surrogate: 2,3-Dibromopropionic Acid	10.5		ug/L	9.85		106	70-130			
Surrogate: 2-Bromopropionic Acid	11.0		ug/L	10.0		110	70-130			
LCS Dup (AG14624-BSD1)				Prepared: 07/29/21 Analyzed: 07/30/21						
Monobromoacetic Acid	24.1	1.0	ug/L	25.0		96.5	70-130	0.0174	20	
Monochloroacetic Acid	24.3	2.0	ug/L	25.0		97.0	70-130	2.21	20	
Dibromoacetic Acid	24.8	1.0	ug/L	25.0		99.2	70-130	4.31	20	
Dichloroacetic Acid	24.8	1.0	ug/L	25.0		99.2	70-130	0.767	20	
Trichloroacetic Acid	24.7	1.0	ug/L	25.0		98.9	70-130	9.42	20	
Surrogate: 2,3-Dibromopropionic Acid	10.5		ug/L	9.85		107	70-130			
Surrogate: 2-Bromopropionic Acid	10.8		ug/L	10.0		108	70-130			
Matrix Spike (AG14624-MS1)				Source: 21G3255-01 Prepared: 07/29/21 Analyzed: 07/30/21						
Monobromoacetic Acid	28.8	1.0	ug/L	25.0	ND	115	70-130			
Monochloroacetic Acid	30.5	2.0	ug/L	25.0	ND	122	70-130			
Dibromoacetic Acid	29.2	1.0	ug/L	25.0	ND	117	70-130			
Dichloroacetic Acid	29.1	1.0	ug/L	25.0	ND	116	70-130			
Trichloroacetic Acid	27.7	1.0	ug/L	25.0	ND	111	70-130			
Surrogate: 2,3-Dibromopropionic Acid	12.7		ug/L	9.85		129	70-130			

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Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: Round 3 ASR Water Quality Baseline

Reported:
09/29/21 09:55

Haloacetic Acids by EPA Method 552.2 - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch AG14624 - EPA 552.2										
Matrix Spike (AG14624-MS1)		Source: 21G3255-01		Prepared: 07/29/21		Analyzed: 07/30/21				
Surrogate: 2-Bromopropionic Acid	11.6		ug/L	10.0		116	70-130			
Matrix Spike (AG14624-MS2)		Source: 21G3287-01		Prepared: 07/29/21		Analyzed: 07/30/21				
Monobromoacetic Acid	31.2	1.0	ug/L	25.0	ND	125	70-130			
Monochloroacetic Acid	177	2.0	ug/L	25.0	ND	709	70-130			QM-07
Dibromoacetic Acid	32.5	1.0	ug/L	25.0	2.34	121	70-130			
Dichloroacetic Acid	41.8	1.0	ug/L	25.0	9.49	129	70-130			
Trichloroacetic Acid	37.4	1.0	ug/L	25.0	6.12	125	70-130			
Surrogate: 2,3-Dibromopropionic Acid	10.4		ug/L	9.85		106	70-130			
Surrogate: 2-Bromopropionic Acid	10.5		ug/L	10.0		105	70-130			



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Todd Groundwater
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Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: Round 3 ASR Water Quality Baseline

Reported:
09/29/21 09:55

Notes and Definitions

A-01	Duplicate RPD outside of allowed limit, however, sample result is close to reporting limit and difference between replicates is less than reporting limit for the analysis.
FILT	The sample was filtered in the lab prior to analysis.
QM-01	The spike recovery for this QC sample is outside of established control limits possibly due to a sample matrix interference.
QM-07	The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.
ND	Analyte NOT DETECTED at or above the reporting limit
dry	Sample results reported on a dry weight basis
REC	Recovery
RPD	Relative Percent Difference

[illegible]



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208 Mason Street, Ukiah CA 95482

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1230 E 233rd St #205, Carson CA 90745

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2722 Loker Ave West, Ste A, Carlsbad CA 92010

North Bay Laboratory (2303) 707-769-3128
110 Liberty Street, Petaluma CA 94952

Bay Area Laboratory (2728) 925-828-6226
262 Rickenbacker Circle, Livermore CA 94551

Central Valley Laboratory (2922) 916-686-5190
9090 Union Park Way #113, Elk Grove CA 95624

Chain of Custody Record

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Lab No. 2163255 Pg 2 of 4

Report to		Invoice to (if different)		Project Info		Analysis Request																		TAT		Temp °C																																					
Company: Todd Groundwater		Contact:		Project Name: Round 3 ASR Water Quality Baseline																				Standard 10-day 0		Ukiah 25																																					
Attn: Nicole Grimm		Email Address:		Project Number:																				RUSH: 5-day 25% 0		Livermore 1.7																																					
Phone: 510-747-6920		Phone:		PO Number:																				2-day 75% 0		Elk Grove																																					
Physical Address: 2490 Mariner Square Loop, Suite 215, Alameda CA 94501				Frequency:																				Other 0		Petaluma																																					
Email address: ngrimm@toddgroundwater.com				Container		Preservation		Matrix																				Poly size		Source Code																																	
Field Sampler - Printed Name and Signature: Nicole Grimm <i>N Grimm</i>				40mL vial		Glass bottle		Poly bottle																				Glass jar		Other		Na2S2O3		HCl		HNO3		Other		None		Drinking Water		Wastewater		Soil		Other		250mL		500mL		1L		Half G		Bacti					
Sample Identification		Sampled on		Time		Date		1																				x		1		x		1		x		1		x		1		x		1		3		x		1		x		1		x		1		x	
SSWD 7		10:00		7/26/21		x		x																				x		x		x		x		x		x		x		x		x		x		x		x		x		x		x		x					
Relinquished by Nicole Grimm FSP MH				Received by FSP MH MH				Time 1338 1845 2245				Date 7/26/21 7/26/21 7/26				Additional Requirements 0 CA DDW Write-On EDT State System No: _____ 0 CA GeoTracker Facility Global ID No: _____ EDF Report Sampling Company Log Code: _____																																															

[illegible]

[illegible]

21G3255

Alpha Analytical Laboratories Ukiah to North Bay Chain of Custody

Client: **Todd Groundwater** Client Code: **DP_TODENG** Bid: **Round 3 ASR Water Quality**
Project: **Round 3 ASR Water Quality Baseline** Project Number: **Round 3 ASR Water Qualit PO #:**

Date Due: 08/10/21 15:00 (10 day TAT)

Received By: Martin J. Henebury

Date Received: 07/26/21 22:45

Logged In By: Sheri L. Speaks

Date Logged 07/27/21 07:13

Samples Received at: _____ deg C

All containers received and intact: YES NO

Analysis	Department	Expires	Comments
21G3255-01 SSWD 5 [Water] Sampled 07/26/21 09:20			
NB Perchlorate EPA 314.0	NB Wet Chem	08/23/21 23:59	
21G3255-02 SSWD 7 [Water] Sampled 07/26/21 10:00			
NB Perchlorate EPA 314.0	NB Wet Chem	08/23/21 23:59	
21G3255-03 SSWD #11 [Water] Sampled 07/26/21 10:15			
NB Perchlorate EPA 314.0	NB Wet Chem	08/23/21 23:59	
21G3255-04 SSWD #2 [Water] Sampled 07/26/21 10:30			
NB Perchlorate EPA 314.0	NB Wet Chem	08/23/21 23:59	

Containers Supplied:

250mL Poly Unpres (C)

250mL Poly Unpres (C)

250mL Poly Unpres (C)

250mL Poly Unpres (C)

Speaks 7-27-21
Relinquished By _____ Date _____ Time _____

7/28/21 7:20
Received By _____ Date _____ Time _____

7/28/21 12:00
Relinquished By _____ Date _____ Time _____

7/28/21 12:00
Received By _____ Date _____ Time _____



Alpha Analytical Laboratories, Inc. email: clientservices@alpha-labs.com
Corporate: 208 Mason Street | Ukiah, CA 95482 | T: 707-468-0401 | F: 707-468-5267 | ELAP# 1551

24 September 2021

Todd Groundwater

Attn: Nicole Grimm

2490 Mariner Square Loop, Suite 215

Alameda, CA 94501

RE: Round 3 ASR Water Quality Baseline

Work Order: 21H2617

Enclosed are the results of analyses for samples received by the laboratory on 08/18/21 22:15. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Jeanette L. Poplin For David S. Pingatore
Project Manager



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Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: Round 3 ASR Water Quality Baseline

Reported:
09/24/21 14:03

Bay Area: 262 Rickenbacker Circle | Livermore, CA 94551 | T: 925-828-6226 | F: 925-828-6309 | ELAP# 2728
Central Valley: 9090 Union Park Way Suite 113 | Elk Grove, CA 95624 | T: 916-686-5190 | F: 916-686-5192 | ELAP# 2922
North Bay: 110 Liberty Street | Petaluma, CA 94952 | T: 707-769-3128 | F: 707-769-8093 | ELAP# 2303
San Diego: 2722 Loker Avenue West Suite A | Carlsbad, CA 92010 | T: 760-930-2555 | F: 760-930-2510 | ELAP# 3055

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
3121	21H2617-01	Water	08/18/21 08:38	08/18/21 22:15
3123	21H2617-02	Water	08/18/21 12:00	08/18/21 22:15



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Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: Round 3 ASR Water Quality Baseline

Reported:
09/24/21 14:03

	Result	Reporting Limit	Dilution	Batch	Prepared	Analyzed	ELAP#	Method	Note
3121 (21H2617-01)									
		Sample Type: Water			Sampled: 08/18/21 08:38				
Metals by EPA 200 Series Methods									
Silica (SiO2)	18 mg/L	1.0	1	AH13078	09/01/21 11:47	09/03/21 15:15	2303	EPA 200.7	
Calcium	52 mg/L	1.0	1	AH14695	08/31/21 08:57	09/03/21 18:06	1551	EPA 200.7	
Chromium, hexavalent	11 ug/L	1.0	1	AH14395	08/23/21 15:19	08/24/21 00:46	1551	EPA 218.6	
Magnesium	59 mg/L	1.0	1	AH14695	08/31/21 08:57	09/03/21 18:06	1551	EPA 200.7	
Metals by EPA Method 200.8 ICP/MS									
Cobalt	ND ug/L	0.40	4	AH14675	08/27/21 13:50	08/30/21 17:01	1551	EPA 200.8	R-01
Uranium	2.9 pCi/l	1.0	4	AH14675	08/27/21 13:50	08/30/21 17:01	1551	EPA 200.8	
Conventional Chemistry Parameters by APHA/EPA Methods									
Ammonia as NH3	ND mg/L	0.50	1	AH13121	09/07/21 09:30	09/07/21 16:30	1551	SM4500NH3B,C	
Hardness, Total	374 mg/L	5	1	AH14695	08/31/21 08:57	09/03/21 18:06	1551	SM2340B	
Phosphorus, total	0.079 mg/L	0.040	1	AH14650	08/27/21 10:18	08/27/21 16:20	1551	SM4500-P E	
Total Organic Carbon	ND mg/L	1.00	1	AH14594	08/31/21 14:40	09/01/21 00:45	1551	SM5310C	
Volatile Organic Compounds by EPA Method 524.2									
Acetone	ND ug/L	5.0	1	AH14583	08/26/21 12:00	08/26/21 15:32	1551	EPA 524.2	
Acrylonitrile	ND ug/L	5.0	1	AH14583	08/26/21 12:00	08/26/21 15:32	1551	EPA 524.2	
Benzene	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 15:32	1551	EPA 524.2	
Bromobenzene	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 15:32	1551	EPA 524.2	
Bromochloromethane	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 15:32	1551	EPA 524.2	
Bromodichloromethane	ND ug/L	1.0	1	AH14583	08/26/21 12:00	08/26/21 15:32	1551	EPA 524.2	
Bromoform	ND ug/L	1.0	1	AH14583	08/26/21 12:00	08/26/21 15:32	1551	EPA 524.2	
Bromomethane	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 15:32	1551	EPA 524.2	
n-Butylbenzene	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 15:32	1551	EPA 524.2	
sec-Butylbenzene	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 15:32	1551	EPA 524.2	
tert-Butylbenzene	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 15:32	1551	EPA 524.2	
Carbon disulfide	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 15:32	1551	EPA 524.2	
Carbon tetrachloride	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 15:32	1551	EPA 524.2	
Chlorobenzene	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 15:32	1551	EPA 524.2	
Chloroethane	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 15:32	1551	EPA 524.2	
Chloroform	ND ug/L	1.0	1	AH14583	08/26/21 12:00	08/26/21 15:32	1551	EPA 524.2	
Chloromethane	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 15:32	1551	EPA 524.2	
2-Chlorotoluene	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 15:32	1551	EPA 524.2	
4-Chlorotoluene	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 15:32	1551	EPA 524.2	
Dibromochloromethane	ND ug/L	1.0	1	AH14583	08/26/21 12:00	08/26/21 15:32	1551	EPA 524.2	
Dibromomethane	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 15:32	1551	EPA 524.2	
1,2-Dichlorobenzene	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 15:32	1551	EPA 524.2	
1,3-Dichlorobenzene	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 15:32	1551	EPA 524.2	
1,4-Dichlorobenzene	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 15:32	1551	EPA 524.2	
Dichlorodifluoromethane	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 15:32	1551	EPA 524.2	
1,1-Dichloroethane	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 15:32	1551	EPA 524.2	
1,2-Dichloroethane	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 15:32	1551	EPA 524.2	

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Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: Round 3 ASR Water Quality Baseline

Reported:
09/24/21 14:03

	Result	Reporting Limit	Dilution	Batch	Prepared	Analyzed	ELAP#	Method	Note
3121 (21H2617-01)									
		Sample Type: Water			Sampled: 08/18/21 08:38				
Volatile Organic Compounds by EPA Method 524.2 (cont'd)									
1,1-Dichloroethene	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 15:32	1551	EPA 524.2	
cis-1,2-Dichloroethene	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 15:32	1551	EPA 524.2	
trans-1,2-Dichloroethene	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 15:32	1551	EPA 524.2	
1,3-Dichloropropene (total)	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 15:32	1551	EPA 524.2	
1,2-Dichloropropane	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 15:32	1551	EPA 524.2	
1,3-Dichloropropane	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 15:32	1551	EPA 524.2	
2,2-Dichloropropane	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 15:32	1551	EPA 524.2	
1,1-Dichloropropene	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 15:32	1551	EPA 524.2	
cis-1,3-Dichloropropene	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 15:32	1551	EPA 524.2	
trans-1,3-Dichloropropene	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 15:32	1551	EPA 524.2	
Ethylbenzene	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 15:32	1551	EPA 524.2	
Hexachlorobutadiene	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 15:32	1551	EPA 524.2	
Isopropylbenzene	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 15:32	1551	EPA 524.2	
p-Isopropyltoluene	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 15:32	1551	EPA 524.2	
Methyl ethyl ketone	ND ug/L	5.0	1	AH14583	08/26/21 12:00	08/26/21 15:32	1551	EPA 524.2	
Methyl isobutyl ketone	ND ug/L	5.0	1	AH14583	08/26/21 12:00	08/26/21 15:32	1551	EPA 524.2	
Methyl tert-butyl ether	ND ug/L	3.0	1	AH14583	08/26/21 12:00	08/26/21 15:32	1551	EPA 524.2	
Methylene chloride	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 15:32	1551	EPA 524.2	
Naphthalene	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 15:32	1551	EPA 524.2	
n-Propylbenzene	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 15:32	1551	EPA 524.2	
Styrene	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 15:32	1551	EPA 524.2	
1,1,1,2-Tetrachloroethane	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 15:32	1551	EPA 524.2	
1,1,2,2-Tetrachloroethane	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 15:32	1551	EPA 524.2	
Tetrachloroethene	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 15:32	1551	EPA 524.2	
Toluene	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 15:32	1551	EPA 524.2	
1,2,3-Trichlorobenzene	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 15:32	1551	EPA 524.2	
1,2,4-Trichlorobenzene	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 15:32	1551	EPA 524.2	
1,1,1-Trichloroethane	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 15:32	1551	EPA 524.2	
1,1,2-Trichloroethane	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 15:32	1551	EPA 524.2	
Trichloroethene	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 15:32	1551	EPA 524.2	
Trichlorofluoromethane	ND ug/L	5.0	1	AH14583	08/26/21 12:00	08/26/21 15:32	1551	EPA 524.2	
Trichlorotrifluoroethane	ND ug/L	10	1	AH14583	08/26/21 12:00	08/26/21 15:32	1551	EPA 524.2	
1,2,4-Trimethylbenzene	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 15:32	1551	EPA 524.2	
1,3,5-Trimethylbenzene	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 15:32	1551	EPA 524.2	
Vinyl chloride	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 15:32	1551	EPA 524.2	
m,p-Xylene	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 15:32	1551	EPA 524.2	
o-Xylene	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 15:32	1551	EPA 524.2	
Xylenes (total)	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 15:32	1551	EPA 524.2	
Trihalomethanes (total)	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 15:32	1551	EPA 524.2	
Surrogate: Bromofluorobenzene	110 %	70-130		AH14583	08/26/21 12:00	08/26/21 15:32	1551	EPA 524.2	

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Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: Round 3 ASR Water Quality Baseline

Reported:
09/24/21 14:03

	Result			Reporting Limit	Dilution	Batch	Prepared	Analyzed	ELAP#	Method	Note
3121 (21H2617-01)											
Volatile Organic Compounds by EPA Method 524.2 (cont'd)		Sample Type: Water				Sampled: 08/18/21 08:38					
Surrogate: Dibromofluoromethane	93.3 %	70-130		AH14583	08/26/21 12:00	08/26/21 15:32	1551	EPA 524.2			
Surrogate: Toluene-d8	105 %	70-130		AH14583	08/26/21 12:00	08/26/21 15:32	1551	EPA 524.2			
3123 (21H2617-02)											
Metals by EPA 200 Series Methods		Sample Type: Water				Sampled: 08/18/21 12:00					
Silica (SiO2)	33 mg/L	1.0	1	AH13078	09/01/21 11:47	09/03/21 15:15	2303	EPA 200.7			
Calcium	44 mg/L	1.0	1	AH14695	08/31/21 08:57	09/03/21 18:19	1551	EPA 200.7			
Chromium, hexavalent	11 ug/L	1.0	1	AH14395	08/23/21 15:19	08/24/21 02:12	1551	EPA 218.6			
Magnesium	25 mg/L	1.0	1	AH14695	08/31/21 08:57	09/03/21 18:19	1551	EPA 200.7			
Metals by EPA Method 200.8 ICP/MS											
Cobalt	1.8 ug/L	0.40	4	AH14675	08/27/21 13:50	08/30/21 17:09	1551	EPA 200.8			
Uranium	ND pCi/l	1.0	4	AH14675	08/27/21 13:50	08/30/21 17:09	1551	EPA 200.8			
Conventional Chemistry Parameters by APHA/EPA Methods											
Ammonia as NH3	ND mg/L	0.50	1	AH13121	09/07/21 09:30	09/07/21 16:30	1551	SM4500NH3B,C			
Hardness, Total	213 mg/L	5	1	AH14695	08/31/21 08:57	09/03/21 18:19	1551	SM2340B			
Phosphorus, total	0.20 mg/L	0.040	1	AH14650	08/27/21 10:18	08/27/21 16:20	1551	SM4500-P E			
Total Organic Carbon	ND mg/L	1.00	1	AH14594	08/31/21 14:40	09/01/21 00:58	1551	SM5310C			
Volatile Organic Compounds by EPA Method 524.2											
Acetone	ND ug/L	5.0	1	AH14583	08/26/21 12:00	08/26/21 16:05	1551	EPA 524.2			
Acrylonitrile	ND ug/L	5.0	1	AH14583	08/26/21 12:00	08/26/21 16:05	1551	EPA 524.2			
Benzene	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 16:05	1551	EPA 524.2			
Bromobenzene	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 16:05	1551	EPA 524.2			
Bromochloromethane	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 16:05	1551	EPA 524.2			
Bromodichloromethane	ND ug/L	1.0	1	AH14583	08/26/21 12:00	08/26/21 16:05	1551	EPA 524.2			
Bromoform	ND ug/L	1.0	1	AH14583	08/26/21 12:00	08/26/21 16:05	1551	EPA 524.2			
Bromomethane	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 16:05	1551	EPA 524.2			
n-Butylbenzene	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 16:05	1551	EPA 524.2			
sec-Butylbenzene	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 16:05	1551	EPA 524.2			
tert-Butylbenzene	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 16:05	1551	EPA 524.2			
Carbon disulfide	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 16:05	1551	EPA 524.2			
Carbon tetrachloride	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 16:05	1551	EPA 524.2			
Chlorobenzene	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 16:05	1551	EPA 524.2			
Chloroethane	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 16:05	1551	EPA 524.2			
Chloroform	ND ug/L	1.0	1	AH14583	08/26/21 12:00	08/26/21 16:05	1551	EPA 524.2			
Chloromethane	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 16:05	1551	EPA 524.2			
2-Chlorotoluene	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 16:05	1551	EPA 524.2			
4-Chlorotoluene	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 16:05	1551	EPA 524.2			
Dibromochloromethane	ND ug/L	1.0	1	AH14583	08/26/21 12:00	08/26/21 16:05	1551	EPA 524.2			
Dibromomethane	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 16:05	1551	EPA 524.2			
1,2-Dichlorobenzene	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 16:05	1551	EPA 524.2			

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Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: Round 3 ASR Water Quality Baseline

Reported:
09/24/21 14:03

	Result	Reporting Limit	Dilution	Batch	Prepared	Analyzed	ELAP#	Method	Note
3123 (21H2617-02)		Sample Type: Water			Sampled: 08/18/21 12:00				
Volatile Organic Compounds by EPA Method 524.2 (cont'd)									
1,3-Dichlorobenzene	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 16:05	1551	EPA 524.2	
1,4-Dichlorobenzene	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 16:05	1551	EPA 524.2	
Dichlorodifluoromethane	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 16:05	1551	EPA 524.2	
1,1-Dichloroethane	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 16:05	1551	EPA 524.2	
1,2-Dichloroethane	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 16:05	1551	EPA 524.2	
1,1-Dichloroethene	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 16:05	1551	EPA 524.2	
cis-1,2-Dichloroethene	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 16:05	1551	EPA 524.2	
trans-1,2-Dichloroethene	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 16:05	1551	EPA 524.2	
1,3-Dichloropropene (total)	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 16:05	1551	EPA 524.2	
1,2-Dichloropropane	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 16:05	1551	EPA 524.2	
1,3-Dichloropropane	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 16:05	1551	EPA 524.2	
2,2-Dichloropropane	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 16:05	1551	EPA 524.2	
1,1-Dichloropropene	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 16:05	1551	EPA 524.2	
cis-1,3-Dichloropropene	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 16:05	1551	EPA 524.2	
trans-1,3-Dichloropropene	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 16:05	1551	EPA 524.2	
Ethylbenzene	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 16:05	1551	EPA 524.2	
Hexachlorobutadiene	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 16:05	1551	EPA 524.2	
Isopropylbenzene	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 16:05	1551	EPA 524.2	
p-Isopropyltoluene	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 16:05	1551	EPA 524.2	
Methyl ethyl ketone	ND ug/L	5.0	1	AH14583	08/26/21 12:00	08/26/21 16:05	1551	EPA 524.2	
Methyl isobutyl ketone	ND ug/L	5.0	1	AH14583	08/26/21 12:00	08/26/21 16:05	1551	EPA 524.2	
Methyl tert-butyl ether	ND ug/L	3.0	1	AH14583	08/26/21 12:00	08/26/21 16:05	1551	EPA 524.2	
Methylene chloride	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 16:05	1551	EPA 524.2	
Naphthalene	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 16:05	1551	EPA 524.2	
n-Propylbenzene	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 16:05	1551	EPA 524.2	
Styrene	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 16:05	1551	EPA 524.2	
1,1,1,2-Tetrachloroethane	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 16:05	1551	EPA 524.2	
1,1,2,2-Tetrachloroethane	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 16:05	1551	EPA 524.2	
Tetrachloroethene	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 16:05	1551	EPA 524.2	
Toluene	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 16:05	1551	EPA 524.2	
1,2,3-Trichlorobenzene	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 16:05	1551	EPA 524.2	
1,2,4-Trichlorobenzene	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 16:05	1551	EPA 524.2	
1,1,1-Trichloroethane	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 16:05	1551	EPA 524.2	
1,1,2-Trichloroethane	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 16:05	1551	EPA 524.2	
Trichloroethene	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 16:05	1551	EPA 524.2	
Trichlorofluoromethane	ND ug/L	5.0	1	AH14583	08/26/21 12:00	08/26/21 16:05	1551	EPA 524.2	
Trichlorotrifluoroethane	ND ug/L	10	1	AH14583	08/26/21 12:00	08/26/21 16:05	1551	EPA 524.2	
1,2,4-Trimethylbenzene	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 16:05	1551	EPA 524.2	
1,3,5-Trimethylbenzene	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 16:05	1551	EPA 524.2	
Vinyl chloride	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 16:05	1551	EPA 524.2	

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Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: Round 3 ASR Water Quality Baseline

Reported:
09/24/21 14:03

	Result	Reporting Limit	Dilution	Batch	Prepared	Analyzed	ELAP#	Method	Note
3123 (21H2617-02)									
		Sample Type: Water			Sampled: 08/18/21 12:00				
Volatile Organic Compounds by EPA Method 524.2 (cont'd)									
m,p-Xylene	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 16:05	1551	EPA 524.2	
o-Xylene	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 16:05	1551	EPA 524.2	
Xylenes (total)	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 16:05	1551	EPA 524.2	
Trihalomethanes (total)	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 16:05	1551	EPA 524.2	
Surrogate: Bromofluorobenzene	112 %	70-130		AH14583	08/26/21 12:00	08/26/21 16:05	1551	EPA 524.2	
Surrogate: Dibromofluoromethane	94.5 %	70-130		AH14583	08/26/21 12:00	08/26/21 16:05	1551	EPA 524.2	
Surrogate: Toluene-d8	100 %	70-130		AH14583	08/26/21 12:00	08/26/21 16:05	1551	EPA 524.2	



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Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: Round 3 ASR Water Quality Baseline

Reported:
09/24/21 14:03

Metals by EPA 200 Series Methods - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch AH14395 - General Prep										
Blank (AH14395-BLK1)				Prepared & Analyzed: 08/23/21						
Chromium, hexavalent	ND	1.0	ug/L							
LCS (AH14395-BS1)				Prepared & Analyzed: 08/23/21						
Chromium, hexavalent	9.27	1.0	ug/L	10.0		92.7	90-110			
Duplicate (AH14395-DUP1)				Source: 21H2604-01		Prepared & Analyzed: 08/23/21				
Chromium, hexavalent	1.96	1.0	ug/L		2.00			2.07	20	
Matrix Spike (AH14395-MS1)				Source: 21H2604-01		Prepared & Analyzed: 08/23/21				
Chromium, hexavalent	10.9	1.0	ug/L	10.0	2.00	88.6	90-110			QM-07
Matrix Spike Dup (AH14395-MSD1)				Source: 21H2604-01		Prepared & Analyzed: 08/23/21				
Chromium, hexavalent	10.8	1.0	ug/L	10.0	2.00	87.7	90-110	0.804	20	QM-07
Batch AH14695 - Metals Digest										
Blank (AH14695-BLK1)				Prepared: 08/31/21 Analyzed: 09/03/21						
Calcium	ND	1.0	mg/L							
Magnesium	ND	1.0	mg/L							
LCS (AH14695-BS1)				Prepared: 08/31/21 Analyzed: 09/03/21						
Calcium	8.45	1.0	mg/L	8.00		106	85-115			
Magnesium	8.88	1.0	mg/L	8.00		111	85-115			
Duplicate (AH14695-DUP1)				Source: 21H2640-04		Prepared: 08/31/21 Analyzed: 09/03/21				
Calcium	5.03	1.0	mg/L		5.06			0.681	20	
Magnesium	1.08	1.0	mg/L		1.09			0.428	20	



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Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: Round 3 ASR Water Quality Baseline

Reported:
09/24/21 14:03

Metals by EPA 200 Series Methods - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch AH14695 - Metals Digest										
Matrix Spike (AH14695-MS1)		Source: 21H2640-04		Prepared: 08/31/21		Analyzed: 09/03/21				
Calcium	13.5	1.0	mg/L	8.00	5.06	106	70-130			
Magnesium	9.94	1.0	mg/L	8.00	1.09	111	70-130			
Matrix Spike (AH14695-MS2)		Source: 21H2675-03		Prepared: 08/31/21		Analyzed: 09/03/21				
Calcium	14.9	1.0	mg/L	8.00	5.89	112	70-130			
Magnesium	11.6	1.0	mg/L	8.00	2.41	115	70-130			
Matrix Spike Dup (AH14695-MSD1)		Source: 21H2640-04		Prepared: 08/31/21		Analyzed: 09/03/21				
Calcium	13.8	1.0	mg/L	8.00	5.06	109	70-130	1.84	20	
Magnesium	9.83	1.0	mg/L	8.00	1.09	109	70-130	1.10	20	
Batch AI13078 - NB EPA 200 series										
Blank (AI13078-BLK1)				Prepared: 09/01/21		Analyzed: 09/03/21				
Silica (SiO2)	ND	1.0	mg/L							
LCS (AI13078-BS1)				Prepared: 09/01/21		Analyzed: 09/03/21				
Silica (SiO2)	5.13	1.0	mg/L	5.35		95.9	0-200			
LCS Dup (AI13078-BSD1)				Prepared: 09/01/21		Analyzed: 09/03/21				
Silica (SiO2)	5.03	1.0	mg/L	5.35		94.0	0-200	1.90	200	
Matrix Spike (AI13078-MS1)		Source: 21H2817-01		Prepared: 09/01/21		Analyzed: 09/03/21				
Silica (SiO2)	67.2	1.0	mg/L	5.35	73.9	NR	0-200			QM-07

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Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: Round 3 ASR Water Quality Baseline

Reported:
09/24/21 14:03

Metals by EPA Method 200.8 ICP/MS - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch AH14675 - EPA 200.8										
Blank (AH14675-BLK1)				Prepared: 08/27/21 Analyzed: 08/30/21						
Cobalt	ND	0.10	ug/L							
Uranium	ND	1.0	pCi/l							
LCS (AH14675-BS1)				Prepared: 08/27/21 Analyzed: 08/30/21						
Cobalt	21.4	0.10	ug/L	20.0		107	85-115			
Uranium	13.3	1.0	pCi/l	13.4		99.1	85-115			
Duplicate (AH14675-DUP1)				Source: 21H2261-01		Prepared: 08/27/21 Analyzed: 08/30/21				
Cobalt	ND	0.40	ug/L		ND			16.9	20	R-01
Uranium	ND	1.0	pCi/l		ND				20	
Matrix Spike (AH14675-MS1)				Source: 21H2261-01		Prepared: 08/27/21 Analyzed: 08/30/21				
Cobalt	21.0	0.40	ug/L	20.0	ND	104	70-130			
Uranium	13.3	1.0	pCi/l	13.4	ND	99.3	70-130			
Matrix Spike (AH14675-MS2)				Source: 21H2668-02		Prepared: 08/27/21 Analyzed: 08/30/21				
Cobalt	20.6	0.40	ug/L	20.0	ND	103	70-130			
Uranium	12.9	1.0	pCi/l	13.4	ND	96.1	70-130			
Matrix Spike Dup (AH14675-MSD1)				Source: 21H2261-01		Prepared: 08/27/21 Analyzed: 08/30/21				
Cobalt	20.4	0.40	ug/L	20.0	ND	101	70-130	2.94	20	
Uranium	13.0	1.0	pCi/l	13.4	ND	97.4	70-130	1.94	20	



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Todd Groundwater 2490 Mariner Square Loop, Suite 215 Alameda, CA 94501	Project Manager: Nicole Grimm Project: Round 3 ASR Water Quality Baseline Project Number: Round 3 ASR Water Quality Baseline	Reported: 09/24/21 14:03
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Conventional Chemistry Parameters by APHA/EPA Methods - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch AH14594 - General Prep										
Blank (AH14594-BLK1)				Prepared & Analyzed: 08/31/21						
Total Organic Carbon	ND	1.00	mg/L							
LCS (AH14594-BS1)				Prepared & Analyzed: 08/31/21						
Total Organic Carbon	9.27	1.00	mg/L	10.0		92.7	85-115			
LCS Dup (AH14594-BSD1)				Prepared & Analyzed: 08/31/21						
Total Organic Carbon	9.28	1.00	mg/L	10.0		92.8	85-115	0.141	20	
Duplicate (AH14594-DUP1)				Source: 21H2428-02		Prepared & Analyzed: 08/31/21				
Total Organic Carbon	ND	1.00	mg/L		ND			0.838	20	
Matrix Spike (AH14594-MS1)				Source: 21H2428-02		Prepared & Analyzed: 08/31/21				
Total Organic Carbon	10.1	1.00	mg/L	10.0	ND	92.0	70-130			
Matrix Spike Dup (AH14594-MSD1)				Source: 21H2428-02		Prepared & Analyzed: 08/31/21				
Total Organic Carbon	10.2	1.00	mg/L	10.0	ND	93.5	70-130	1.44	20	
Batch AH14650 - General Prep										
Blank (AH14650-BLK1)				Prepared & Analyzed: 08/27/21						
Phosphorus, total	ND	0.040	mg/L							
LCS (AH14650-BS1)				Prepared & Analyzed: 08/27/21						
Phosphorus, total	0.195	0.040	mg/L	0.200		97.5	85-115			
Duplicate (AH14650-DUP1)				Source: 21H2326-01		Prepared & Analyzed: 08/27/21				
Phosphorus, total	ND	0.040	mg/L		ND			2.67	20	

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Todd Groundwater	Project Manager: Nicole Grimm	Reported:
2490 Mariner Square Loop, Suite 215	Project: Round 3 ASR Water Quality Baseline	09/24/21 14:03
Alameda, CA 94501	Project Number: Round 3 ASR Water Quality Baseline	

Conventional Chemistry Parameters by APHA/EPA Methods - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch AH14650 - General Prep										
Matrix Spike (AH14650-MS1)		Source: 21H2326-01		Prepared & Analyzed: 08/27/21						
Phosphorus, total	0.234	0.040	mg/L	0.200	ND	98.0	70-130			
Matrix Spike (AH14650-MS2)		Source: 21H2617-01		Prepared & Analyzed: 08/27/21						
Phosphorus, total	0.268	0.040	mg/L	0.200	0.0790	94.5	70-130			
Matrix Spike Dup (AH14650-MSD1)		Source: 21H2326-01		Prepared & Analyzed: 08/27/21						
Phosphorus, total	0.232	0.040	mg/L	0.200	ND	97.0	70-130	0.858	20	
Batch AH14695 - Metals Digest										
Blank (AH14695-BLK1)		Prepared: 08/31/21 Analyzed: 09/03/21								
Hardness, Total	ND	5	mg/L							
Batch AI13121 - General Preparation										
LCS (AI13121-BS1)		Prepared & Analyzed: 09/07/21								
Ammonia as NH3	6.17	0.50	mg/L	6.10		101	90-110			
LCS Dup (AI13121-BSD1)		Prepared & Analyzed: 09/07/21								
Ammonia as NH3	5.75	0.50	mg/L	6.10		94.2	90-110	7.13	20	
Matrix Spike (AI13121-MS1)		Source: 21H3372-01		Prepared & Analyzed: 09/07/21						
Ammonia as NH3	11.5	0.50	mg/L	12.2	ND	94.2	85-115			
Matrix Spike Dup (AI13121-MSD1)		Source: 21H3372-01		Prepared & Analyzed: 09/07/21						
Ammonia as NH3	11.7	0.50	mg/L	12.2	ND	96.0	85-115	1.84	20	



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2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: Round 3 ASR Water Quality Baseline

Reported:
09/24/21 14:03

Volatile Organic Compounds by EPA Method 524.2 - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch AH14583 - VOAs in Water GCMS										
Blank (AH14583-BLK1)				Prepared & Analyzed: 08/26/21						
Acetone	ND	5.0	ug/L							
Acrylonitrile	ND	5.0	ug/L							
Benzene	ND	0.50	ug/L							
Bromobenzene	ND	0.50	ug/L							
Bromochloromethane	ND	0.50	ug/L							
Bromodichloromethane	ND	1.0	ug/L							
Bromoform	ND	1.0	ug/L							
Bromomethane	ND	0.50	ug/L							
n-Butylbenzene	ND	0.50	ug/L							
sec-Butylbenzene	ND	0.50	ug/L							
tert-Butylbenzene	ND	0.50	ug/L							
Carbon disulfide	ND	0.50	ug/L							
Carbon tetrachloride	ND	0.50	ug/L							
Chlorobenzene	ND	0.50	ug/L							
Chloroethane	ND	0.50	ug/L							
Chloroform	ND	1.0	ug/L							
Chloromethane	ND	0.50	ug/L							
2-Chlorotoluene	ND	0.50	ug/L							
4-Chlorotoluene	ND	0.50	ug/L							
Dibromochloromethane	ND	1.0	ug/L							
Dibromomethane	ND	0.50	ug/L							
1,2-Dichlorobenzene	ND	0.50	ug/L							
1,3-Dichlorobenzene	ND	0.50	ug/L							
1,4-Dichlorobenzene	ND	0.50	ug/L							
Dichlorodifluoromethane	ND	0.50	ug/L							
1,1-Dichloroethane	ND	0.50	ug/L							
1,2-Dichloroethane	ND	0.50	ug/L							
1,1-Dichloroethene	ND	0.50	ug/L							
cis-1,2-Dichloroethene	ND	0.50	ug/L							
trans-1,2-Dichloroethene	ND	0.50	ug/L							
1,3-Dichloropropene (total)	ND	0.50	ug/L							
1,2-Dichloropropane	ND	0.50	ug/L							
1,3-Dichloropropane	ND	0.50	ug/L							
2,2-Dichloropropane	ND	0.50	ug/L							
1,1-Dichloropropene	ND	0.50	ug/L							

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Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: Round 3 ASR Water Quality Baseline

Reported:
09/24/21 14:03

Volatile Organic Compounds by EPA Method 524.2 - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch AH14583 - VOAs in Water GCMS										
Blank (AH14583-BLK1)				Prepared & Analyzed: 08/26/21						
cis-1,3-Dichloropropene	ND	0.50	ug/L							
trans-1,3-Dichloropropene	ND	0.50	ug/L							
Ethylbenzene	ND	0.50	ug/L							
Hexachlorobutadiene	ND	0.50	ug/L							
Isopropylbenzene	ND	0.50	ug/L							
p-Isopropyltoluene	ND	0.50	ug/L							
Methyl ethyl ketone	ND	5.0	ug/L							
Methyl tert-butyl ether	ND	3.0	ug/L							
Methyl isobutyl ketone	ND	5.0	ug/L							
Methylene chloride	ND	0.50	ug/L							
Naphthalene	ND	0.50	ug/L							
n-Propylbenzene	ND	0.50	ug/L							
Styrene	ND	0.50	ug/L							
1,1,1,2-Tetrachloroethane	ND	0.50	ug/L							
1,1,2,2-Tetrachloroethane	ND	0.50	ug/L							
Tetrachloroethene	ND	0.50	ug/L							
Toluene	ND	0.50	ug/L							
1,2,3-Trichlorobenzene	ND	0.50	ug/L							
1,2,4-Trichlorobenzene	ND	0.50	ug/L							
1,1,1-Trichloroethane	ND	0.50	ug/L							
1,1,2-Trichloroethane	ND	0.50	ug/L							
Trichloroethene	ND	0.50	ug/L							
Trichlorofluoromethane	ND	5.0	ug/L							
Trichlorotrifluoroethane	ND	10	ug/L							
1,2,4-Trimethylbenzene	ND	0.50	ug/L							
1,3,5-Trimethylbenzene	ND	0.50	ug/L							
Vinyl chloride	ND	0.50	ug/L							
m,p-Xylene	ND	0.50	ug/L							
o-Xylene	ND	0.50	ug/L							
Xylenes (total)	ND	0.50	ug/L							
Trihalomethanes (total)	ND	0.50	ug/L							
Surrogate: Bromofluorobenzene	27.6		ug/L	25.0		110	70-130			
Surrogate: Dibromofluoromethane	24.1		ug/L	25.0		96.6	70-130			
Surrogate: Toluene-d8	26.5		ug/L	25.0		106	70-130			

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Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: Round 3 ASR Water Quality Baseline

Reported:
09/24/21 14:03

Volatile Organic Compounds by EPA Method 524.2 - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch AH14583 - VOAs in Water GCMS										
LCS (AH14583-BS1)				Prepared & Analyzed: 08/26/21						
Acetone	16.3	5.0	ug/L	20.0		81.4	70-130			
Acrylonitrile	4.31	5.0	ug/L	5.00		86.2	70-130			
Benzene	4.24	0.50	ug/L	5.00		84.8	70-130			
Bromobenzene	4.98	0.50	ug/L	5.00		99.6	70-130			
Bromochloromethane	4.71	0.50	ug/L	5.00		94.2	70-130			
Bromodichloromethane	4.33	1.0	ug/L	5.00		86.6	70-130			
Bromoform	4.67	1.0	ug/L	5.00		93.4	70-130			
Bromomethane	3.75	0.50	ug/L	5.00		75.0	70-130			
n-Butylbenzene	4.81	0.50	ug/L	5.00		96.2	70-130			
sec-Butylbenzene	4.77	0.50	ug/L	5.00		95.4	70-130			
tert-Butylbenzene	4.73	0.50	ug/L	5.00		94.6	70-130			
Carbon disulfide	3.77	0.50	ug/L	5.00		75.4	70-130			
Carbon tetrachloride	3.99	0.50	ug/L	5.00		79.8	70-130			
Chlorobenzene	4.53	0.50	ug/L	5.00		90.6	70-130			
Chloroethane	4.05	0.50	ug/L	5.00		81.0	70-130			
Chloroform	4.18	1.0	ug/L	5.00		83.6	70-130			
Chloromethane	5.00	0.50	ug/L	5.00		100	70-130			
2-Chlorotoluene	4.87	0.50	ug/L	5.00		97.4	70-130			
4-Chlorotoluene	4.75	0.50	ug/L	5.00		95.0	70-130			
Dibromochloromethane	4.53	1.0	ug/L	5.00		90.6	70-130			
Dibromomethane	4.41	0.50	ug/L	5.00		88.2	70-130			
1,2-Dichlorobenzene	4.33	0.50	ug/L	5.00		86.6	70-130			
1,3-Dichlorobenzene	4.89	0.50	ug/L	5.00		97.8	70-130			
1,4-Dichlorobenzene	4.30	0.50	ug/L	5.00		86.0	70-130			
Dichlorodifluoromethane	4.16	0.50	ug/L	5.00		83.2	70-130			
1,1-Dichloroethane	4.09	0.50	ug/L	5.00		81.8	70-130			
1,2-Dichloroethane	4.24	0.50	ug/L	5.00		84.8	70-130			
1,1-Dichloroethene	3.88	0.50	ug/L	5.00		77.6	70-130			
trans-1,2-Dichloroethene	4.13	0.50	ug/L	5.00		82.6	70-130			
cis-1,2-Dichloroethene	4.17	0.50	ug/L	5.00		83.4	70-130			
1,2-Dichloropropane	4.20	0.50	ug/L	5.00		84.0	70-130			
1,3-Dichloropropane	4.48	0.50	ug/L	5.00		89.6	70-130			
2,2-Dichloropropane	4.24	0.50	ug/L	5.00		84.8	70-130			
1,1-Dichloropropene	3.91	0.50	ug/L	5.00		78.2	70-130			
cis-1,3-Dichloropropene	3.89	0.50	ug/L	5.00		77.8	70-130			

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Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: Round 3 ASR Water Quality Baseline

Reported:
09/24/21 14:03

Volatile Organic Compounds by EPA Method 524.2 - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch AH14583 - VOAs in Water GCMS										
LCS (AH14583-BS1)				Prepared & Analyzed: 08/26/21						
trans-1,3-Dichloropropene	3.94	0.50	ug/L	5.00		78.8	70-130			
Ethylbenzene	4.36	0.50	ug/L	5.00		87.2	70-130			
Hexachlorobutadiene	4.52	0.50	ug/L	5.00		90.4	70-130			
Isopropylbenzene	4.86	0.50	ug/L	5.00		97.2	70-130			
p-Isopropyltoluene	4.83	0.50	ug/L	5.00		96.6	70-130			
Methyl ethyl ketone	8.86	5.0	ug/L	10.0		88.6	70-130			
Methyl tert-butyl ether	4.29	3.0	ug/L	5.00		85.8	70-130			
Methyl isobutyl ketone	8.65	5.0	ug/L	10.0		86.5	70-130			
Methylene chloride	3.62	0.50	ug/L	5.00		72.4	70-130			
Naphthalene	4.23	0.50	ug/L	5.00		84.6	70-130			
n-Propylbenzene	4.70	0.50	ug/L	5.00		94.0	70-130			
Styrene	4.57	0.50	ug/L	5.00		91.4	70-130			
1,1,1,2-Tetrachloroethane	3.68	0.50	ug/L	5.00		73.6	70-130			
1,1,2,2-Tetrachloroethane	4.31	0.50	ug/L	5.00		86.2	70-130			
Tetrachloroethene	4.63	0.50	ug/L	5.00		92.6	70-130			
Toluene	4.50	0.50	ug/L	5.00		90.0	70-130			
1,2,3-Trichlorobenzene	4.73	0.50	ug/L	5.00		94.6	70-130			
1,2,4-Trichlorobenzene	4.53	0.50	ug/L	5.00		90.6	70-130			
1,1,1-Trichloroethane	3.95	0.50	ug/L	5.00		79.0	70-130			
1,1,2-Trichloroethane	4.43	0.50	ug/L	5.00		88.6	70-130			
Trichloroethene	4.20	0.50	ug/L	5.00		84.0	70-130			
Trichlorofluoromethane	4.02	5.0	ug/L	5.00		80.4	70-130			
Trichlorotrifluoroethane	4.12	10	ug/L	5.00		82.4	70-130			
1,2,4-Trimethylbenzene	5.08	0.50	ug/L	5.00		102	70-130			
1,3,5-Trimethylbenzene	4.83	0.50	ug/L	5.00		96.6	70-130			
Vinyl chloride	5.56	0.50	ug/L	5.00		111	70-130			
m,p-Xylene	9.18	0.50	ug/L	10.0		91.8	70-130			
o-Xylene	4.74	0.50	ug/L	5.00		94.8	70-130			
Xylenes (total)	13.9	0.50	ug/L	15.0		92.8	70-130			
Surrogate: Bromofluorobenzene	28.4		ug/L	25.0		114	70-130			
Surrogate: Dibromofluoromethane	24.5		ug/L	25.0		98.1	70-130			
Surrogate: Toluene-d8	26.3		ug/L	25.0		105	70-130			

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Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: Round 3 ASR Water Quality Baseline

Reported:
09/24/21 14:03

Volatile Organic Compounds by EPA Method 524.2 - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch AH14583 - VOAs in Water GCMS										
LCS Dup (AH14583-BS01)				Prepared & Analyzed: 08/26/21						
Acetone	15.2	5.0	ug/L	20.0		76.0	70-130	6.92	30	
Acrylonitrile	4.32	5.0	ug/L	5.00		86.4	70-130	0.232	30	
Benzene	4.49	0.50	ug/L	5.00		89.8	70-130	5.73	30	
Bromobenzene	5.14	0.50	ug/L	5.00		103	70-130	3.16	30	
Bromochloromethane	4.71	0.50	ug/L	5.00		94.2	70-130	0.00	30	
Bromodichloromethane	4.67	1.0	ug/L	5.00		93.4	70-130	7.56	30	
Bromoform	4.71	1.0	ug/L	5.00		94.2	70-130	0.853	30	
Bromomethane	3.90	0.50	ug/L	5.00		78.0	70-130	3.92	30	
n-Butylbenzene	5.02	0.50	ug/L	5.00		100	70-130	4.27	30	
sec-Butylbenzene	4.92	0.50	ug/L	5.00		98.4	70-130	3.10	30	
tert-Butylbenzene	4.95	0.50	ug/L	5.00		99.0	70-130	4.55	30	
Carbon disulfide	3.95	0.50	ug/L	5.00		79.0	70-130	4.66	30	
Carbon tetrachloride	4.26	0.50	ug/L	5.00		85.2	70-130	6.55	30	
Chlorobenzene	4.72	0.50	ug/L	5.00		94.4	70-130	4.11	30	
Chloroethane	4.36	0.50	ug/L	5.00		87.2	70-130	7.37	30	
Chloroform	4.36	1.0	ug/L	5.00		87.2	70-130	4.22	30	
Chloromethane	4.95	0.50	ug/L	5.00		99.0	70-130	1.01	30	
2-Chlorotoluene	4.98	0.50	ug/L	5.00		99.6	70-130	2.23	30	
4-Chlorotoluene	4.90	0.50	ug/L	5.00		98.0	70-130	3.11	30	
Dibromochloromethane	4.53	1.0	ug/L	5.00		90.6	70-130	0.00	30	
Dibromomethane	4.54	0.50	ug/L	5.00		90.8	70-130	2.91	30	
1,2-Dichlorobenzene	4.46	0.50	ug/L	5.00		89.2	70-130	2.96	30	
1,3-Dichlorobenzene	4.87	0.50	ug/L	5.00		97.4	70-130	0.410	30	
1,4-Dichlorobenzene	4.38	0.50	ug/L	5.00		87.6	70-130	1.84	30	
Dichlorodifluoromethane	4.78	0.50	ug/L	5.00		95.6	70-130	13.9	30	
1,1-Dichloroethane	4.26	0.50	ug/L	5.00		85.2	70-130	4.07	30	
1,2-Dichloroethane	4.48	0.50	ug/L	5.00		89.6	70-130	5.50	30	
1,1-Dichloroethene	4.11	0.50	ug/L	5.00		82.2	70-130	5.76	30	
cis-1,2-Dichloroethene	4.31	0.50	ug/L	5.00		86.2	70-130	3.30	30	
trans-1,2-Dichloroethene	4.21	0.50	ug/L	5.00		84.2	70-130	1.92	30	
1,2-Dichloropropane	4.47	0.50	ug/L	5.00		89.4	70-130	6.23	30	
1,3-Dichloropropane	4.74	0.50	ug/L	5.00		94.8	70-130	5.64	30	
2,2-Dichloropropane	4.00	0.50	ug/L	5.00		80.0	70-130	5.83	30	
1,1-Dichloropropene	4.24	0.50	ug/L	5.00		84.8	70-130	8.10	30	
cis-1,3-Dichloropropene	3.97	0.50	ug/L	5.00		79.4	70-130	2.04	30	

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Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: Round 3 ASR Water Quality Baseline

Reported:
09/24/21 14:03

Volatile Organic Compounds by EPA Method 524.2 - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch AH14583 - VOAs in Water GCMS										
LCS Dup (AH14583-BSD1)				Prepared & Analyzed: 08/26/21						
trans-1,3-Dichloropropene	4.04	0.50	ug/L	5.00		80.8	70-130	2.51	30	
Ethylbenzene	4.66	0.50	ug/L	5.00		93.2	70-130	6.65	30	
Hexachlorobutadiene	4.85	0.50	ug/L	5.00		97.0	70-130	7.04	30	
Isopropylbenzene	5.12	0.50	ug/L	5.00		102	70-130	5.21	30	
p-Isopropyltoluene	4.91	0.50	ug/L	5.00		98.2	70-130	1.64	30	
Methyl ethyl ketone	8.91	5.0	ug/L	10.0		89.1	70-130	0.563	30	
Methyl isobutyl ketone	8.97	5.0	ug/L	10.0		89.7	70-130	3.63	30	
Methyl tert-butyl ether	4.47	3.0	ug/L	5.00		89.4	70-130	4.11	30	
Methylene chloride	3.81	0.50	ug/L	5.00		76.2	70-130	5.11	30	
Naphthalene	4.33	0.50	ug/L	5.00		86.6	70-130	2.34	30	
n-Propylbenzene	4.96	0.50	ug/L	5.00		99.2	70-130	5.38	30	
Styrene	4.85	0.50	ug/L	5.00		97.0	70-130	5.94	30	
1,1,1,2-Tetrachloroethane	3.76	0.50	ug/L	5.00		75.2	70-130	2.15	30	
1,1,2,2-Tetrachloroethane	4.30	0.50	ug/L	5.00		86.0	70-130	0.232	30	
Tetrachloroethene	5.06	0.50	ug/L	5.00		101	70-130	8.88	30	
Toluene	4.76	0.50	ug/L	5.00		95.2	70-130	5.62	30	
1,2,3-Trichlorobenzene	4.89	0.50	ug/L	5.00		97.8	70-130	3.33	30	
1,2,4-Trichlorobenzene	4.69	0.50	ug/L	5.00		93.8	70-130	3.47	30	
1,1,1-Trichloroethane	4.27	0.50	ug/L	5.00		85.4	70-130	7.79	30	
1,1,2-Trichloroethane	4.59	0.50	ug/L	5.00		91.8	70-130	3.55	30	
Trichloroethene	4.40	0.50	ug/L	5.00		88.0	70-130	4.65	30	
Trichlorofluoromethane	4.22	5.0	ug/L	5.00		84.4	70-130	4.85	30	
Trichlorotrifluoroethane	4.45	10	ug/L	5.00		89.0	70-130	7.70	30	
1,2,4-Trimethylbenzene	5.15	0.50	ug/L	5.00		103	70-130	1.37	30	
1,3,5-Trimethylbenzene	4.95	0.50	ug/L	5.00		99.0	70-130	2.45	30	
Vinyl chloride	5.38	0.50	ug/L	5.00		108	70-130	3.29	30	
m,p-Xylene	9.67	0.50	ug/L	10.0		96.7	70-130	5.20	30	
o-Xylene	4.99	0.50	ug/L	5.00		99.8	70-130	5.14	30	
Xylenes (total)	14.7	0.50	ug/L	15.0		97.7	70-130	5.18	30	
Surrogate: Bromofluorobenzene	28.1		ug/L	25.0		112	70-130			
Surrogate: Dibromofluoromethane	24.0		ug/L	25.0		95.9	70-130			
Surrogate: Toluene-d8	26.3		ug/L	25.0		105	70-130			

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Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: Round 3 ASR Water Quality Baseline

Reported:
09/24/21 14:03

Volatile Organic Compounds by EPA Method 524.2 - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch AH14583 - VOAs in Water GCMS										
Matrix Spike (AH14583-MS1)	Source: 21H2734-01			Prepared & Analyzed: 08/26/21				QM-05		
Acetone	16.7	5.0	ug/L	20.0	ND	83.5	70-130			
Acrylonitrile	4.54	5.0	ug/L	5.00	ND	90.8	70-130			
Benzene	5.52	0.50	ug/L	5.00	ND	110	70-130			
Bromobenzene	5.93	0.50	ug/L	5.00	ND	119	70-130			
Bromochloromethane	5.47	0.50	ug/L	5.00	ND	109	70-130			
Bromodichloromethane	4.94	1.0	ug/L	5.00	ND	98.8	70-130			
Bromoform	3.59	1.0	ug/L	5.00	ND	71.8	70-130			
Bromomethane	5.42	0.50	ug/L	5.00	ND	108	70-130			
n-Butylbenzene	6.70	0.50	ug/L	5.00	ND	134	70-130			
sec-Butylbenzene	6.89	0.50	ug/L	5.00	ND	138	70-130			
tert-Butylbenzene	6.70	0.50	ug/L	5.00	ND	134	70-130			
Carbon disulfide	5.54	0.50	ug/L	5.00	1.01	90.6	70-130			
Carbon tetrachloride	6.34	0.50	ug/L	5.00	ND	127	70-130			
Chlorobenzene	5.50	0.50	ug/L	5.00	ND	110	70-130			
Chloroethane	5.53	0.50	ug/L	5.00	ND	111	70-130			
Chloroform	5.28	1.0	ug/L	5.00	ND	106	70-130			
Chloromethane	6.01	0.50	ug/L	5.00	ND	120	70-130			
2-Chlorotoluene	6.23	0.50	ug/L	5.00	ND	125	70-130			
4-Chlorotoluene	6.02	0.50	ug/L	5.00	ND	120	70-130			
Dibromochloromethane	4.24	1.0	ug/L	5.00	ND	84.8	70-130			
Dibromomethane	5.56	0.50	ug/L	5.00	ND	111	70-130			
1,2-Dichlorobenzene	5.05	0.50	ug/L	5.00	ND	101	70-130			
1,3-Dichlorobenzene	5.79	0.50	ug/L	5.00	ND	116	70-130			
1,4-Dichlorobenzene	5.02	0.50	ug/L	5.00	ND	100	70-130			
Dichlorodifluoromethane	6.47	0.50	ug/L	5.00	ND	129	70-130			
1,1-Dichloroethane	5.35	0.50	ug/L	5.00	ND	107	70-130			
1,2-Dichloroethane	5.13	0.50	ug/L	5.00	ND	103	70-130			
1,1-Dichloroethene	6.16	0.50	ug/L	5.00	ND	123	70-130			
cis-1,2-Dichloroethene	5.30	0.50	ug/L	5.00	ND	106	70-130			
trans-1,2-Dichloroethene	5.64	0.50	ug/L	5.00	ND	113	70-130			
1,2-Dichloropropane	5.14	0.50	ug/L	5.00	ND	103	70-130			
1,3-Dichloropropane	5.08	0.50	ug/L	5.00	ND	102	70-130			
2,2-Dichloropropane	6.16	0.50	ug/L	5.00	ND	123	70-130			
1,1-Dichloropropene	6.25	0.50	ug/L	5.00	ND	125	70-130			
cis-1,3-Dichloropropene	4.06	0.50	ug/L	5.00	ND	81.2	70-130			

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Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: Round 3 ASR Water Quality Baseline

Reported:
09/24/21 14:03

Volatile Organic Compounds by EPA Method 524.2 - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch AH14583 - VOAs in Water GCMS										
Matrix Spike (AH14583-MS1)	Source: 21H2734-01			Prepared & Analyzed: 08/26/21				QM-05		
trans-1,3-Dichloropropene	4.28	0.50	ug/L	5.00	ND	85.6	70-130			
Ethylbenzene	5.91	0.50	ug/L	5.00	ND	118	70-130			
Hexachlorobutadiene	6.23	0.50	ug/L	5.00	ND	125	70-130			
Isopropylbenzene	6.83	0.50	ug/L	5.00	ND	137	70-130			
p-Isopropyltoluene	6.68	0.50	ug/L	5.00	ND	134	70-130			
Methyl ethyl ketone	11.0	5.0	ug/L	10.0	ND	110	70-130			
Methyl isobutyl ketone	10.5	5.0	ug/L	10.0	ND	105	70-130			
Methyl tert-butyl ether	4.50	3.0	ug/L	5.00	ND	90.0	70-130			
Methylene chloride	4.63	0.50	ug/L	5.00	ND	92.6	70-130			
Naphthalene	4.50	0.50	ug/L	5.00	ND	90.0	70-130			
n-Propylbenzene	6.74	0.50	ug/L	5.00	ND	135	70-130			
Styrene	5.78	0.50	ug/L	5.00	ND	116	70-130			
1,1,1,2-Tetrachloroethane	4.45	0.50	ug/L	5.00	ND	89.0	70-130			
1,1,2,2-Tetrachloroethane	4.93	0.50	ug/L	5.00	ND	98.6	70-130			
Tetrachloroethene	7.12	0.50	ug/L	5.00	ND	142	70-130			
Toluene	5.95	0.50	ug/L	5.00	ND	119	70-130			
1,2,3-Trichlorobenzene	5.35	0.50	ug/L	5.00	ND	107	70-130			
1,2,4-Trichlorobenzene	5.13	0.50	ug/L	5.00	ND	103	70-130			
1,1,1-Trichloroethane	6.34	0.50	ug/L	5.00	ND	127	70-130			
1,1,2-Trichloroethane	5.05	0.50	ug/L	5.00	ND	101	70-130			
Trichloroethene	5.87	0.50	ug/L	5.00	ND	117	70-130			
Trichlorofluoromethane	6.41	5.0	ug/L	5.00	ND	128	70-130			
Trichlorotrifluoroethane	9.55	10	ug/L	5.00	ND	158	70-130			
1,2,4-Trimethylbenzene	6.42	0.50	ug/L	5.00	ND	128	70-130			
1,3,5-Trimethylbenzene	6.33	0.50	ug/L	5.00	ND	127	70-130			
Vinyl chloride	7.11	0.50	ug/L	5.00	ND	142	70-130			
m,p-Xylene	12.3	0.50	ug/L	10.0	ND	123	70-130			
o-Xylene	5.97	0.50	ug/L	5.00	ND	119	70-130			
Xylenes (total)	18.3	0.50	ug/L	15.0	ND	122	70-130			
Surrogate: Bromofluorobenzene	28.1		ug/L	25.0		112	70-130			
Surrogate: Dibromofluoromethane	24.1		ug/L	25.0		96.4	70-130			
Surrogate: Toluene-d8	25.9		ug/L	25.0		103	70-130			

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Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: Round 3 ASR Water Quality Baseline

Reported:
09/24/21 14:03

Volatile Organic Compounds by EPA Method 524.2 - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch AH14583 - VOAs in Water GCMS										
Matrix Spike (AH14583-MS2)		Source: 21H2813-01			Prepared & Analyzed: 08/26/21					
Acetone	17.3	5.0	ug/L	20.0	ND	86.3	70-130			
Acrylonitrile	4.76	5.0	ug/L	5.00	ND	95.2	70-130			
Benzene	5.27	0.50	ug/L	5.00	ND	105	70-130			
Bromobenzene	5.85	0.50	ug/L	5.00	ND	117	70-130			
Bromochloromethane	5.12	0.50	ug/L	5.00	ND	102	70-130			
Bromodichloromethane	4.99	1.0	ug/L	5.00	ND	99.8	70-130			
Bromoform	4.22	1.0	ug/L	5.00	ND	84.4	70-130			
Bromomethane	5.03	0.50	ug/L	5.00	ND	101	70-130			
n-Butylbenzene	6.35	0.50	ug/L	5.00	ND	127	70-130			
sec-Butylbenzene	6.37	0.50	ug/L	5.00	ND	127	70-130			
tert-Butylbenzene	6.46	0.50	ug/L	5.00	ND	129	70-130			
Carbon disulfide	5.35	0.50	ug/L	5.00	ND	107	70-130			
Carbon tetrachloride	6.31	0.50	ug/L	5.00	ND	126	70-130			
Chlorobenzene	5.35	0.50	ug/L	5.00	ND	107	70-130			
Chloroethane	5.07	0.50	ug/L	5.00	ND	101	70-130			
Chloroform	5.10	1.0	ug/L	5.00	ND	102	70-130			
Chloromethane	5.76	0.50	ug/L	5.00	ND	115	70-130			
2-Chlorotoluene	5.86	0.50	ug/L	5.00	ND	117	70-130			
4-Chlorotoluene	5.68	0.50	ug/L	5.00	ND	114	70-130			
Dibromochloromethane	4.40	1.0	ug/L	5.00	ND	88.0	70-130			
Dibromomethane	4.96	0.50	ug/L	5.00	ND	99.2	70-130			
1,2-Dichlorobenzene	4.80	0.50	ug/L	5.00	ND	96.0	70-130			
1,3-Dichlorobenzene	5.59	0.50	ug/L	5.00	ND	112	70-130			
1,4-Dichlorobenzene	4.90	0.50	ug/L	5.00	ND	98.0	70-130			
Dichlorodifluoromethane	6.48	0.50	ug/L	5.00	ND	130	70-130			
1,1-Dichloroethane	5.17	0.50	ug/L	5.00	ND	103	70-130			
1,2-Dichloroethane	4.82	0.50	ug/L	5.00	ND	96.4	70-130			
1,1-Dichloroethene	5.78	0.50	ug/L	5.00	ND	116	70-130			
trans-1,2-Dichloroethene	5.38	0.50	ug/L	5.00	ND	108	70-130			
cis-1,2-Dichloroethene	5.13	0.50	ug/L	5.00	ND	103	70-130			
1,2-Dichloropropane	4.84	0.50	ug/L	5.00	ND	96.8	70-130			
1,3-Dichloropropane	5.03	0.50	ug/L	5.00	ND	101	70-130			
2,2-Dichloropropane	6.25	0.50	ug/L	5.00	ND	125	70-130			
1,1-Dichloropropene	6.02	0.50	ug/L	5.00	ND	120	70-130			
cis-1,3-Dichloropropene	4.16	0.50	ug/L	5.00	ND	83.2	70-130			

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Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: Round 3 ASR Water Quality Baseline

Reported:
09/24/21 14:03

Volatile Organic Compounds by EPA Method 524.2 - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch AH14583 - VOAs in Water GCMS										
Matrix Spike (AH14583-MS2)		Source: 21H2813-01			Prepared & Analyzed: 08/26/21					
trans-1,3-Dichloropropene	4.31	0.50	ug/L	5.00	ND	86.2	70-130			
Ethylbenzene	5.79	0.50	ug/L	5.00	ND	116	70-130			
Hexachlorobutadiene	6.07	0.50	ug/L	5.00	ND	121	70-130			
Isopropylbenzene	6.50	0.50	ug/L	5.00	ND	130	70-130			
p-Isopropyltoluene	6.40	0.50	ug/L	5.00	ND	128	70-130			
Methyl ethyl ketone	9.74	5.0	ug/L	10.0	ND	97.4	70-130			
Methyl isobutyl ketone	10.0	5.0	ug/L	10.0	ND	100	70-130			
Methyl tert-butyl ether	4.59	3.0	ug/L	5.00	ND	91.8	70-130			
Methylene chloride	4.32	0.50	ug/L	5.00	ND	86.4	70-130			
Naphthalene	4.52	0.50	ug/L	5.00	ND	90.4	70-130			
n-Propylbenzene	6.47	0.50	ug/L	5.00	ND	129	70-130			
Styrene	5.77	0.50	ug/L	5.00	ND	115	70-130			
1,1,1,2-Tetrachloroethane	4.19	0.50	ug/L	5.00	ND	83.8	70-130			
1,1,2,2-Tetrachloroethane	4.84	0.50	ug/L	5.00	ND	96.8	70-130			
Tetrachloroethene	6.42	0.50	ug/L	5.00	ND	128	70-130			
Toluene	5.69	0.50	ug/L	5.00	ND	114	70-130			
1,2,3-Trichlorobenzene	5.16	0.50	ug/L	5.00	ND	103	70-130			
1,2,4-Trichlorobenzene	5.06	0.50	ug/L	5.00	ND	101	70-130			
1,1,1-Trichloroethane	6.07	0.50	ug/L	5.00	ND	121	70-130			
1,1,2-Trichloroethane	4.94	0.50	ug/L	5.00	ND	98.8	70-130			
Trichloroethene	5.60	0.50	ug/L	5.00	ND	112	70-130			
Trichlorofluoromethane	6.49	5.0	ug/L	5.00	ND	130	70-130			
Trichlorotrifluoroethane	7.01	10	ug/L	5.00	ND	140	70-130			QM-05
1,2,4-Trimethylbenzene	6.26	0.50	ug/L	5.00	ND	125	70-130			
1,3,5-Trimethylbenzene	6.16	0.50	ug/L	5.00	ND	123	70-130			
Vinyl chloride	7.20	0.50	ug/L	5.00	ND	144	70-130			QM-05
m,p-Xylene	12.0	0.50	ug/L	10.0	ND	120	70-130			
o-Xylene	5.84	0.50	ug/L	5.00	ND	117	70-130			
Xylenes (total)	17.9	0.50	ug/L	15.0	ND	119	70-130			
Surrogate: Bromofluorobenzene	28.0		ug/L	25.0		112	70-130			
Surrogate: Dibromofluoromethane	23.9		ug/L	25.0		95.5	70-130			
Surrogate: Toluene-d8	25.4		ug/L	25.0		102	70-130			

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Todd Groundwater
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Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: Round 3 ASR Water Quality Baseline

Reported:
09/24/21 14:03

Notes and Definitions

- QM-05 The spike recovery was outside acceptance limits for the MS and/or MSD due to matrix interference. The LCS and/or LCSD were within acceptance limits showing that the laboratory is in control and the data is acceptable.
- QM-07 The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.
- R-01 The Reporting Limit for this analyte has been raised to account for matrix interference.
- ND Analyte NOT DETECTED at or above the reporting limit
- dry Sample results reported on a dry weight basis
- REC Recovery
- RPD Relative Percent Difference

September 15, 2021

Vista Work Order No. 2108221

Mr. David S. Pingatore
Alpha Analytical Laboratories, Inc
208 Mason Street
Ukiah, CA 95482

Dear Mr. Pingatore,

Enclosed are the results for the sample set received at Vista Analytical Laboratory on August 24, 2021 under your Project Name '21H2617'.

Vista Analytical Laboratory is committed to serving you effectively. If you require additional information, please contact me at 916-673-1520 or by email at jfox@vista-analytical.com.

Thank you for choosing Vista as part of your analytical support team.

Sincerely,



for

Jamie Fox
Laboratory Director



Vista Analytical Laboratory certifies that the report herein meets all the requirements set forth by NELAP for those applicable test methods. Results relate only to the samples as received by the laboratory. This report should not be reproduced except in full without the written approval of Vista.

Vista Work Order No. 2108221**Case Narrative****Sample Condition on Receipt:**

Two drinking water samples were received and stored securely in accordance with Vista standard operating procedures and EPA methodology. The samples were received in good condition and within the method temperature requirements.

Analytical Notes:**EPA Method 537.1**

The samples were extracted and analyzed for a selected list of PFAS using EPA Method 537.1.

Holding Times

The samples were extracted and analyzed within the method hold times.

Quality Control

The Initial Calibration and Continuing Calibration Verifications met the method acceptance criteria.

A Laboratory Fortified Blank (LFB) and Laboratory Reagent Blank (LRB) were extracted and analyzed with the preparation batch. No analytes were detected in the LRB above the method specified limits. The LFB recoveries were within the method acceptance criteria.

The surrogate recoveries for all QC and field samples were within the acceptance criteria.

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Sample Inventory Report



Vista Sample ID	Client Sample ID	Sampled	Received	Components/Containers
2108221-01	3121	18-Aug-21 08:38	24-Aug-21 11:19	Polypropylene, 250mL
				Polypropylene, 250mL
2108221-02	3123	18-Aug-21 12:00	24-Aug-21 11:19	Polypropylene, 250mL
				Polypropylene, 250mL

ANALYTICAL RESULTS

Sample ID: LRB
EPA Method 537.1

Client Data					Laboratory Data				
Name:	Alpha Analytical Laboratories, Inc	Matrix:	Aqueous		Lab Sample:	B1H0212-BLK1	Column:	BEH C18	
Project:	21H2617								

Analyte	CAS Number	Conc. (ng/L)	MDL	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	ND	0.704	2.00		B1H0212	27-Aug-21	0.250 L	29-Aug-21 05:55	1
PFHxA	307-24-4	ND	0.961	2.00		B1H0212	27-Aug-21	0.250 L	29-Aug-21 05:55	1
HFPO-DA	13252-13-6	ND	0.847	2.00		B1H0212	27-Aug-21	0.250 L	29-Aug-21 05:55	1
PFHpA	375-85-9	ND	0.790	2.00		B1H0212	27-Aug-21	0.250 L	29-Aug-21 05:55	1
ADONA	919005-14-4	ND	0.762	2.00		B1H0212	27-Aug-21	0.250 L	29-Aug-21 05:55	1
PFHxS	355-46-4	ND	0.803	2.00		B1H0212	27-Aug-21	0.250 L	29-Aug-21 05:55	1
PFOA	335-67-1	ND	0.745	2.00		B1H0212	27-Aug-21	0.250 L	29-Aug-21 05:55	1
PFNA	375-95-1	ND	0.878	2.00		B1H0212	27-Aug-21	0.250 L	29-Aug-21 05:55	1
PFOS	1763-23-1	ND	1.31	2.00		B1H0212	27-Aug-21	0.250 L	29-Aug-21 05:55	1
9Cl-PF3ONS	756426-58-1	ND	0.866	2.00		B1H0212	27-Aug-21	0.250 L	29-Aug-21 05:55	1
PFDA	335-76-2	ND	0.629	2.00		B1H0212	27-Aug-21	0.250 L	29-Aug-21 05:55	1
MeFOSAA	2355-31-9	ND	0.483	2.00		B1H0212	27-Aug-21	0.250 L	29-Aug-21 05:55	1
EtFOSAA	2991-50-6	ND	0.902	2.00		B1H0212	27-Aug-21	0.250 L	29-Aug-21 05:55	1
PFUnA	2058-94-8	ND	0.682	2.00		B1H0212	27-Aug-21	0.250 L	29-Aug-21 05:55	1
PFDoA	307-55-1	ND	0.727	2.00		B1H0212	27-Aug-21	0.250 L	29-Aug-21 05:55	1
PFTTrDA	72629-94-8	ND	0.766	2.00		B1H0212	27-Aug-21	0.250 L	29-Aug-21 05:55	1
11Cl-PF3OUdS	763051-92-9	ND	1.18	2.00		B1H0212	27-Aug-21	0.250 L	29-Aug-21 05:55	1
PFTeDA	376-06-7	ND	0.781	2.00		B1H0212	27-Aug-21	0.250 L	29-Aug-21 05:55	1
Labeled Standards	Type	% Recovery	Limits		Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	107	70 - 130			B1H0212	27-Aug-21	0.250 L	29-Aug-21 05:55	1
13C2-PFDA	SURR	101	70 - 130			B1H0212	27-Aug-21	0.250 L	29-Aug-21 05:55	1
d5-EtFOSAA	SURR	88.6	70 - 130			B1H0212	27-Aug-21	0.250 L	29-Aug-21 05:55	1
13C3-HFPO-DA	SURR	100	70 - 130			B1H0212	27-Aug-21	0.250 L	29-Aug-21 05:55	1

MDL - Method Detection Limit

RL - Reporting limit

Results reported to MDL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: LFB
EPA Method 537.1

Client Data						Laboratory Data					
Name: Project:	Alpha Analytical Laboratories, Inc 21H2617		Matrix:	Aqueous		Lab Sample:	B1H0212-BS1		Column:	BEH C18	
Analyte	CAS Number	Amt Found (ng/L)	Spike Amt	% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	15.4	14.2	109	50 - 150		B1H0212	27-Aug-21	0.250 L	29-Aug-21 06:06	1
PFHxA	307-24-4	16.4	16.0	103	50 - 150		B1H0212	27-Aug-21	0.250 L	29-Aug-21 06:06	1
HFPO-DA	13252-13-6	16.7	16.0	104	50 - 150		B1H0212	27-Aug-21	0.250 L	29-Aug-21 06:06	1
PFHpA	375-85-9	17.5	16.0	109	50 - 150		B1H0212	27-Aug-21	0.250 L	29-Aug-21 06:06	1
ADONA	919005-14-4	15.1	15.1	99.6	50 - 150		B1H0212	27-Aug-21	0.250 L	29-Aug-21 06:06	1
PFHxS	355-46-4	15.2	14.6	105	50 - 150		B1H0212	27-Aug-21	0.250 L	29-Aug-21 06:06	1
PFOA	335-67-1	16.3	16.0	102	50 - 150		B1H0212	27-Aug-21	0.250 L	29-Aug-21 06:06	1
PFNA	375-95-1	15.1	16.0	94.5	50 - 150		B1H0212	27-Aug-21	0.250 L	29-Aug-21 06:06	1
PFOS	1763-23-1	15.3	14.8	103	50 - 150		B1H0212	27-Aug-21	0.250 L	29-Aug-21 06:06	1
9CI-PF3ONS	756426-58-1	14.6	14.9	98.3	50 - 150		B1H0212	27-Aug-21	0.250 L	29-Aug-21 06:06	1
PFDA	335-76-2	17.1	16.0	107	50 - 150		B1H0212	27-Aug-21	0.250 L	29-Aug-21 06:06	1
MeFOSAA	2355-31-9	16.8	16.0	105	50 - 150		B1H0212	27-Aug-21	0.250 L	29-Aug-21 06:06	1
EtFOSAA	2991-50-6	13.9	16.0	86.9	50 - 150		B1H0212	27-Aug-21	0.250 L	29-Aug-21 06:06	1
PFUnA	2058-94-8	15.4	16.0	96.4	50 - 150		B1H0212	27-Aug-21	0.250 L	29-Aug-21 06:06	1
PFDaA	307-55-1	15.4	16.0	96.2	50 - 150		B1H0212	27-Aug-21	0.250 L	29-Aug-21 06:06	1
PFTTrDA	72629-94-8	14.2	16.0	88.6	50 - 150		B1H0212	27-Aug-21	0.250 L	29-Aug-21 06:06	1
11CI-PF3OUdS	763051-92-9	15.2	15.0	101	50 - 150		B1H0212	27-Aug-21	0.250 L	29-Aug-21 06:06	1
PFTeDA	376-06-7	14.3	16.0	89.4	50 - 150		B1H0212	27-Aug-21	0.250 L	29-Aug-21 06:06	1
Labeled Standards		Type		% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA		SURR		105	70 - 130		B1H0212	27-Aug-21	0.250 L	29-Aug-21 06:06	1
13C2-PFDA		SURR		99.7	70 - 130		B1H0212	27-Aug-21	0.250 L	29-Aug-21 06:06	1
d5-EtFOSAA		SURR		87.5	70 - 130		B1H0212	27-Aug-21	0.250 L	29-Aug-21 06:06	1
13C3-HFPO-DA		SURR		94.9	70 - 130		B1H0212	27-Aug-21	0.250 L	29-Aug-21 06:06	1

Sample ID: 3121
EPA Method 537.1

Client Data				Laboratory Data			
Name:	Alpha Analytical Laboratories, Inc	Matrix:	Drinking Water	Lab Sample:	2108221-01	Column:	BEH C18
Project:	21H2617	Date Collected:	18-Aug-21 08:38	Date Received:	24-Aug-21 11:19		
Location:	21H2617-01						

Analyte	CAS Number	Conc. (ng/L)	MDL	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	ND	0.703	2.00		B1H0212	27-Aug-21	0.250 L	29-Aug-21 09:58	1
PFHxA	307-24-4	ND	0.959	2.00		B1H0212	27-Aug-21	0.250 L	29-Aug-21 09:58	1
HFPO-DA	13252-13-6	ND	0.846	2.00		B1H0212	27-Aug-21	0.250 L	29-Aug-21 09:58	1
PFHpA	375-85-9	ND	0.789	2.00		B1H0212	27-Aug-21	0.250 L	29-Aug-21 09:58	1
ADONA	919005-14-4	ND	0.761	2.00		B1H0212	27-Aug-21	0.250 L	29-Aug-21 09:58	1
PFHxS	355-46-4	ND	0.802	2.00		B1H0212	27-Aug-21	0.250 L	29-Aug-21 09:58	1
PFOA	335-67-1	ND	0.744	2.00		B1H0212	27-Aug-21	0.250 L	29-Aug-21 09:58	1
PFNA	375-95-1	ND	0.877	2.00		B1H0212	27-Aug-21	0.250 L	29-Aug-21 09:58	1
PFOS	1763-23-1	ND	1.31	2.00		B1H0212	27-Aug-21	0.250 L	29-Aug-21 09:58	1
9Cl-PF3ONS	756426-58-1	ND	0.865	2.00		B1H0212	27-Aug-21	0.250 L	29-Aug-21 09:58	1
PFDA	335-76-2	ND	0.628	2.00		B1H0212	27-Aug-21	0.250 L	29-Aug-21 09:58	1
MeFOSAA	2355-31-9	ND	0.482	2.00		B1H0212	27-Aug-21	0.250 L	29-Aug-21 09:58	1
EtFOSAA	2991-50-6	ND	0.901	2.00		B1H0212	27-Aug-21	0.250 L	29-Aug-21 09:58	1
PFUnA	2058-94-8	ND	0.681	2.00		B1H0212	27-Aug-21	0.250 L	29-Aug-21 09:58	1
PFDoA	307-55-1	ND	0.726	2.00		B1H0212	27-Aug-21	0.250 L	29-Aug-21 09:58	1
PFTTrDA	72629-94-8	ND	0.765	2.00		B1H0212	27-Aug-21	0.250 L	29-Aug-21 09:58	1
11Cl-PF3OUdS	763051-92-9	ND	1.18	2.00		B1H0212	27-Aug-21	0.250 L	29-Aug-21 09:58	1
PFTeDA	376-06-7	ND	0.780	2.00		B1H0212	27-Aug-21	0.250 L	29-Aug-21 09:58	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	107	70 - 130		B1H0212	27-Aug-21	0.250 L	29-Aug-21 09:58	1
13C2-PFDA	SURR	97.9	70 - 130		B1H0212	27-Aug-21	0.250 L	29-Aug-21 09:58	1
d5-EtFOSAA	SURR	85.8	70 - 130		B1H0212	27-Aug-21	0.250 L	29-Aug-21 09:58	1
13C3-HFPO-DA	SURR	97.2	70 - 130		B1H0212	27-Aug-21	0.250 L	29-Aug-21 09:58	1

MDL - Method Detection Limit

RL - Reporting limit

Results reported to MDL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: 3123
EPA Method 537.1

Client Data				Laboratory Data			
Name:	Alpha Analytical Laboratories, Inc	Matrix:	Drinking Water	Lab Sample:	2108221-02	Column:	BEH C18
Project:	21H2617	Date Collected:	18-Aug-21 12:00	Date Received:	24-Aug-21 11:19		
Location:	21H2617-02						

Analyte	CAS Number	Conc. (ng/L)	MDL	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	ND	0.725	2.06		B1H0212	27-Aug-21	0.243 L	29-Aug-21 10:10	1
PFHxA	307-24-4	ND	0.990	2.06		B1H0212	27-Aug-21	0.243 L	29-Aug-21 10:10	1
HFPO-DA	13252-13-6	ND	0.873	2.06		B1H0212	27-Aug-21	0.243 L	29-Aug-21 10:10	1
PFHpA	375-85-9	ND	0.814	2.06		B1H0212	27-Aug-21	0.243 L	29-Aug-21 10:10	1
ADONA	919005-14-4	ND	0.785	2.06		B1H0212	27-Aug-21	0.243 L	29-Aug-21 10:10	1
PFHxS	355-46-4	ND	0.827	2.06		B1H0212	27-Aug-21	0.243 L	29-Aug-21 10:10	1
PFOA	335-67-1	ND	0.767	2.06		B1H0212	27-Aug-21	0.243 L	29-Aug-21 10:10	1
PFNA	375-95-1	ND	0.904	2.06		B1H0212	27-Aug-21	0.243 L	29-Aug-21 10:10	1
PFOS	1763-23-1	ND	1.35	2.06		B1H0212	27-Aug-21	0.243 L	29-Aug-21 10:10	1
9CI-PF3ONS	756426-58-1	ND	0.892	2.06		B1H0212	27-Aug-21	0.243 L	29-Aug-21 10:10	1
PFDA	335-76-2	ND	0.648	2.06		B1H0212	27-Aug-21	0.243 L	29-Aug-21 10:10	1
MeFOSAA	2355-31-9	ND	0.498	2.06		B1H0212	27-Aug-21	0.243 L	29-Aug-21 10:10	1
EtFOSAA	2991-50-6	ND	0.929	2.06		B1H0212	27-Aug-21	0.243 L	29-Aug-21 10:10	1
PFUnA	2058-94-8	ND	0.703	2.06		B1H0212	27-Aug-21	0.243 L	29-Aug-21 10:10	1
PFDoA	307-55-1	ND	0.749	2.06		B1H0212	27-Aug-21	0.243 L	29-Aug-21 10:10	1
PFTTrDA	72629-94-8	ND	0.789	2.06		B1H0212	27-Aug-21	0.243 L	29-Aug-21 10:10	1
11CI-PF3OUdS	763051-92-9	ND	1.22	2.06		B1H0212	27-Aug-21	0.243 L	29-Aug-21 10:10	1
PFTeDA	376-06-7	ND	0.805	2.06		B1H0212	27-Aug-21	0.243 L	29-Aug-21 10:10	1
Labeled Standards	Type	% Recovery	Limits		Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	106	70 - 130			B1H0212	27-Aug-21	0.243 L	29-Aug-21 10:10	1
13C2-PFDA	SURR	97.2	70 - 130			B1H0212	27-Aug-21	0.243 L	29-Aug-21 10:10	1
d5-EtFOSAA	SURR	90.1	70 - 130			B1H0212	27-Aug-21	0.243 L	29-Aug-21 10:10	1
13C3-HFPO-DA	SURR	98.4	70 - 130			B1H0212	27-Aug-21	0.243 L	29-Aug-21 10:10	1

MDL - Method Detection Limit

RL - Reporting limit

Results reported to MDL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

B	This compound was also detected in the method blank
Conc.	Concentration
CRS	Cleanup Recovery Standard
D	Dilution
DL	Detection Limit
E	The associated compound concentration exceeded the calibration range of the instrument
H	Recovery and/or RPD was outside laboratory acceptance limits
I	Chemical Interference
IS	Internal Standard
J	The amount detected is below the Reporting Limit/LOQ
LOD	Limit of Detection
LOQ	Limit of Quantitation
M	Estimated Maximum Possible Concentration (CA Region 2 projects only)
MDL	Method Detection Limit
NA	Not applicable
ND	Not Detected
OPR	Ongoing Precision and Recovery sample
P	The reported concentration may include contribution from chlorinated diphenyl ether(s).
Q	The ion transition ratio is outside of the acceptance criteria.
RL	Reporting Limit
RL	For 537.1, the reported RLs are the MRLs.
TEQ	Toxic Equivalency, sum of the toxic equivalency factors (TEF) multiplied by the sample concentrations.
TEQMax	TEQ calculation that uses the detection limit as the concentration for non-detects
TEQMin	TEQ calculation that uses zero as the concentration for non-detects
TEQRisk	TEQ calculation that uses ½ the detection limit as the concentration for non-detects
U	Not Detected (specific projects only)
*	See Cover Letter

Unless otherwise noted, solid sample results are reported in dry weight. Tissue samples are reported in wet weight.

Vista Analytical Laboratory Certifications

Accrediting Authority	Certificate Number
Alaska Department of Environmental Conservation	17-013
Arkansas Department of Environmental Quality	21-023-0
California Department of Health – ELAP	2892
DoD ELAP - A2LA Accredited - ISO/IEC 17025:2005	3091.01
Florida Department of Health	E87777-26
Hawaii Department of Health	N/A
Louisiana Department of Environmental Quality	01977
Maine Department of Health	2020018
Massachusetts Department of Environmental Protection	M-CA413
Michigan Department of Environmental Quality	9932
Minnesota Department of Health	1980678
New Hampshire Environmental Accreditation Program	207720
New Jersey Department of Environmental Protection	CA003
New York Department of Health	11411
Ohio Environmental Protection Agency	87778
Oregon Laboratory Accreditation Program	4042-016
Pennsylvania Department of Environmental Protection	017
Texas Commission on Environmental Quality	T104704189-21-12
Vermont Department of Health	VT-4042
Virginia Department of General Services	10769
Washington Department of Ecology	C584
Wisconsin Department of Natural Resources	998036160

Current certificates and lists of licensed parameters are located in the Quality Assurance office and are available upon request.

NELAP Accredited Test Methods

MATRIX: Air	
Description of Test	Method
Determination of Polychlorinated p- Dioxins & Polychlorinated Dibenzofurans	EPA 23
Polychlorinated Dibenzodioxins in Ambient Air by GC/HRMS	EPA TO-9A

MATRIX: Biological Tissue	
Description of Test	Method
Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613B
Brominated Diphenyl Ethers by HRGC/HRMS	EPA 1614A
Chlorinated Biphenyl Congeners in Water, Soil, Sediment, and Tissue by GC/HRMS	EPA 1668A/C
Pesticides in Water, Soil, Sediment, Biosolids, and Tissue by HRGC/HRMS	EPA 1699
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537
Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans by GC/HRMS	EPA 8280A/B
Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by GC/HRMS	EPA 8290/8290A

MATRIX: Drinking Water	
Description of Test	Method
Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613/1613B
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537.1
Determination of Per- and Polyfluoroalkyl Substances in Drinking Water by Isotope Dilution Anion Exchange Solid Phase Extraction and Liquid Chromatography/Tandem Mass Spectrometry	EPA 533
Perfluorooctanesulfonate (PFOS) and Perfluorooctanoate (PFOA) - Method for Unfiltered Samples Using Solid Phase Extraction and Liquid Chromatography/Mass Spectrometry	ISO 25101 2009

MATRIX: Non-Potable Water	
Description of Test	Method
Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613B
Brominated Diphenyl Ethers by HRGC/HRMS	EPA 1614A
Chlorinated Biphenyl Congeners in Water, Soil, Sediment, and Tissue by GC/HRMS	EPA 1668A/C
Pesticides in Water, Soil, Sediment, Biosolids, and Tissue by HRGC/HRMS	EPA 1699
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537
Dioxin by GC/HRMS	EPA 613
Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans by GC/HRMS	EPA 8280A/B
Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by GC/HRMS	EPA 8290/8290A

MATRIX: Solids	
Description of Test	Method
Tetra-Octa Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613
Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613B
Brominated Diphenyl Ethers by HRGC/HRMS	EPA 1614A
Chlorinated Biphenyl Congeners in Water, Soil, Sediment, and Tissue by GC/HRMS	EPA 1668A/C
Pesticides in Water, Soil, Sediment, Biosolids, and Tissue by HRGC/HRMS	EPA 1699
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537
Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans by GC/HRMS	EPA 8280A/B
Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by GC/HRMS	EPA 8290/8290A

SUBCONTRACT ORDER
Alpha Analytical Laboratories, Inc.
21H2617

2106221 3.3°C

SENDING LABORATORY:

Alpha Analytical Laboratories, Inc.
208 Mason St.
Ukiah, CA 95482
Phone: (707)468-0401
Fax: (707)468-5267
Project Manager: David S. Pingatore

RECEIVING LABORATORY:

Vista Analytical
1104 Windfield Way
El Dorado Hills, CA 95762
Phone: (916) 673-1520
Fax: -
Terms: Net 30

Analysis	Due	Expires	Comments
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21H2617-01 3121 [Water] Sampled 08/18/21 08:38

537.1 Perfluorochemicals x 18 w/GenX	09/02/21 15:00	09/01/21 08:38
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Containers Supplied:

500mL PP Poly (Trizma) (500mL PP Poly (Trizma) (

21H2617-02 3123 [Water] Sampled 08/18/21 12:00

537.1 Perfluorochemicals x 18 w/GenX	09/02/21 15:00	09/01/21 12:00
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Containers Supplied:

500mL PP Poly (Trizma) (500mL PP Poly (Trizma) (

☐ Report to State

System Name: _____ Employed by: _____

User ID: _____ Sampler: _____

System Number: _____

+QC

Released By	Date	Received By	Date
13	8/19/21	18:15	8/19/21 14:15
Released By	Date	Received By	Date
		Justin Bensen	08/24/21 1119
Released By	Date	Received By	Date
Released By	Date	Received By	Date
Released By	Date	Received By	Date

Sample Log-In Checklist

 Page # 1 of 1

 Vista Work Order #: 2108221

 TAT STD

Samples Arrival:	Date/Time		Initials:		Location: <u>WV-2</u>		
	<u>08/24/21 1119</u>		<u>[Signature]</u>		Shelf/Rack: <u>N/A</u>		
Delivered By:	FedEx	UPS	On Trac	GLS	DHL	Hand Delivered	Other
Preservation:	Ice		<u>Blue Ice</u>		Techni Ice	Dry Ice	None
Temp °C: <u>3.4</u> (uncorrected)	Probe used: Y <u>(N)</u>			Thermometer ID: <u>IR-3</u>			
Temp °C: <u>3.3</u> (corrected)							

	YES	NO	NA
Shipping Container(s) Intact?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Shipping Custody Seals Intact?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Airbill <u>—</u> Trk # <u>554382921</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Shipping Documentation Present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Shipping Container	Vista	<u>Client</u>	Retain
		<u>Return</u>	Dispose
Chain of Custody / Sample Documentation Present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Chain of Custody / Sample Documentation Complete?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Holding Time Acceptable?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Logged In:	Date/Time		Initials:
	<u>08/24/21 12:00</u>		<u>[Signature]</u>
	Location: <u>P-13 WV-2</u>		
	Shelf/Rack: <u>A-4 B-4</u>		
COC Anomaly/Sample Acceptance Form completed?			
	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Comments:

CoC/Label Reconciliation Report WO# 2108221

LabNumber	CoC Sample ID		SampleAlias	Sample Date/Time		Container	BaseMatrix	Sample Comments
2108221-01	A 3121	<input checked="" type="checkbox"/>	21H2617-01	18-Aug-21 08:38	<input checked="" type="checkbox"/>	Polypropylene, 250mL	Aqueous	
2108221-01	B 3121	<input checked="" type="checkbox"/>	21H2617-01	18-Aug-21 08:38	<input checked="" type="checkbox"/>	Polypropylene, 250mL	Aqueous	
2108221-02	A 3123	<input checked="" type="checkbox"/>	21H2617-02	18-Aug-21 12:00	<input checked="" type="checkbox"/>	Polypropylene, 250mL	Aqueous	
2108221-02	B 3123	<input checked="" type="checkbox"/>	21H2617-02	18-Aug-21 12:00	<input checked="" type="checkbox"/>	Polypropylene, 250mL	Aqueous	

Checkmarks indicate that information on the COC reconciled with the sample label.

Any discrepancies are noted in the following columns.

	Yes	No	NA	Comments:
Sample Container Intact?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Sample Custody Seals Intact?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Adequate Sample Volume?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Container Type Appropriate for Analysis(es)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Preservation Documented: Na2S2O3 Trizma
ALL
14 NH4CH3CO2 None Other

Verified by/Date:

P 08/24/21

September 17, 2021

Alpha Analytical Laboratories, Inc.
 Attn: Leslie Quinn
 208 Mason St.
 Ukiah, CA 95482

Lab ID : SP 2111724
 Customer : 2-20626

Laboratory Report

Introduction: This report package contains total of 4 pages divided into 3 sections:

Case Narrative	(1 pages) : An overview of the work performed at FGL.
Sample Results	(2 pages) : Results for each sample submitted.
Quality Control	(1 page) : Supporting Quality Control (QC) results.

Case Narrative

This Case Narrative pertains to the following samples:

Sample Description	Date Sampled	Date Received	FGL Lab ID #	Matrix
21H2617-01	08/18/2021	08/24/2021	SP 2111724-001	W
21H2617-02	08/18/2021	08/24/2021	SP 2111724-002	W

Sampling and Receipt Information: All samples were received in acceptable condition and within temperature requirements, unless noted on the Condition Upon Receipt (CUR) form. All samples arrived at 19 °C. All samples were prepared and analyzed within the method specified hold time. All samples were checked for pH if acid or base preservation is required (except for VOAs). For details of sample receipt information, please see the attached Chain of Custody and Condition Upon Receipt Form.

Quality Control: All samples were prepared and analyzed according to the following tables:

Radio QC

900.0	09/15/2021:214382 All analysis quality controls are within established criteria
	08/27/2021:209898 All preparation quality controls are within established criteria (performed at FGL-SP ELAP# 1573)

Certification:: I certify that this data package is in compliance with ELAP standards, both technically and for completeness, except for any conditions listed above. Release of the data contained in this data package is authorized by the Laboratory Director or his designee, as verified by the following electronic signature.

KD:MKH

Reviewed and Approved By **Kelly A. Dunnahoo, B.S.**  Digitally signed by Kelly A. Dunnahoo, B.S.
 Title: Laboratory Director
 Date: 2021-09-17

September 17, 2021

Lab ID : SP 2111724-001
Customer ID : 2-20626

Alpha Analytical Laboratories, Inc.

Attn: Leslie Quinn
208 Mason St.
Ukiah, CA 95482

Sampled On : August 18, 2021-08:38
Sampled By : Not Available
Received On : August 24, 2021-10:15
Matrix : Water

Description : 21H2617-01
Project : 21H2617

Sample Result - Radio

Constituent	Result \pm Error	MDA	Units	MCL/AL	Sample Preparation		Sample Analysis	
					Method	Date/ID	Method	Date/ID
Radio Chemistry								
Gross Alpha	3.20 \pm 1.88	2.50	pCi/L	15/5	900.0	08/27/21-07:30 2P2109898	900.0	09/15/21-13:11 2A2114382
Gross Beta	2.38 \pm 1.23	1.44	pCi/L	50	900.0	08/27/21-07:30 2P2109898	900.0	09/15/21-13:11 2A2114382

ND=Non-Detected. PQL=Practical Quantitation Limit. * PQL adjusted for dilution.

MDA = Minimum Detectable Activity (Calculated at the 95% confidence level) = Data utilized by DHS to determine matrix interference.
MCL / AL = Maximum Contamination Level / Action Level. Alpha's Action Level of 5 pCi/L is based on the Assigned Value (AV).
AV = Assigned Value(Gross Alpha Result + (0.84 x Error)). CCR Section 64442: Drinking Water Compliance Note: Do the following
If Gross Alpha's (AV) exceeds 5 pCi/L run Uranium. If Gross Alpha's (AV) minus Uranium exceeds 5 pCi/L run Radium 226.

Drinking Water Compliance:

Gross Alpha (AV) minus Uranium is less than or equal to 15 pCi/L
Uranium is less than or equal to 20 pCi/L
Radium 226 + Radium 228 is less than or equal to 5 pCi/L

Note: Samples are held for 3-6 months prior to disposal.

September 17, 2021

Lab ID : SP 2111724-002
Customer ID : 2-20626

Alpha Analytical Laboratories, Inc.

Attn: Leslie Quinn
208 Mason St.
Ukiah, CA 95482

Sampled On : August 18, 2021-12:00
Sampled By : Not Available
Received On : August 24, 2021-10:15
Matrix : Water

Description : 21H2617-02
Project : 21H2617

Sample Result - Radio

Constituent	Result ± Error	MDA	Units	MCL/AL	Sample Preparation		Sample Analysis	
					Method	Date/ID	Method	Date/ID
Radio Chemistry								
Gross Alpha	2.10 ± 1.81	2.59	pCi/L	15/5	900.0	08/27/21-07:30 2P2109898	900.0	09/15/21-13:11 2A2114382
Gross Beta	1.97 ± 1.17	1.44	pCi/L	50	900.0	08/27/21-07:30 2P2109898	900.0	09/15/21-13:11 2A2114382

ND=Non-Detected. PQL=Practical Quantitation Limit. * PQL adjusted for dilution.

MDA = Minimum Detectable Activity (Calculated at the 95% confidence level) = Data utilized by DHS to determine matrix interference.
MCL / AL = Maximum Contamination Level / Action Level. Alpha's Action Level of 5 pCi/L is based on the Assigned Value (AV).
AV = Assigned Value(Gross Alpha Result + (0.84 x Error)). CCR Section 64442: Drinking Water Compliance Note: Do the following
If Gross Alpha's (AV) exceeds 5 pCi/L run Uranium. If Gross Alpha's (AV) minus Uranium exceeds 5 pCi/L run Radium 226.

Drinking Water Compliance:

Gross Alpha (AV) minus Uranium is less than or equal to 15 pCi/L
Uranium is less than or equal to 20 pCi/L
Radium 226 + Radium 228 is less than or equal to 5 pCi/L

Note: Samples are held for 3-6 months prior to disposal.

September 17, 2021
Alpha Analytical Laboratories, Inc.

Lab ID : SP 2111724
 Customer : 2-20626

Quality Control - Radio

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Radio								
Alpha	900.0	09/15/21:214382JCA	CCV CCB	cpm cpm	7347	41.9 % 0.1200	35-47 0.15	
Beta	900.0	09/15/21:214382JCA	CCV CCB	cpm cpm	7347	94.4 % 0.460	83-94 0.5	
Gross Alpha	900.0	08/27/21:209898jca (SP 2111724-001)	Blank LCS MS MSD MSRPD	pCi/L pCi/L pCi/L pCi/L pCi/L	 201.1 201.1 201.1 201.1	 78.6 % 114 % 115 % 0.7%	 75-125 60-140 60-140 ≤30	
Gross Beta	900.0	08/27/21:209898jca (SP 2111724-001)	Blank LCS MS MSD MSRPD	pCi/L pCi/L pCi/L pCi/L pCi/L	 35.25 35.25 35.25 201.1	 110 % 93.6 % 90.2 % 3.4%	 84-160 80-130 80-130 ≤30	
Definition CCV : Continuing Calibration Verification - Analyzed to verify the instrument calibration is within criteria. CCB : Continuing Calibration Blank - Analyzed to verify the instrument baseline is within criteria. Blank : Method Blank - Prepared to verify that the preparation process is not contributing contamination to the samples. LCS : Laboratory Control Standard/Sample - Prepared to verify that the preparation process is not affecting analyte recovery. MS : Matrix Spikes - A random sample is spiked with a known amount of analyte. The recoveries are an indication of how that sample matrix affects analyte recovery. MSD : Matrix Spike Duplicate of MS/MSD pair - A random sample duplicate is spiked with a known amount of analyte. The recoveries are an indication of how that sample matrix affects analyte recovery. MSRPD : MS/MSD Relative Percent Difference (RPD) - The MS relative percent difference is an indication of precision for the preparation and analysis. DQO : Data Quality Objective - This is the criteria against which the quality control data is compared.								

September 17, 2021

Alpha Analytical Laboratories, Inc.
Attn: Leslie Quinn
208 Mason St.
Ukiah, CA 95482

Subject: Subcontract Analysis for FGL Lab No. SP 2111724

Enclosed please find results for the following sample(s) which were received by FGL.

- Sub Contracted-Strontium 90

Please note that this analysis was performed by Pace Analytical (ELAP Certified Laboratory)

Thank you for using FGL Environmental.

Sincerely,

Tracy Proefrock  Digitally signed by Tracy Proefrock
Title: Customer Service Rep
Date: 2021-09-17

Enclosure

Corporate Offices & Laboratory

853 Corporation Street
Santa Paula, CA 93060
TEL: (805)392-2000
Env FAX: (805)525-4172 / Ag FAX: (805)392-2063
CA ELAP Certification No. 1573

Office & Laboratory

2500 Stagecoach Road
Stockton, CA 95215
TEL: (209)942-0182
FAX: (209)942-0423
CA ELAP Certification No. 1563

Office & Laboratory

563 E. Lindo Avenue
Chico, CA 95926
TEL: (530)343-5818
FAX: (530)343-3807
CA ELAP Certification No. 2670

Office & Laboratory

3442 Empresa Drive, Suite D
San Luis Obispo, CA 93401
TEL: (805)783-2940
FAX: (805)783-2912
CA ELAP Certification No. 2775

Office & Laboratory

9415 W. Goshen Avenue
Visalia, CA 93291
TEL: (559)734-9473
FAX: (559)734-8435
CA ELAP Certification No. 2810

September 15, 2021

Cindy Aguirre
FGL Environmental, Inc.
853 Corporation St.
Santa Paula, CA 930603005

RE: Project: SP 2111724
Pace Project No.: 30437814

Dear Cindy Aguirre:

Enclosed are the analytical results for sample(s) received by the laboratory on August 26, 2021. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

- Pace Analytical Services - Greensburg

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Karen L. Smetanka
karen.smetanka@pacelabs.com
(724)850-5600
Project Manager

Enclosures



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: SP 2111724

Pace Project No.: 30437814

Pace Analytical Services Pennsylvania

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601

ANAB DOD-ELAP Rad Accreditation #: L2417

Alabama Certification #: 41590

Arizona Certification #: AZ0734

Arkansas Certification

California Certification #: 04222CA

Colorado Certification #: PA01547

Connecticut Certification #: PH-0694

Delaware Certification

EPA Region 4 DW Rad

Florida/TNI Certification #: E87683

Georgia Certification #: C040

Florida: Cert E871149 SEKS WET

Guam Certification

Hawaii Certification

Idaho Certification

Illinois Certification

Indiana Certification

Iowa Certification #: 391

Kansas/TNI Certification #: E-10358

Kentucky Certification #: KY90133

KY WW Permit #: KY0098221

KY WW Permit #: KY0000221

Louisiana DHH/TNI Certification #: LA180012

Louisiana DEQ/TNI Certification #: 4086

Maine Certification #: 2017020

Maryland Certification #: 308

Massachusetts Certification #: M-PA1457

Michigan/PADEP Certification #: 9991

Missouri Certification #: 235

Montana Certification #: Cert0082

Nebraska Certification #: NE-OS-29-14

Nevada Certification #: PA014572018-1

New Hampshire/TNI Certification #: 297617

New Jersey/TNI Certification #: PA051

New Mexico Certification #: PA01457

New York/TNI Certification #: 10888

North Carolina Certification #: 42706

North Dakota Certification #: R-190

Ohio EPA Rad Approval: #41249

Oregon/TNI Certification #: PA200002-010

Pennsylvania/TNI Certification #: 65-00282

Puerto Rico Certification #: PA01457

Rhode Island Certification #: 65-00282

South Dakota Certification

Tennessee Certification #: 02867

Texas/TNI Certification #: T104704188-17-3

Utah/TNI Certification #: PA014572017-9

USDA Soil Permit #: P330-17-00091

Vermont Dept. of Health: ID# VT-0282

Virgin Island/PADEP Certification

Virginia/VELAP Certification #: 9526

Washington Certification #: C868

West Virginia DEP Certification #: 143

West Virginia DHHR Certification #: 9964C

Wisconsin Approve List for Rad

Wyoming Certification #: 8TMS-L

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: SP 2111724

Pace Project No.: 30437814

Lab ID	Sample ID	Matrix	Date Collected	Date Received
30437814001	21H2617-01	Water	08/18/21 08:38	08/26/21 10:30
30437814002	21H2617-02	Water	08/18/21 12:00	08/26/21 10:30

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: SP 2111724

Pace Project No.: 30437814

Lab ID	Sample ID	Method	Analysts	Analytes Reported
30437814001	21H2617-01	EPA 905.0	JJY	1
30437814002	21H2617-02	EPA 905.0	JJY	1

PASI-PA = Pace Analytical Services - Greensburg

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: SP 2111724

Pace Project No.: 30437814

Sample: 21H2617-01		Lab ID: 30437814001	Collected: 08/18/21 08:38	Received: 08/26/21 10:30	Matrix: Water		
PWS:		Site ID:	Sample Type:				
Parameters	Method	Act ± Unc (MDC) Carr Trac		Units	Analyzed	CAS No.	Qual
Pace Analytical Services - Greensburg							
Strontium-90	EPA 905.0	-0.183 ± 0.353 (0.700) C:101% T:NA		pCi/L	09/14/21 17:14	10098-97-2	

Sample: 21H2617-02		Lab ID: 30437814002	Collected: 08/18/21 12:00	Received: 08/26/21 10:30	Matrix: Water		
PWS:		Site ID:	Sample Type:				
Parameters	Method	Act ± Unc (MDC) Carr Trac		Units	Analyzed	CAS No.	Qual
Pace Analytical Services - Greensburg							
Strontium-90	EPA 905.0	-0.0380 ± 0.404 (0.784) C:98% T:NA		pCi/L	09/14/21 17:14	10098-97-2	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL - RADIOCHEMISTRY

Project: SP 2111724

Pace Project No.: 30437814

QC Batch: 462847

Analysis Method: EPA 905.0

QC Batch Method: EPA 905.0

Analysis Description: 905.0 Strontium 89/90

Laboratory: Pace Analytical Services - Greensburg

Associated Lab Samples: 30437814001, 30437814002

METHOD BLANK: 2234496

Matrix: Water

Associated Lab Samples: 30437814001, 30437814002

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Strontium-90	-0.0231 ± 0.0704 (0.139) C:94% T:NA	pCi/L	09/14/21 17:15	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: SP 2111724
Pace Project No.: 30437814

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Reported results are not rounded until the final step prior to reporting. Therefore, calculated parameters that are typically reported as "Total" may vary slightly from the sum of the reported component parameters.

Act - Activity

Unc - Uncertainty: For Safe Drinking Water Act (SDWA) analyses, the reported Unc. is the calculated Count Uncertainty (95% confidence interval) using a coverage factor of 1.96. For all other matrices (non-SDWA), the reported Unc. is the calculated Expanded Uncertainty (aka Combined Standard Uncertainty, CSU), reported at the 95% confidence interval using a coverage factor of 1.96.

Gamma Spec: The Unc. reported for all gamma-spectroscopy analyses (EPA 901.1), is the calculated Expanded Uncertainty (CSU) at the 95.4% confidence interval, using a coverage factor of 2.0.

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

REPORT OF LABORATORY ANALYSIS

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[illegible]

Corporate Offices & Laboratory	Office & Laboratory	Office & Laboratory	Office & Laboratory
953 Corporation Street Santa Paula, CA 93060 TEL: (805)392-2000 Env FAX: (805)525-4172 / Ag FAX: (805)392-2063 CA ELAP Certification No. 1573	2500 Stagecoach Road Stockton, CA 95215 TEL: (209)942-0182 FAX: (209)942-0423	563 E. Lindo Avenue Chico, CA 95926 TEL: (530)343-5818 FAX: (530)343-3807	3442 Empresa Drive, Suite D San Luis Obispo, CA 93401 TEL: (805)783-2940 FAX: (805)783-2812
			9415 W. Goshen Avenue Visalia, CA 93291 TEL: (559)734-9473 FAX: (559)734-8435
			Office & Laboratory CA ELAP Certification No. 2810

Pittsburgh Lab Sample Condition Upon Receipt



Client Name: FGL

Project # _____

Courier: ☐ Fed Ex ☒ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace Other _____

Tracking #: 1Z 942 031013 6023097

Label <u>MR</u>
LIMS Login <u>WPE</u>

Custody Seal on Cooler/Box Present: ☐ yes ☒ no Seals intact: ☐ yes ☒ no

Thermometer Used _____

Type of Ice: Wet Blue None

Cooler Temperature _____ Observed Temp _____ °C Correction Factor: _____ °C Final Temp: _____ °C

Temp should be above freezing to 6°C

Comments:	Yes	No	N/A	pH paper Lot#	Date and Initials of person examining contents:
Chain of Custody Present:	-			1000011	MR 8-27-21
Chain of Custody Filled Out:	-				
Chain of Custody Relinquished:	-				
Sampler Name & Signature on COC:		-			
Sample Labels match COC:	-				
-Includes date/time/ID					
Matrix: <u>ur</u>					
Samples Arrived within Hold Time:	-				
Short Hold Time Analysis (<72hr remaining):		-			
Rush Turn Around Time Requested:		-			
Sufficient Volume:	-				
Correct Containers Used:	-				
-Pace Containers Used:		-			
Containers Intact:	-				
Orthophosphate field filtered			-		
Hex Cr Aqueous sample field filtered			-		
Organic Samples checked for dechlorination:			-		
Filtered volume received for Dissolved tests			-		
All containers have been checked for preservation.	-				
exceptions: VOA, coliform, TOC, O&G, Phenolics, Radon, Non-aqueous matrix				PH42	
All containers meet method preservation requirements.	-			Initial when completed <u>MR</u>	Date/time of preservation
				Lot # of added preservative	
Headspace in VOA Vials (>6mm):			-		
Trip Blank Present:			-		
Trip Blank Custody Seals Present			-		
Rad Samples Screened < 0.5 mrem/hr	-			Initial when completed <u>MR</u>	Date: <u>8-27-21</u> Survey Meter SN: <u>1563</u>

Client Notification/ Resolution:

Person Contacted: _____ Date/Time: _____ Contacted By: _____

Comments/ Resolution: _____

☐ A check in this box indicates that additional information has been stored in ereports.

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

*PM review is documented electronically in LIMS. When the Project Manager closes the SRF Review schedule in LIMS. The review is in the Status section of the Workorder Edit Screen.

30437814



Pace Greensburg Lab -Sample Container Count

30437814

Client

FGC

Site

SP 2111724

Profile Number

13358

Notes

Sample Line Item	Matrix	AG1H	AG1S	AG1T	AG2U	AG3S	AG3U	AG5U	AG5T	BG1U	BG2U	BP1N	BP1U	BP2S	BP2U	BP3C	BP3N	BP3S	BP3U	DG9S	GCUB	VG9H	VG9T	VG9U	VOAK	WG9U	WGKU	ZPLC
1	W1																											
2	W1											1																
3																												
4																												
5																												
6																												
7																												
8																												
9																												
10																												
11																												
12																												

Container Codes

Glass

GJN	1 Gallon Jug with HNO3	DG9S	40mL amber VOA vial H2SO4
AG5U	100mL amber glass unpreserved	VG9U	40mL clear VOA vial
AG5T	100mL amber glass Na Thiosulfate	VG9T	40mL clear VOA vial Na Thiosul
GJN	1 Gallon Jug	VG9H	40mL clear VOA vial HCl
AG1S	1L amber glass H2SO4	JG9U	4oz amber wide jar
AG1H	1L amber glass HCl	WG9U	4oz wide jar unpreserved
AG1T	1L amber glass Na Thiosulfate	BG2U	500mL clear glass unpreserved
BG1U	1L clear glass unpreserved	AG2U	500mL amber glass unpreserved
AG3S	250mL amber glass H2SO4	WGKU	8oz wide jar unpreserved
AG3U	250mL amber glass unpreserved		

Plastic / Misc.

GCUB	1 Gallon Cubitainer	EZ1	5g Encore
12GN	1/2 Gallon Cubitainer	VOAK	Kit for Volatile Solid
SP5T	120mL Coliform Na Thiosulfate	I	Wipe/Swab
BP1N	1L plastic HNO3	ZPLC	Ziploc Bag
BP1U	1L plastic unpreserved		
BP3S	250mL plastic H2SO4	WT	Water
BP3N	250mL plastic HNO3	SL	Solid
BP3U	250mL plastic unpreserved	OL	Non-aqueous liquid
BP3C	250mL plastic NAOH	WP	Wipe
BP2S	500mL plastic H2SO4		
BP2U	500mL plastic unpreserved		

Work Orders: 1H24035

Report Date: 9/15/2021

Project: 21H2617

Received Date: 8/24/2021

Turnaround Time: Normal

Phones: (925) 872-9637

Fax: (707) 468-5267

P.O. #:

Billing Code:

Attn: David Pingatore

Client: Alpha Analytical Laboratories - Ukiah CA
208 Mason St
Ukiah, CA 95482

Dear David Pingatore,

Enclosed are the results of analyses for samples received 8/24/21 with the Chain-of-Custody document. The samples were received in good condition, at 2.9 °C and on ice. All analyses met the method criteria except as noted in the case narrative or in the report with data qualifiers.

Sample Results

Sample: 21H2617-01

Sampled: 08/18/21 8:38 by Client

1H24035-01 (Water)

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
Method: EPA 525.2		Instr: GCMS16				
Batch ID: W110028		Preparation: EPA 525.2/SPE		Prepared: 09/01/21 09:56		Analyst: rmr
Alachlor	ND	0.10	ug/l	1	09/10/21	
Atrazine	ND	0.10	ug/l	1	09/10/21	A-01
Benzo (a) pyrene	ND	0.10	ug/l	1	09/10/21	
Bis(2-ethylhexyl)adipate	ND	5.0	ug/l	1	09/10/21	
Bis(2-ethylhexyl)phthalate	ND	3.0	ug/l	1	09/10/21	
Bromacil	ND	0.50	ug/l	1	09/10/21	
Butachlor	ND	0.10	ug/l	1	09/10/21	
Captan	ND	1.0	ug/l	1	09/10/21	
Chlorpropham	ND	0.10	ug/l	1	09/10/21	A-01
Cyanazine	ND	0.10	ug/l	1	09/10/21	
Diazinon	ND	0.10	ug/l	1	09/10/21	
Dimethoate	ND	0.20	ug/l	1	09/10/21	A-01
Diphenamid	ND	0.10	ug/l	1	09/10/21	
Disulfoton	ND	0.10	ug/l	1	09/10/21	
EPTC	ND	0.10	ug/l	1	09/10/21	A-01
Metolachlor	ND	0.10	ug/l	1	09/10/21	
Metribuzin	ND	0.10	ug/l	1	09/10/21	
Molinate	ND	0.10	ug/l	1	09/10/21	A-01
Prometon	ND	0.10	ug/l	1	09/10/21	
Prometryn	ND	0.10	ug/l	1	09/10/21	

Sample Results

(Continued)

Sample: 21H2617-01

Sampled: 08/18/21 8:38 by Client

1H24035-01 (Water)

(Continued)

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
Method: EPA 525.2		Instr: GCMS16				
Batch ID: W110028		Preparation: EPA 525.2/SPE		Prepared: 09/01/21 09:56		Analyst: rmr
Simazine	ND	0.10	ug/l	1	09/10/21	
Terbacil	ND	2.0	ug/l	1	09/10/21	
Thiobencarb	ND	0.10	ug/l	1	09/10/21	
Trithion	ND	0.10	ug/l	1	09/10/21	
<i>Surrogate(s)</i>						
1,3-Dimethyl-2-nitrobenzene	77%	70-130	Conc: 3.97		09/10/21	
Perylene-d12	100%	50-120	Conc: 5.12		09/10/21	
Triphenyl phosphate	270%	70-130	Conc: 13.9		09/10/21	S-11

Sample Results

(Continued)

Sample: 21H2617-02

Sampled: 08/18/21 12:00 by Client

1H24035-02 (Water)

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
Method: EPA 525.2		Instr: GCMS16				
Batch ID: W110028	Preparation: EPA 525.2/SPE	Prepared: 09/01/21 09:56				Analyst: rmr
Alachlor	ND	0.10	ug/l	1	09/10/21	
Atrazine	ND	0.10	ug/l	1	09/10/21	
Benzo (a) pyrene	ND	0.10	ug/l	1	09/10/21	
Bis(2-ethylhexyl)adipate	ND	5.0	ug/l	1	09/10/21	
Bis(2-ethylhexyl)phthalate	ND	3.0	ug/l	1	09/10/21	
Bromacil	ND	0.50	ug/l	1	09/10/21	
Butachlor	ND	0.10	ug/l	1	09/10/21	
Captan	ND	1.0	ug/l	1	09/10/21	
Chlorpropham	ND	0.10	ug/l	1	09/10/21	
Cyanazine	ND	0.10	ug/l	1	09/10/21	
Diazinon	ND	0.10	ug/l	1	09/10/21	
Dimethoate	ND	0.20	ug/l	1	09/10/21	
Diphenamid	ND	0.10	ug/l	1	09/10/21	
Disulfoton	ND	0.10	ug/l	1	09/10/21	
EPTC	ND	0.10	ug/l	1	09/10/21	
Metolachlor	ND	0.10	ug/l	1	09/10/21	
Metribuzin	ND	0.10	ug/l	1	09/10/21	
Molinate	ND	0.10	ug/l	1	09/10/21	
Prometon	ND	0.10	ug/l	1	09/10/21	
Prometryn	ND	0.10	ug/l	1	09/10/21	
Simazine	ND	0.10	ug/l	1	09/10/21	
Terbacil	ND	2.0	ug/l	1	09/10/21	
Thiobencarb	ND	0.10	ug/l	1	09/10/21	
Trithion	ND	0.10	ug/l	1	09/10/21	
<i>Surrogate(s)</i>						
1,3-Dimethyl-2-nitrobenzene	61%	70-130	Conc: 3.18		09/10/21	S-GC
Perylene-d12	105%	50-120	Conc: 5.46		09/10/21	
Triphenyl phosphate	148%	70-130	Conc: 7.68		09/10/21	S-11

Quality Control Results

Semivolatile Organic Compounds by GC/MS

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch: W110028 - EPA 525.2/SPE										
Blank (W110028-BLK1)				Prepared: 09/01/21 Analyzed: 09/10/21						
Alachlor	ND	0.10	ug/l							
Atrazine	ND	0.10	ug/l							A-01
Benzo (a) pyrene	ND	0.10	ug/l							
Bis(2-ethylhexyl)adipate	ND	2.0	ug/l							
Bis(2-ethylhexyl)phthalate	ND	2.0	ug/l							
Bromacil	ND	0.50	ug/l							
Butachlor	ND	0.10	ug/l							
Captan	ND	1.0	ug/l							
Chlorpropham	ND	0.10	ug/l							A-01
Cyanazine	ND	0.10	ug/l							
Diazinon	ND	0.10	ug/l							
Dimethoate	ND	0.20	ug/l							A-01
Diphenamid	ND	0.10	ug/l							
Disulfoton	ND	0.10	ug/l							
EPTC	ND	0.10	ug/l							A-01
Metolachlor	ND	0.10	ug/l							
Metribuzin	ND	0.10	ug/l							
Molinate	ND	0.10	ug/l							A-01
Prometon	ND	0.10	ug/l							
Prometryn	ND	0.10	ug/l							
Propachlor	0.00		ug/l							
Simazine	ND	0.10	ug/l							
Terbacil	ND	2.0	ug/l							
Thiobencarb	ND	0.10	ug/l							
Trithion	ND	0.10	ug/l							
Surrogate(s)										
1,3-Dimethyl-2-nitrobenzene	3.60		ug/l	5.00		72	70-130			
Perylene-d12	4.86		ug/l	5.00		97	50-120			
Triphenyl phosphate	10.9		ug/l	5.00		217	70-130			S-11
LCS (W110028-B51)				Prepared: 09/01/21 Analyzed: 09/10/21						
Alachlor	5.98	0.10	ug/l	5.00		120	70-130			
Atrazine	10.4	0.10	ug/l	5.00		209	70-130			Q-08
Benzo (a) pyrene	5.40	0.10	ug/l	5.00		108	60-130			
Bis(2-ethylhexyl)adipate	8.09	2.0	ug/l	5.00		162	70-130			Q-08
Bis(2-ethylhexyl)phthalate	8.02	2.0	ug/l	5.00		160	70-130			Q-08
Bromacil	5.10	0.50	ug/l	5.00		102	70-130			
Butachlor	5.49	0.10	ug/l	5.00		110	70-130			
Captan	7.04	1.0	ug/l	5.00		141	70-130			Q-08
Chlorpropham	9.59	0.10	ug/l	5.00		192	70-130			Q-08
Cyanazine	6.05	0.10	ug/l	5.00		121	70-130			
Diazinon	3.65	0.10	ug/l	5.00		73	50-120			
Dimethoate	7.37	0.20	ug/l	5.00		147	50-120			Q-08
Diphenamid	7.11	0.10	ug/l	5.00		142	70-130			Q-08

Quality Control Results

(Continued)

Semivolatile Organic Compounds by GC/MS (Continued)

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch: W110028 - EPA 525.2/SPE (Continued)										
LCS (W110028-BS1)				Prepared: 09/01/21 Analyzed: 09/10/21						
Disulfoton	4.73	0.10	ug/l	5.00		95	50-120			
EPTC	5.44	0.10	ug/l	5.00		109	70-130			
Metolachlor	5.58	0.10	ug/l	5.00		112	60-130			
Metribuzin	4.20	0.10	ug/l	5.00		84	50-120			
Molinate	7.47	0.10	ug/l	5.00		149	70-130			Q-08
Prometon	1.00	0.10	ug/l	5.00		20	15-120			
Prometryn	4.26	0.10	ug/l	5.00		85	30-120			
Simazine	4.99	0.10	ug/l	5.00		100	60-130			
Terbacil	6.44	2.0	ug/l	5.00		129	70-130			
Thiobencarb	4.32	0.10	ug/l	5.00		86	70-130			
Trithion	4.82	0.10	ug/l	5.00		96	70-130			
Surrogate(s)										
1,3-Dimethyl-2-nitrobenzene	4.32		ug/l	5.00		86	70-130			
Perylene-d12	5.26		ug/l	5.00		105	50-120			
Triphenyl phosphate	7.68		ug/l	5.00		154	70-130			S-11
LCS Dup (W110028-BSD1)				Prepared: 09/01/21 Analyzed: 09/09/21						
Alachlor	6.15	0.10	ug/l	5.00		123	70-130	3	30	
Atrazine	7.62	0.10	ug/l	5.00		152	70-130	31	30	Q-08
Benzo (a) pyrene	5.45	0.10	ug/l	5.00		109	60-130	1	30	
Bis(2-ethylhexyl)adipate	7.03	2.0	ug/l	5.00		141	70-130	14	30	Q-08
Bis(2-ethylhexyl)phthalate	7.27	2.0	ug/l	5.00		145	70-130	10	30	Q-08
Bromacil	5.31	0.50	ug/l	5.00		106	70-130	4	30	
Butachlor	5.56	0.10	ug/l	5.00		111	70-130	1	30	
Captan	7.02	1.0	ug/l	5.00		140	70-130	0.2	30	Q-08
Chlorpropham	7.33	0.10	ug/l	5.00		147	70-130	27	30	Q-08
Cyanazine	5.56	0.10	ug/l	5.00		111	70-130	8	30	
Diazinon	4.18	0.10	ug/l	5.00		84	50-120	14	30	
Dimethoate	6.24	0.20	ug/l	5.00		125	50-120	17	30	Q-08
Diphenamid	6.53	0.10	ug/l	5.00		131	70-130	8	30	Q-08
Disulfoton	4.89	0.10	ug/l	5.00		98	50-120	3	30	
EPTC	5.64	0.10	ug/l	5.00		113	70-130	4	30	
Metolachlor	5.77	0.10	ug/l	5.00		115	60-130	3	30	
Metribuzin	4.75	0.10	ug/l	5.00		95	50-120	12	30	
Molinate	7.07	0.10	ug/l	5.00		141	70-130	6	30	Q-08
Prometon	1.33	0.10	ug/l	5.00		27	15-120	28	30	
Prometryn	4.65	0.10	ug/l	5.00		93	30-120	9	30	
Simazine	5.69	0.10	ug/l	5.00		114	60-130	13	30	
Terbacil	6.71	2.0	ug/l	5.00		134	70-130	4	30	Q-08
Thiobencarb	4.59	0.10	ug/l	5.00		92	70-130	6	30	
Trithion	4.82	0.10	ug/l	5.00		96	70-130	0.004	30	
Surrogate(s)										
1,3-Dimethyl-2-nitrobenzene	4.52		ug/l	5.00		90	70-130			
Perylene-d12	5.32		ug/l	5.00		106	50-120			

Quality Control Results

(Continued)

Semivolatile Organic Compounds by GC/MS (Continued)

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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Batch: W110028 - EPA 525.2/SPE (Continued)

LCS Dup (W110028-BSD1)

Prepared: 09/01/21 Analyzed: 09/09/21

Surrogate(s)

<i>Triphenyl phosphate</i>	6.77		ug/l	5.00		135	70-130			S-11
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Notes and Definitions

Item	Definition
A-01	Low recovery of associated IS. Analyte was judged ND based on standard below reporting limit.
Q-08	High bias in the QC sample does not affect sample result since analyte was not detected or below the reporting limit.
S-11	Surrogate recovery outside of control limits. The data was accepted based on valid recovery of the remaining surrogate.
S-GC	Surrogate recovery outside of control limits due to a possible matrix effect. The data was accepted based on valid recovery of the remaining surrogate.
%REC	Percent Recovery
Dil	Dilution
MRL	The minimum levels, concentrations, or quantities of a target variable (e.g., target analyte) that can be reported with a specified degree of confidence. The MRL is also known as Limit of Quantitation (LOQ)
ND	NOT DETECTED at or above the Method Reporting Limit (MRL). If Method Detection Limit (MDL) is reported, then ND means not detected at or above the MDL.
RPD	Relative Percent Difference

Any remaining sample(s) will be disposed of one month from the final report date unless other arrangements are made in advance.

All results are expressed on wet weight basis unless otherwise specified.

All samples collected by Weck Laboratories have been sampled in accordance to laboratory SOP Number MIS002.

Reviewed by:

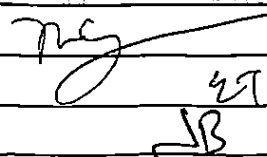
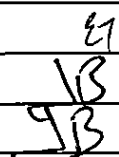


Rahul R. Nair
Project Manager



DoD-ELAP ANAB #ADE-2882 • DoD-ISO ANAB # • ELAP-CA #1132 • EPA-UCMR #CA00211 • Guam-EPA #17-008R • HW-DOH #4047 • ISO17025 ANAB #L2457.01 • LACSD #10143 • NELAP-OR #4047 • NJ-DEP #CA015 • SCAQMD #93LA1006

This is a complete final report. The information in this report applies to the samples analyzed in accordance with the chain-of-custody document. Weck Laboratories certifies that the test results meet all requirements of TNI unless noted by qualifiers or written in the Case Narrative. This analytical report must be reproduced in its entirety.

Report to		Invoice to (if different)		Project Info		Analysis Request																		TAT		Temp °C																			
Company:		Contact:		Project Name:																				Standard 10-day		Ukiah																			
Attn:		Email Address:		Project Number:																				RUSH: 5-day 25%		Livermore																			
Phone:		Phone:		PO Number:																				2-day 75%		Elk Grove																			
Physical Address:				Frequency:																				Other		Carlsbad																			
Email address:				Add-ons / log separate																				_____ days		Los Angeles																			
Field Sampler - Printed Name and Signature:				Container:		Preservation:		Matrix:																				Poly size		Source Code															
Sample Identification				Time		Date		40mL vial	Glass bottle	Poly bottle ↓	Glass jar	Other	Na2S2O3	HCl	HNO3	Other	None	Drinking Water	Wastewater	Soil	Other	Total Number of Containers per Sample (D)	Co Total 200.8 / U DW 200.8 / Total Hardness	NB Silica as SiO2 200.7	Ammonia / Phosphorus	Cr6 218.6 DW	TOC	524.2 Volatiles Full List	Gross Alpha & Beta	Radium 226 & 228	Strontium 90	Tritium	Radon	537.1 PFAS List of 18 - sub Vista	525.2 Nonregulated SVOC long list - sub Week	250mL	500mL	1L	Half G	bacti					
3121				8:38		8/18/21			x						x							2	x	x														x							
									x								x						1			x															x				
									x									x						1				x																	
								x										x						2					x																
								x								x								4						x															
									x										x					1							x														
									x									x						4								x													
									x											x				2									x												
								x													x			2																					
									x										x					2																					
Relinquished by: 				Received by: 				Time: 1605				Date: 8/18/21				0 CA DDW Write-On EDT State System No: _____																													
								1900				8/18/21				0 CA GeoTracker EDF Report Facility Global ID No: _____																													
								2215				8/18/21				Sampling Company Log Code: _____																													

Report to		Invoice to (if different)		Project Info		Analysis Request															TAT		Temp °C	
Company: Todd Groundwater		Contact:		Project Name: Round 3 ASR Water Quality Baseline		<div style="display: flex; flex-direction: row-reverse;"> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">Total Number of Containers per Sample ID</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">Co Total 200.8 / U DW 200.8 / Total Hardness</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">NB Silica as SiO2 200.7</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">Ammonia / Phosphorus</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">Cr6 218.6 DW</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">TOC</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">524.2 Volatiles Full List</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">Gross Alpha & Beta</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">Radium 226 & 228</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">Strontium 90</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">Tritium</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">Radon</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">537.1 PFAS List of 18 - sub Vista</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">525.2 Nonregulated SVOC long list - sub Week</div> </div>															Standard 10-day 0		Ukiah 3.0	
Attn: Nicole Grimm		Email Address:		Project Number:																	RUSH: 5-day 25% 0		Livermore 5.8	
Phone: 510-747-6920		Phone:		PO Number:																	2-day 75% 0		Elk Grove	
Physical Address: 2490 Mariner Square Loop, Suite 215, Alameda CA 94501				Frequency: Add-ons / log separate																	Other 0		Petaluma	
Email address: ngrimm@toddgroundwater.com				Container:		Preservation:		Matrix:		days		Carlsbad												
Field Sampler - Printed Name and Signature: Nicole Grimm <i>[Signature]</i>				40mL vial		Glass bottle		Poly bottle		Glass jar		Other		Los Angeles										
Sample Identification		Sampled on		Time		Date		250mL		500mL		1L		Half G										
3123		12:00 8/18/21		x		x		x		x		x		x										
				x		x		x		x		x		x										
				x		x		x		x		x		x										
				x		x		x		x		x		x										
				x		x		x		x		x		x										
				x		x		x		x		x		x										
				x		x		x		x		x		x										
				x		x		x		x		x		x										
				x		x		x		x		x		x										
				x		x		x		x		x		x										
Relinquished by		Received by		Time		Date		Additional Requirements																
<i>[Signature]</i>		EB		1605		8/18/21		0 CA DDW Write-On EDT State System No: _____																
EB		EB		1900		8/18/21		0 CA GeoTracker Facility Global ID No: _____																
EB		EB		2215		8/18/21		0 EDF Report Sampling Company Log Code: _____																

21H2617

Alpha Analytical Laboratories Ukiah to North Bay Chain of Custody

Client: **Todd Groundwater** Client Code: **DP_TODENG** Bid: **Round 3 ASR Water Quality**
Project: **Round 3 ASR Water Quality Baseline** Project Number: **Round 3 ASR Water Quality PO #:**

Date Due: 09/02/21 15:00 (10 day TAT)

Received By: James Bixler

Date Received: 08/18/21 22:15

Logged In By: Sean Foley

Date Logged: 08/19/21 08:32

Samples Received at: _____ deg C

All containers received and intact: YES NO

Analysis**Department****Expires****Comments****21H2617-01 3121 [Water] Sampled 08/18/21 08:38**NB Silica as SiO₂ ICP 200.7

NB Metals

02/14/22 08:38

21H2617-02 3123 [Water] Sampled 08/18/21 12:00NB Silica as SiO₂ ICP 200.7

NB Metals

02/14/22 12:00

Containers Supplied:250mL Poly HNO₃ (J)250mL Poly HNO₃ (J)

Relinquished By

Date

Time

Received By

Date

Time

Relinquished By

Date

Time

Received By

Date

Time



Alpha Analytical Laboratories, Inc. email: clientservices@alpha-labs.com
Corporate: 208 Mason Street | Ukiah, CA 95482 | T: 707-468-0401 | F: 707-468-5267 | ELAP# 1551

24 September 2021

Todd Groundwater
Attn: Nicole Grimm
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501
RE: Round 3 ASR Water Quality Baseline
Work Order: 21H2633

Enclosed are the results of analyses for samples received by the laboratory on 08/18/21 22:15. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Alisabeth J. Wilcox For David S. Pingatore
Project Manager



Alpha Analytical Laboratories, Inc. email: clientservices@alpha-labs.com
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Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: Round 3 ASR Water Quality Baseline

Reported:
09/24/21 16:57

Bay Area: 262 Rickenbacker Circle | Livermore, CA 94551 | T: 925-828-6226 | F: 925-828-6309 | ELAP# 2728
Central Valley: 9090 Union Park Way Suite 113 | Elk Grove, CA 95624 | T: 916-686-5190 | F: 916-686-5192 | ELAP# 2922
North Bay: 110 Liberty Street | Petaluma, CA 94952 | T: 707-769-3128 | F: 707-769-8093 | ELAP# 2303
San Diego: 2722 Loker Avenue West Suite A | Carlsbad, CA 92010 | T: 760-930-2555 | F: 760-930-2510 | ELAP# 3055

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
3121	21H2633-01	Water	08/18/21 09:10	08/18/21 22:15
12-5-23A20	21H2633-02	Water	08/18/21 09:55	08/18/21 22:15
3357	21H2633-03	Water	08/18/21 10:30	08/18/21 22:15
3123	21H2633-04	Water	08/18/21 11:50	08/18/21 22:15
3127	21H2633-05	Water	08/18/21 12:25	08/18/21 22:15
Hollister #2	21H2633-06	Water	08/18/21 13:15	08/18/21 22:15



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Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: Round 3 ASR Water Quality Baseline

Reported:
09/24/21 16:57

	Result	Reporting Limit	Dilution	Batch	Prepared	Analyzed	ELAP#	Method	Note
3121 (21H2633-01)									
		Sample Type: Water			Sampled: 08/18/21 09:10				
Metals (Dissolved) by EPA 200 Series Methods									
Mercury, dissolved	ND ug/L	0.20	1	AH13118	09/02/21 08:47	09/03/21 09:02	1551	EPA 245.1	FILT
Calcium, dissolved	54 mg/L	1.0	1	AH14872	09/01/21 13:35	09/03/21 17:04	1551	EPA 200.7	
Iron, dissolved	ND mg/L	0.10	1	AH14872	09/01/21 13:35	09/03/21 17:04	1551	EPA 200.7	
Magnesium, dissolved	61 mg/L	1.0	1	AH14872	09/01/21 13:35	09/03/21 17:04	1551	EPA 200.7	
Potassium, dissolved	3.2 mg/L	1.0	1	AH14872	09/01/21 13:35	09/03/21 17:04	1551	EPA 200.7	
Sodium, dissolved	180 mg/L	1.0	1	AH14872	09/01/21 13:35	09/03/21 17:04	1551	EPA 200.7	
Metals (Dissolved) by EPA Method 200.8 ICP/MS									
Aluminum, dissolved	ND ug/L	100	10	AH14197	08/24/21 17:10	08/27/21 14:03	1551	EPA 200.8	FILT R-01
Antimony, dissolved	ND ug/L	0.50	1	AH14197	08/24/21 17:10	08/26/21 02:03	1551	EPA 200.8	
Arsenic, dissolved	4.9 ug/L	0.50	1	AH14197	08/24/21 17:10	08/26/21 02:03	1551	EPA 200.8	
Barium, dissolved	41 ug/L	0.50	1	AH14197	08/24/21 17:10	08/26/21 02:03	1551	EPA 200.8	
Beryllium, dissolved	ND ug/L	0.10	1	AH14197	08/24/21 17:10	08/26/21 02:03	1551	EPA 200.8	
Boron, dissolved	1900 ug/L	500	10	AH14197	08/24/21 17:10	08/27/21 14:03	1551	EPA 200.8	
Cadmium, dissolved	ND ug/L	0.10	1	AH14197	08/24/21 17:10	08/26/21 02:03	1551	EPA 200.8	
Chromium, dissolved	12 ug/L	0.50	1	AH14197	08/24/21 17:10	08/26/21 02:03	1551	EPA 200.8	
Copper, dissolved	24 ug/L	0.50	1	AH14197	08/24/21 17:10	08/26/21 02:03	1551	EPA 200.8	
Lead, dissolved	0.30 ug/L	0.25	1	AH14197	08/24/21 17:10	08/26/21 02:03	1551	EPA 200.8	
Manganese, dissolved	ND ug/L	5.0	1	AH14197	08/24/21 17:10	08/26/21 02:03	1551	EPA 200.8	
Molybdenum, dissolved	5.4 ug/L	0.25	1	AH14197	08/24/21 17:10	08/26/21 02:03	1551	EPA 200.8	
Nickel, dissolved	1.2 ug/L	0.50	1	AH14197	08/24/21 17:10	08/26/21 02:03	1551	EPA 200.8	
Selenium, dissolved	5.4 ug/L	2.0	1	AH14197	08/24/21 17:10	08/26/21 02:03	1551	EPA 200.8	
Silver, dissolved	ND ug/L	1.0	10	AH14197	08/24/21 17:10	08/27/21 14:03	1551	EPA 200.8	
Thallium, dissolved	ND ug/L	0.10	1	AH14197	08/24/21 17:10	08/26/21 02:03	1551	EPA 200.8	
Vanadium, dissolved	6.5 ug/L	1.0	1	AH14197	08/24/21 17:10	08/26/21 02:03	1551	EPA 200.8	
Zinc, dissolved	13 ug/L	5.0	1	AH14197	08/24/21 17:10	08/26/21 02:03	1551	EPA 200.8	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



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Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: Round 3 ASR Water Quality Baseline

Reported:
09/24/21 16:57

	Result	Reporting Limit	Dilution	Batch	Prepared	Analyzed	ELAP#	Method	Note
3121 (21H2633-01)									
Sample Type: Water									
Sampled: 08/18/21 09:10									
Conventional Chemistry Parameters by APHA/EPA Methods									
Color	ND CU	5.0	1	AH14313	08/18/21 16:48	08/18/21 16:48	2728	SM2120B	
MBAS, calculated as LAS, mw 340	ND mg/L	0.050	1	AH14260	08/20/21 08:15	08/20/21 16:30	1551	SM5540C	
Perchlorate	ND ug/L	2.0	1	AH14310	08/20/21 08:00	08/20/21 19:05	2303	EPA 314.0	
Sulfide	ND mg/L	0.10	1	AH14407	08/24/21 06:00	08/24/21 06:00	1551	SM4500-S2 D	
Total Dissolved Solids	940 mg/L	10	1	AH14424	08/24/21 10:40	09/03/21 14:57	1551	SM2540C	
Turbidity	0.10 NTU	0.10	1	AH14314	08/18/21 16:57	08/18/21 16:57	2728	SM2130B	
Bicarbonate Alkalinity as CaCO3	310 mg/L	5.0	1	AH14703	08/30/21 08:00	08/30/21 12:21	1551	SM2320B	
Carbonate Alkalinity as CaCO3	ND mg/L	5.0	1	AH14703	08/30/21 08:00	08/30/21 12:21	1551	SM2320B	
Hydroxide Alkalinity as CaCO3	ND mg/L	5.0	1	AH14703	08/30/21 08:00	08/30/21 12:21	1551	SM2320B	
Total Alkalinity as CaCO3	310 mg/L	5.0	1	AH14703	08/30/21 08:00	08/30/21 12:21	1551	SM2320B	
Hardness, Total	384 mg/L	5	1	AH14872	09/01/21 13:35	09/03/21 17:04	1551	SM2340B	
Anions by EPA Method 300.0									
Chloride	130 mg/L	5.0	10	AH14195	08/19/21 15:30	08/19/21 15:30	1551	EPA 300.0	
Fluoride	0.32 mg/L	0.10	1	AH14195	08/19/21 14:23	08/19/21 14:23	1551	EPA 300.0	
Nitrate as N	3.7 mg/L	0.20	1	AH14195	08/19/21 14:23	08/19/21 14:23	1551	EPA 300.0	
Sulfate as SO4	220 mg/L	5.0	10	AH14195	08/19/21 15:30	08/19/21 15:30	1551	EPA 300.0	
Microbiological Parameters by APHA Standard Methods									
Total Coliforms	ND MPN/100mL	1.0	1	AH14327	08/18/21 16:35	08/19/21 16:35	2728	SM9223B	
E. Coli	ND MPN/100mL	1.0	1	AH14327	08/18/21 16:35	08/19/21 16:35	2728	SM9223B	
Volatile Organic Compounds by EPA Method 524.2									
Bromodichloromethane	ND ug/L	1.00	1	AH14496	08/25/21 15:00	08/25/21 23:29	1551	EPA 524.2	
Bromoform	ND ug/L	1.00	1	AH14496	08/25/21 15:00	08/25/21 23:29	1551	EPA 524.2	
Chloroform	ND ug/L	1.00	1	AH14496	08/25/21 15:00	08/25/21 23:29	1551	EPA 524.2	
Dibromochloromethane	ND ug/L	1.00	1	AH14496	08/25/21 15:00	08/25/21 23:29	1551	EPA 524.2	
Trihalomethanes (total)	ND ug/L	1.00	1	AH14496	08/25/21 15:00	08/25/21 23:29	1551	EPA 524.2	
Surrogate: Bromofluorobenzene	99.0 %	70-130		AH14496	08/25/21 15:00	08/25/21 23:29	1551	EPA 524.2	
Surrogate: Dibromofluoromethane	94.2 %	70-130		AH14496	08/25/21 15:00	08/25/21 23:29	1551	EPA 524.2	
Surrogate: Toluene-d8	96.6 %	70-130		AH14496	08/25/21 15:00	08/25/21 23:29	1551	EPA 524.2	

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Corporate: 208 Mason Street | Ukiah, CA 95482 | T: 707-468-0401 | F: 707-468-5267 | ELAP# 1551

Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: Round 3 ASR Water Quality Baseline

Reported:
09/24/21 16:57

	Result	Reporting Limit	Dilution	Batch	Prepared	Analyzed	ELAP#	Method	Note
3121 (21H2633-01)									
Sample Type: Water				Sampled: 08/18/21 09:10					
Haloacetic Acids by EPA Method 552.2									
Monobromoacetic Acid	ND ug/L	1.0	1	AH14766	08/31/21 07:00	09/02/21 03:03	1551	EPA 552.2	
Monochloroacetic Acid	ND ug/L	2.0	1	AH14766	08/31/21 07:00	09/02/21 03:03	1551	EPA 552.2	
Dibromoacetic Acid	ND ug/L	1.0	1	AH14766	08/31/21 07:00	09/02/21 03:03	1551	EPA 552.2	
Dichloroacetic Acid	ND ug/L	1.0	1	AH14766	08/31/21 07:00	09/02/21 03:03	1551	EPA 552.2	
Trichloroacetic Acid	ND ug/L	1.0	1	AH14766	08/31/21 07:00	09/02/21 03:03	1551	EPA 552.2	
Total Haloacetic Acids (HAA5)	ND ug/L	1.0	1	AH14766	08/31/21 07:00	09/02/21 03:03	1551	EPA 552.2	
Surrogate: 2,3-Dibromopropionic Acid	106 %	70-130		AH14766	08/31/21 07:00	09/02/21 03:03	1551	EPA 552.2	
Surrogate: 2-Bromopropionic Acid	123 %	70-130		AH14766	08/31/21 07:00	09/02/21 03:03	1551	EPA 552.2	
12-5-23A20 (21H2633-02)									
Sample Type: Water				Sampled: 08/18/21 09:55					
Metals (Dissolved) by EPA 200 Series Methods									
Mercury, dissolved	ND ug/L	0.20	1	AI13118	09/02/21 08:47	09/03/21 08:52	1551	EPA 245.1	FILT
Calcium, dissolved	38 mg/L	1.0	1	AH14872	09/01/21 13:35	09/03/21 17:17	1551	EPA 200.7	
Iron, dissolved	ND mg/L	0.10	1	AH14872	09/01/21 13:35	09/03/21 17:17	1551	EPA 200.7	
Magnesium, dissolved	51 mg/L	1.0	1	AH14872	09/01/21 13:35	09/03/21 17:17	1551	EPA 200.7	
Potassium, dissolved	2.4 mg/L	1.0	1	AH14872	09/01/21 13:35	09/03/21 17:17	1551	EPA 200.7	
Sodium, dissolved	210 mg/L	1.0	1	AH14872	09/01/21 13:35	09/03/21 17:17	1551	EPA 200.7	
Metals (Dissolved) by EPA Method 200.8 ICP/MS									
Aluminum, dissolved	ND ug/L	10	1	AH14197	08/24/21 17:10	09/03/21 13:38	1551	EPA 200.8	FILT
Antimony, dissolved	ND ug/L	0.50	1	AH14197	08/24/21 17:10	08/26/21 04:08	1551	EPA 200.8	
Arsenic, dissolved	7.2 ug/L	0.50	1	AH14197	08/24/21 17:10	08/26/21 04:08	1551	EPA 200.8	
Barium, dissolved	62 ug/L	0.50	1	AH14197	08/24/21 17:10	08/26/21 04:08	1551	EPA 200.8	
Beryllium, dissolved	ND ug/L	0.10	1	AH14197	08/24/21 17:10	08/26/21 04:08	1551	EPA 200.8	
Boron, dissolved	4100 ug/L	500	10	AH14197	08/24/21 17:10	08/27/21 15:46	1551	EPA 200.8	
Cadmium, dissolved	ND ug/L	0.10	1	AH14197	08/24/21 17:10	08/26/21 04:08	1551	EPA 200.8	
Chromium, dissolved	6.8 ug/L	0.50	1	AH14197	08/24/21 17:10	08/26/21 04:08	1551	EPA 200.8	
Copper, dissolved	2.0 ug/L	0.50	1	AH14197	08/24/21 17:10	08/26/21 04:08	1551	EPA 200.8	
Lead, dissolved	ND ug/L	0.25	1	AH14197	08/24/21 17:10	08/26/21 04:08	1551	EPA 200.8	
Manganese, dissolved	ND ug/L	5.0	1	AH14197	08/24/21 17:10	08/26/21 04:08	1551	EPA 200.8	
Molybdenum, dissolved	9.4 ug/L	0.25	1	AH14197	08/24/21 17:10	08/26/21 04:08	1551	EPA 200.8	
Nickel, dissolved	0.77 ug/L	0.50	1	AH14197	08/24/21 17:10	08/26/21 04:08	1551	EPA 200.8	
Selenium, dissolved	ND ug/L	2.0	1	AH14197	08/24/21 17:10	08/26/21 04:08	1551	EPA 200.8	
Silver, dissolved	ND ug/L	0.10	1	AH14197	08/24/21 17:10	09/03/21 13:38	1551	EPA 200.8	
Thallium, dissolved	ND ug/L	0.10	1	AH14197	08/24/21 17:10	08/26/21 04:08	1551	EPA 200.8	
Vanadium, dissolved	7.3 ug/L	1.0	1	AH14197	08/24/21 17:10	08/26/21 04:08	1551	EPA 200.8	
Zinc, dissolved	ND ug/L	5.0	1	AH14197	08/24/21 17:10	08/26/21 04:08	1551	EPA 200.8	

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Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: Round 3 ASR Water Quality Baseline

Reported:
09/24/21 16:57

	Result	Reporting Limit	Dilution	Batch	Prepared	Analyzed	ELAP#	Method	Note
12-5-23A20 (21H2633-02)									
Sample Type: Water				Sampled: 08/18/21 09:55					
Conventional Chemistry Parameters by APHA/EPA Methods									
Color	ND CU	5.0	1	AH14313	08/18/21 16:48	08/18/21 16:48	2728	SM2120B	
MBAS, calculated as LAS, mw 340	ND mg/L	0.050	1	AH14260	08/20/21 08:15	08/20/21 16:30	1551	SM5540C	
Perchlorate	ND ug/L	2.0	1	AH14310	08/20/21 08:00	08/20/21 19:21	2303	EPA 314.0	
Sulfide	ND mg/L	0.10	1	AH14407	08/24/21 06:00	08/24/21 06:00	1551	SM4500-S2 D	
Total Dissolved Solids	920 mg/L	10	1	AH14424	08/24/21 10:40	09/03/21 14:57	1551	SM2540C	
Turbidity	0.10 NTU	0.10	1	AH14314	08/18/21 16:57	08/18/21 16:57	2728	SM2130B	
Bicarbonate Alkalinity as CaCO3	340 mg/L	5.0	1	AH14703	08/30/21 08:00	08/30/21 12:21	1551	SM2320B	
Carbonate Alkalinity as CaCO3	ND mg/L	5.0	1	AH14703	08/30/21 08:00	08/30/21 12:21	1551	SM2320B	
Hydroxide Alkalinity as CaCO3	ND mg/L	5.0	1	AH14703	08/30/21 08:00	08/30/21 12:21	1551	SM2320B	
Total Alkalinity as CaCO3	340 mg/L	5.0	1	AH14703	08/30/21 08:00	08/30/21 12:21	1551	SM2320B	
Hardness, Total	306 mg/L	5	1	AH14872	09/01/21 13:35	09/03/21 17:17	1551	SM2340B	
Anions by EPA Method 300.0									
Chloride	180 mg/L	5.0	10	AH14195	08/19/21 16:20	08/19/21 16:20	1551	EPA 300.0	
Fluoride	0.41 mg/L	0.10	1	AH14195	08/19/21 15:47	08/19/21 15:47	1551	EPA 300.0	
Nitrate as N	0.82 mg/L	0.20	1	AH14195	08/19/21 15:47	08/19/21 15:47	1551	EPA 300.0	
Sulfate as SO4	120 mg/L	5.0	10	AH14195	08/19/21 16:20	08/19/21 16:20	1551	EPA 300.0	
Microbiological Parameters by APHA Standard Methods									
Total Coliforms	ND MPN/100mL	1.0	1	AH14327	08/18/21 16:35	08/19/21 16:35	2728	SM9223B	
E. Coli	ND MPN/100mL	1.0	1	AH14327	08/18/21 16:35	08/19/21 16:35	2728	SM9223B	
Volatile Organic Compounds by EPA Method 524.2									
Bromodichloromethane	ND ug/L	1.00	1	AH14496	08/25/21 15:00	08/26/21 00:05	1551	EPA 524.2	
Bromoform	ND ug/L	1.00	1	AH14496	08/25/21 15:00	08/26/21 00:05	1551	EPA 524.2	
Chloroform	ND ug/L	1.00	1	AH14496	08/25/21 15:00	08/26/21 00:05	1551	EPA 524.2	
Dibromochloromethane	ND ug/L	1.00	1	AH14496	08/25/21 15:00	08/26/21 00:05	1551	EPA 524.2	
Trihalomethanes (total)	ND ug/L	1.00	1	AH14496	08/25/21 15:00	08/26/21 00:05	1551	EPA 524.2	
Surrogate: Bromofluorobenzene	95.8 %	70-130		AH14496	08/25/21 15:00	08/26/21 00:05	1551	EPA 524.2	
Surrogate: Dibromofluoromethane	84.8 %	70-130		AH14496	08/25/21 15:00	08/26/21 00:05	1551	EPA 524.2	
Surrogate: Toluene-d8	97.0 %	70-130		AH14496	08/25/21 15:00	08/26/21 00:05	1551	EPA 524.2	

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Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: Round 3 ASR Water Quality Baseline

Reported:
09/24/21 16:57

	Result	Reporting Limit	Dilution	Batch	Prepared	Analyzed	ELAP#	Method	Note
12-5-23A20 (21H2633-02)									
Sample Type: Water				Sampled: 08/18/21 09:55					
Haloacetic Acids by EPA Method 552.2									
Monobromoacetic Acid	ND ug/L	1.0	1	AH14766	08/31/21 07:00	09/02/21 03:45	1551	EPA 552.2	
Monochloroacetic Acid	ND ug/L	2.0	1	AH14766	08/31/21 07:00	09/02/21 03:45	1551	EPA 552.2	
Dibromoacetic Acid	ND ug/L	1.0	1	AH14766	08/31/21 07:00	09/02/21 03:45	1551	EPA 552.2	
Dichloroacetic Acid	ND ug/L	1.0	1	AH14766	08/31/21 07:00	09/02/21 03:45	1551	EPA 552.2	
Trichloroacetic Acid	ND ug/L	1.0	1	AH14766	08/31/21 07:00	09/02/21 03:45	1551	EPA 552.2	
Total Haloacetic Acids (HAA5)	ND ug/L	1.0	1	AH14766	08/31/21 07:00	09/02/21 03:45	1551	EPA 552.2	
Surrogate: 2,3-Dibromopropionic Acid	102 %	70-130		AH14766	08/31/21 07:00	09/02/21 03:45	1551	EPA 552.2	
Surrogate: 2-Bromopropionic Acid	117 %	70-130		AH14766	08/31/21 07:00	09/02/21 03:45	1551	EPA 552.2	
3357 (21H2633-03)									
Sample Type: Water				Sampled: 08/18/21 10:30					
Metals (Dissolved) by EPA 200 Series Methods									
Mercury, dissolved	ND ug/L	0.20	1	AI13118	09/02/21 08:47	09/03/21 09:05	1551	EPA 245.1	FILT
Calcium, dissolved	45 mg/L	1.0	1	AH14872	09/01/21 13:35	09/03/21 17:25	1551	EPA 200.7	
Iron, dissolved	ND mg/L	0.10	1	AH14872	09/01/21 13:35	09/03/21 17:25	1551	EPA 200.7	
Magnesium, dissolved	44 mg/L	1.0	1	AH14872	09/01/21 13:35	09/03/21 17:25	1551	EPA 200.7	
Potassium, dissolved	2.6 mg/L	1.0	1	AH14872	09/01/21 13:35	09/03/21 17:25	1551	EPA 200.7	
Sodium, dissolved	170 mg/L	1.0	1	AH14872	09/01/21 13:35	09/03/21 17:25	1551	EPA 200.7	
Metals (Dissolved) by EPA Method 200.8 ICP/MS									
Aluminum, dissolved	ND ug/L	10	1	AH14197	08/24/21 17:10	09/03/21 13:44	1551	EPA 200.8	FILT
Antimony, dissolved	ND ug/L	0.50	1	AH14197	08/24/21 17:10	08/26/21 04:15	1551	EPA 200.8	
Arsenic, dissolved	4.4 ug/L	0.50	1	AH14197	08/24/21 17:10	08/26/21 04:15	1551	EPA 200.8	
Barium, dissolved	34 ug/L	0.50	1	AH14197	08/24/21 17:10	08/26/21 04:15	1551	EPA 200.8	
Beryllium, dissolved	ND ug/L	0.10	1	AH14197	08/24/21 17:10	08/26/21 04:15	1551	EPA 200.8	
Boron, dissolved	1500 ug/L	500	10	AH14197	08/24/21 17:10	08/27/21 15:54	1551	EPA 200.8	
Cadmium, dissolved	ND ug/L	0.10	1	AH14197	08/24/21 17:10	08/26/21 04:15	1551	EPA 200.8	
Chromium, dissolved	3.0 ug/L	0.50	1	AH14197	08/24/21 17:10	08/26/21 04:15	1551	EPA 200.8	
Copper, dissolved	5.7 ug/L	0.50	1	AH14197	08/24/21 17:10	08/26/21 04:15	1551	EPA 200.8	
Lead, dissolved	ND ug/L	0.25	1	AH14197	08/24/21 17:10	08/26/21 04:15	1551	EPA 200.8	
Manganese, dissolved	ND ug/L	5.0	1	AH14197	08/24/21 17:10	08/26/21 04:15	1551	EPA 200.8	
Molybdenum, dissolved	5.1 ug/L	0.25	1	AH14197	08/24/21 17:10	08/26/21 04:15	1551	EPA 200.8	
Nickel, dissolved	1.5 ug/L	0.50	1	AH14197	08/24/21 17:10	08/26/21 04:15	1551	EPA 200.8	
Selenium, dissolved	2.7 ug/L	2.0	1	AH14197	08/24/21 17:10	08/26/21 04:15	1551	EPA 200.8	
Silver, dissolved	ND ug/L	0.10	1	AH14197	08/24/21 17:10	09/03/21 13:44	1551	EPA 200.8	
Thallium, dissolved	ND ug/L	0.10	1	AH14197	08/24/21 17:10	08/26/21 04:15	1551	EPA 200.8	
Vanadium, dissolved	5.9 ug/L	1.0	1	AH14197	08/24/21 17:10	08/26/21 04:15	1551	EPA 200.8	
Zinc, dissolved	32 ug/L	5.0	1	AH14197	08/24/21 17:10	08/26/21 04:15	1551	EPA 200.8	

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Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: Round 3 ASR Water Quality Baseline

Reported:
09/24/21 16:57

	Result	Reporting Limit	Dilution	Batch	Prepared	Analyzed	ELAP#	Method	Note
3357 (21H2633-03)									
Sample Type: Water				Sampled: 08/18/21 10:30					
Conventional Chemistry Parameters by APHA/EPA Methods									
Color	ND CU	5.0	1	AH14313	08/18/21 16:48	08/18/21 16:48	2728	SM2120B	
MBAS, calculated as LAS, mw 340	ND mg/L	0.050	1	AH14260	08/20/21 08:15	08/20/21 16:30	1551	SM5540C	
Perchlorate	ND ug/L	2.0	1	AH14310	08/20/21 08:00	08/20/21 19:38	2303	EPA 314.0	
Sulfide	ND mg/L	0.10	1	AH14407	08/24/21 06:00	08/24/21 06:00	1551	SM4500-S2 D	
Total Dissolved Solids	850 mg/L	10	1	AH14424	08/24/21 10:40	09/03/21 14:57	1551	SM2540C	
Turbidity	ND NTU	0.10	1	AH14314	08/18/21 16:57	08/18/21 16:57	2728	SM2130B	
Bicarbonate Alkalinity as CaCO3	250 mg/L	5.0	1	AH14703	08/30/21 08:00	08/30/21 12:21	1551	SM2320B	
Carbonate Alkalinity as CaCO3	ND mg/L	5.0	1	AH14703	08/30/21 08:00	08/30/21 12:21	1551	SM2320B	
Hydroxide Alkalinity as CaCO3	ND mg/L	5.0	1	AH14703	08/30/21 08:00	08/30/21 12:21	1551	SM2320B	
Total Alkalinity as CaCO3	250 mg/L	5.0	1	AH14703	08/30/21 08:00	08/30/21 12:21	1551	SM2320B	
Hardness, Total	294 mg/L	5	1	AH14872	09/01/21 13:35	09/03/21 17:25	1551	SM2340B	
Anions by EPA Method 300.0									
Chloride	130 mg/L	5.0	10	AH14195	08/19/21 16:53	08/19/21 16:53	1551	EPA 300.0	
Fluoride	0.21 mg/L	0.10	1	AH14195	08/19/21 16:37	08/19/21 16:37	1551	EPA 300.0	
Nitrate as N	3.1 mg/L	0.20	1	AH14195	08/19/21 16:37	08/19/21 16:37	1551	EPA 300.0	
Sulfate as SO4	190 mg/L	5.0	10	AH14195	08/19/21 16:53	08/19/21 16:53	1551	EPA 300.0	
Microbiological Parameters by APHA Standard Methods									
Total Coliforms	ND MPN/100mL	1.0	1	AH14327	08/18/21 16:35	08/19/21 16:35	2728	SM9223B	
E. Coli	ND MPN/100mL	1.0	1	AH14327	08/18/21 16:35	08/19/21 16:35	2728	SM9223B	
Volatile Organic Compounds by EPA Method 524.2									
Bromodichloromethane	ND ug/L	1.00	1	AH14496	08/25/21 15:00	08/26/21 00:41	1551	EPA 524.2	
Bromoform	ND ug/L	1.00	1	AH14496	08/25/21 15:00	08/26/21 00:41	1551	EPA 524.2	
Chloroform	ND ug/L	1.00	1	AH14496	08/25/21 15:00	08/26/21 00:41	1551	EPA 524.2	
Dibromochloromethane	ND ug/L	1.00	1	AH14496	08/25/21 15:00	08/26/21 00:41	1551	EPA 524.2	
Trihalomethanes (total)	ND ug/L	1.00	1	AH14496	08/25/21 15:00	08/26/21 00:41	1551	EPA 524.2	
Surrogate: Bromofluorobenzene	102 %	70-130		AH14496	08/25/21 15:00	08/26/21 00:41	1551	EPA 524.2	
Surrogate: Dibromofluoromethane	98.0 %	70-130		AH14496	08/25/21 15:00	08/26/21 00:41	1551	EPA 524.2	
Surrogate: Toluene-d8	94.9 %	70-130		AH14496	08/25/21 15:00	08/26/21 00:41	1551	EPA 524.2	



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Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: Round 3 ASR Water Quality Baseline

Reported:
09/24/21 16:57

	Result	Reporting Limit	Dilution	Batch	Prepared	Analyzed	ELAP#	Method	Note
3357 (21H2633-03)									
Sample Type: Water				Sampled: 08/18/21 10:30					
Haloacetic Acids by EPA Method 552.2									
Monobromoacetic Acid	ND ug/L	1.0	1	AH14766	08/31/21 07:00	09/02/21 04:27	1551	EPA 552.2	
Monochloroacetic Acid	ND ug/L	2.0	1	AH14766	08/31/21 07:00	09/02/21 04:27	1551	EPA 552.2	
Dibromoacetic Acid	ND ug/L	1.0	1	AH14766	08/31/21 07:00	09/02/21 04:27	1551	EPA 552.2	
Dichloroacetic Acid	ND ug/L	1.0	1	AH14766	08/31/21 07:00	09/02/21 04:27	1551	EPA 552.2	
Trichloroacetic Acid	ND ug/L	1.0	1	AH14766	08/31/21 07:00	09/02/21 04:27	1551	EPA 552.2	
Total Haloacetic Acids (HAA5)	ND ug/L	1.0	1	AH14766	08/31/21 07:00	09/02/21 04:27	1551	EPA 552.2	
Surrogate: 2,3-Dibromopropionic Acid	106 %	70-130		AH14766	08/31/21 07:00	09/02/21 04:27	1551	EPA 552.2	
Surrogate: 2-Bromopropionic Acid	144 %	70-130		AH14766	08/31/21 07:00	09/02/21 04:27	1551	EPA 552.2	S-GC
3123 (21H2633-04)									
Sample Type: Water				Sampled: 08/18/21 11:50					
Metals (Dissolved) by EPA 200 Series Methods									
FILT									
Mercury, dissolved	ND ug/L	0.20	1	AH13118	09/02/21 08:47	09/03/21 09:18	1551	EPA 245.1	
Calcium, dissolved	38 mg/L	1.0	1	AH14872	09/01/21 13:35	09/03/21 17:29	1551	EPA 200.7	
Iron, dissolved	ND mg/L	0.10	1	AH14872	09/01/21 13:35	09/03/21 17:29	1551	EPA 200.7	
Magnesium, dissolved	20 mg/L	1.0	1	AH14872	09/01/21 13:35	09/03/21 17:29	1551	EPA 200.7	
Potassium, dissolved	3.3 mg/L	1.0	1	AH14872	09/01/21 13:35	09/03/21 17:29	1551	EPA 200.7	
Sodium, dissolved	320 mg/L	1.0	1	AH14872	09/01/21 13:35	09/03/21 17:29	1551	EPA 200.7	
Metals (Dissolved) by EPA Method 200.8 ICP/MS									
FILT									
Aluminum, dissolved	ND ug/L	10	1	AH14197	08/24/21 17:10	09/03/21 13:50	1551	EPA 200.8	
Antimony, dissolved	0.52 ug/L	0.50	1	AH14197	08/24/21 17:10	08/26/21 04:23	1551	EPA 200.8	
Arsenic, dissolved	14 ug/L	0.50	1	AH14197	08/24/21 17:10	08/26/21 04:23	1551	EPA 200.8	
Barium, dissolved	180 ug/L	0.50	1	AH14197	08/24/21 17:10	08/26/21 04:23	1551	EPA 200.8	
Beryllium, dissolved	ND ug/L	0.10	1	AH14197	08/24/21 17:10	08/26/21 04:23	1551	EPA 200.8	
Boron, dissolved	4200 ug/L	500	10	AH14197	08/24/21 17:10	08/27/21 16:02	1551	EPA 200.8	
Cadmium, dissolved	ND ug/L	0.10	1	AH14197	08/24/21 17:10	08/26/21 04:23	1551	EPA 200.8	
Chromium, dissolved	ND ug/L	0.50	1	AH14197	08/24/21 17:10	08/26/21 04:23	1551	EPA 200.8	
Copper, dissolved	3.6 ug/L	0.50	1	AH14197	08/24/21 17:10	08/26/21 04:23	1551	EPA 200.8	
Lead, dissolved	ND ug/L	0.25	1	AH14197	08/24/21 17:10	08/26/21 04:23	1551	EPA 200.8	
Manganese, dissolved	50 ug/L	5.0	1	AH14197	08/24/21 17:10	08/26/21 04:23	1551	EPA 200.8	
Molybdenum, dissolved	29 ug/L	0.25	1	AH14197	08/24/21 17:10	08/26/21 04:23	1551	EPA 200.8	
Nickel, dissolved	0.87 ug/L	0.50	1	AH14197	08/24/21 17:10	08/26/21 04:23	1551	EPA 200.8	
Selenium, dissolved	ND ug/L	2.0	1	AH14197	08/24/21 17:10	08/26/21 04:23	1551	EPA 200.8	
Silver, dissolved	ND ug/L	0.10	1	AH14197	08/24/21 17:10	09/03/21 13:50	1551	EPA 200.8	
Thallium, dissolved	ND ug/L	0.10	1	AH14197	08/24/21 17:10	08/26/21 04:23	1551	EPA 200.8	
Vanadium, dissolved	3.2 ug/L	1.0	1	AH14197	08/24/21 17:10	08/26/21 04:23	1551	EPA 200.8	
Zinc, dissolved	ND ug/L	5.0	1	AH14197	08/24/21 17:10	08/26/21 04:23	1551	EPA 200.8	

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Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: Round 3 ASR Water Quality Baseline

Reported:
09/24/21 16:57

	Result	Reporting Limit	Dilution	Batch	Prepared	Analyzed	ELAP#	Method	Note
3123 (21H2633-04)									
			Sample Type: Water		Sampled: 08/18/21 11:50				
Conventional Chemistry Parameters by APHA/EPA Methods									
Color	ND CU	5.0	1	AH14313	08/18/21 16:48	08/18/21 16:48	2728	SM2120B	
MBAS, calculated as LAS, mw 340	ND mg/L	0.050	1	AH14260	08/20/21 08:15	08/20/21 16:30	1551	SM5540C	
Perchlorate	ND ug/L	2.0	1	AH14310	08/20/21 08:00	08/20/21 20:27	2303	EPA 314.0	
Sulfide	ND mg/L	0.10	1	AH14407	08/24/21 06:00	08/24/21 06:00	1551	SM4500-S2 D	
Total Dissolved Solids	1100 mg/L	10	1	AH14424	08/24/21 10:40	09/03/21 14:57	1551	SM2540C	
Turbidity	17 NTU	0.10	1	AH14314	08/18/21 16:57	08/18/21 16:57	2728	SM2130B	
Bicarbonate Alkalinity as CaCO3	300 mg/L	5.0	1	AH14703	08/30/21 08:00	08/30/21 12:21	1551	SM2320B	
Carbonate Alkalinity as CaCO3	ND mg/L	5.0	1	AH14703	08/30/21 08:00	08/30/21 12:21	1551	SM2320B	
Hydroxide Alkalinity as CaCO3	ND mg/L	5.0	1	AH14703	08/30/21 08:00	08/30/21 12:21	1551	SM2320B	
Total Alkalinity as CaCO3	300 mg/L	5.0	1	AH14703	08/30/21 08:00	08/30/21 12:21	1551	SM2320B	
Hardness, Total	178 mg/L	5	1	AH14872	09/01/21 13:35	09/03/21 17:29	1551	SM2340B	
Anions by EPA Method 300.0									
Chloride	340 mg/L	25	50	AH14195	08/20/21 10:30	08/20/21 10:30	1551	EPA 300.0	
Fluoride	ND mg/L	0.10	1	AH14195	08/19/21 17:10	08/19/21 17:10	1551	EPA 300.0	
Nitrate as N	1.2 mg/L	0.20	1	AH14195	08/19/21 17:10	08/19/21 17:10	1551	EPA 300.0	
Sulfate as SO4	65 mg/L	5.0	10	AH14195	08/19/21 17:27	08/19/21 17:27	1551	EPA 300.0	
Microbiological Parameters by APHA Standard Methods									
Total Coliforms	ND MPN/100mL	1.0	1	AH14327	08/18/21 16:35	08/19/21 16:35	2728	SM9223B	
E. Coli	ND MPN/100mL	1.0	1	AH14327	08/18/21 16:35	08/19/21 16:35	2728	SM9223B	
Volatile Organic Compounds by EPA Method 524.2									
Bromodichloromethane	ND ug/L	1.00	1	AH14496	08/25/21 15:00	08/26/21 01:16	1551	EPA 524.2	
Bromoform	ND ug/L	1.00	1	AH14496	08/25/21 15:00	08/26/21 01:16	1551	EPA 524.2	
Chloroform	ND ug/L	1.00	1	AH14496	08/25/21 15:00	08/26/21 01:16	1551	EPA 524.2	
Dibromochloromethane	ND ug/L	1.00	1	AH14496	08/25/21 15:00	08/26/21 01:16	1551	EPA 524.2	
Trihalomethanes (total)	ND ug/L	1.00	1	AH14496	08/25/21 15:00	08/26/21 01:16	1551	EPA 524.2	
Surrogate: Bromofluorobenzene	98.0 %	70-130		AH14496	08/25/21 15:00	08/26/21 01:16	1551	EPA 524.2	
Surrogate: Dibromofluoromethane	95.2 %	70-130		AH14496	08/25/21 15:00	08/26/21 01:16	1551	EPA 524.2	
Surrogate: Toluene-d8	95.4 %	70-130		AH14496	08/25/21 15:00	08/26/21 01:16	1551	EPA 524.2	

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Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: Round 3 ASR Water Quality Baseline

Reported:
09/24/21 16:57

	Result	Reporting Limit	Dilution	Batch	Prepared	Analyzed	ELAP#	Method	Note
3123 (21H2633-04)									
				Sample Type: Water		Sampled: 08/18/21 11:50			
Haloacetic Acids by EPA Method 552.2									
Monobromoacetic Acid	ND ug/L	1.0	1	AH14766	08/31/21 07:00	09/02/21 05:10	1551	EPA 552.2	
Monochloroacetic Acid	ND ug/L	2.0	1	AH14766	08/31/21 07:00	09/02/21 05:10	1551	EPA 552.2	
Dibromoacetic Acid	ND ug/L	1.0	1	AH14766	08/31/21 07:00	09/02/21 05:10	1551	EPA 552.2	
Dichloroacetic Acid	ND ug/L	1.0	1	AH14766	08/31/21 07:00	09/02/21 05:10	1551	EPA 552.2	
Trichloroacetic Acid	ND ug/L	1.0	1	AH14766	08/31/21 07:00	09/02/21 05:10	1551	EPA 552.2	
Total Haloacetic Acids (HAA5)	ND ug/L	1.0	1	AH14766	08/31/21 07:00	09/02/21 05:10	1551	EPA 552.2	
Surrogate: 2,3-Dibromopropionic Acid	110 %	70-130		AH14766	08/31/21 07:00	09/02/21 05:10	1551	EPA 552.2	
Surrogate: 2-Bromopropionic Acid	110 %	70-130		AH14766	08/31/21 07:00	09/02/21 05:10	1551	EPA 552.2	
3127 (21H2633-05)									
				Sample Type: Water		Sampled: 08/18/21 12:25			
Metals (Dissolved) by EPA 200 Series Methods									
Mercury, dissolved	ND ug/L	0.20	1	AH13118	09/02/21 08:47	09/03/21 09:20	1551	EPA 245.1	FILT
Calcium, dissolved	47 mg/L	1.0	1	AH14872	09/01/21 13:35	09/03/21 17:37	1551	EPA 200.7	
Iron, dissolved	ND mg/L	0.10	1	AH14872	09/01/21 13:35	09/03/21 17:37	1551	EPA 200.7	
Magnesium, dissolved	54 mg/L	1.0	1	AH14872	09/01/21 13:35	09/03/21 17:37	1551	EPA 200.7	
Potassium, dissolved	2.9 mg/L	1.0	1	AH14872	09/01/21 13:35	09/03/21 17:37	1551	EPA 200.7	
Sodium, dissolved	190 mg/L	1.0	1	AH14872	09/01/21 13:35	09/03/21 17:37	1551	EPA 200.7	
Metals (Dissolved) by EPA Method 200.8 ICP/MS									
Aluminum, dissolved	ND ug/L	10	1	AH14197	08/24/21 17:10	09/03/21 13:57	1551	EPA 200.8	FILT
Antimony, dissolved	ND ug/L	0.50	1	AH14197	08/24/21 17:10	08/26/21 04:31	1551	EPA 200.8	
Arsenic, dissolved	7.7 ug/L	0.50	1	AH14197	08/24/21 17:10	08/26/21 04:31	1551	EPA 200.8	
Barium, dissolved	65 ug/L	0.50	1	AH14197	08/24/21 17:10	08/26/21 04:31	1551	EPA 200.8	
Beryllium, dissolved	ND ug/L	0.10	1	AH14197	08/24/21 17:10	08/26/21 04:31	1551	EPA 200.8	
Boron, dissolved	2500 ug/L	500	10	AH14197	08/24/21 17:10	08/27/21 16:09	1551	EPA 200.8	
Cadmium, dissolved	ND ug/L	0.10	1	AH14197	08/24/21 17:10	08/26/21 04:31	1551	EPA 200.8	
Chromium, dissolved	ND ug/L	0.50	1	AH14197	08/24/21 17:10	08/26/21 04:31	1551	EPA 200.8	
Copper, dissolved	3.0 ug/L	0.50	1	AH14197	08/24/21 17:10	08/26/21 04:31	1551	EPA 200.8	
Lead, dissolved	ND ug/L	0.25	1	AH14197	08/24/21 17:10	08/26/21 04:31	1551	EPA 200.8	
Manganese, dissolved	430 ug/L	5.0	1	AH14197	08/24/21 17:10	08/26/21 04:31	1551	EPA 200.8	
Molybdenum, dissolved	8.6 ug/L	0.25	1	AH14197	08/24/21 17:10	08/26/21 04:31	1551	EPA 200.8	
Nickel, dissolved	7.1 ug/L	0.50	1	AH14197	08/24/21 17:10	08/26/21 04:31	1551	EPA 200.8	
Selenium, dissolved	ND ug/L	2.0	1	AH14197	08/24/21 17:10	08/26/21 04:31	1551	EPA 200.8	
Silver, dissolved	ND ug/L	0.10	1	AH14197	08/24/21 17:10	09/03/21 13:57	1551	EPA 200.8	
Thallium, dissolved	ND ug/L	0.10	1	AH14197	08/24/21 17:10	08/26/21 04:31	1551	EPA 200.8	
Vanadium, dissolved	5.3 ug/L	1.0	1	AH14197	08/24/21 17:10	08/26/21 04:31	1551	EPA 200.8	
Zinc, dissolved	7.9 ug/L	5.0	1	AH14197	08/24/21 17:10	08/26/21 04:31	1551	EPA 200.8	

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Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: Round 3 ASR Water Quality Baseline

Reported:
09/24/21 16:57

	Result			Reporting Limit	Dilution	Batch	Prepared	Analyzed	ELAP#	Method	Note
3127 (21H2633-05)											
				Sample Type: Water			Sampled: 08/18/21 12:25				
Conventional Chemistry Parameters by APHA/EPA Methods											
Color	ND CU		5.0	1	AH14313	08/18/21 16:48	08/18/21 16:48	2728	SM2120B		
MBAS, calculated as LAS, mw 340	ND mg/L		0.050	1	AH14260	08/20/21 08:15	08/20/21 16:30	1551	SM5540C		
Perchlorate	ND ug/L		2.0	1	AH14310	08/20/21 08:00	08/20/21 19:54	2303	EPA 314.0		
Sulfide	ND mg/L		0.10	1	AH14407	08/24/21 06:00	08/24/21 06:00	1551	SM4500-S2 D		
Total Dissolved Solids	880 mg/L		10	1	AH14424	08/24/21 10:40	09/03/21 14:57	1551	SM2540C		
Turbidity	0.60 NTU		0.10	1	AH14314	08/18/21 16:57	08/18/21 16:57	2728	SM2130B		
Bicarbonate Alkalinity as CaCO3	330 mg/L		5.0	1	AH14703	08/30/21 08:00	08/30/21 12:21	1551	SM2320B		
Carbonate Alkalinity as CaCO3	ND mg/L		5.0	1	AH14703	08/30/21 08:00	08/30/21 12:21	1551	SM2320B		
Hydroxide Alkalinity as CaCO3	ND mg/L		5.0	1	AH14703	08/30/21 08:00	08/30/21 12:21	1551	SM2320B		
Total Alkalinity as CaCO3	330 mg/L		5.0	1	AH14703	08/30/21 08:00	08/30/21 12:21	1551	SM2320B		
Hardness, Total	340 mg/L		5	1	AH14872	09/01/21 13:35	09/03/21 17:37	1551	SM2340B		
Anions by EPA Method 300.0											
Chloride	150 mg/L		5.0	10	AH14195	08/19/21 18:00	08/19/21 18:00	1551	EPA 300.0		
Fluoride	0.46 mg/L		0.10	1	AH14195	08/19/21 17:43	08/19/21 17:43	1551	EPA 300.0		
Nitrate as N	0.27 mg/L		0.20	1	AH14195	08/19/21 17:43	08/19/21 17:43	1551	EPA 300.0		
Sulfate as SO4	150 mg/L		5.0	10	AH14195	08/19/21 18:00	08/19/21 18:00	1551	EPA 300.0		
Microbiological Parameters by APHA Standard Methods											
Total Coliforms	1.0 MPN/100mL		1.0	1	AH14327	08/18/21 16:35	08/19/21 16:35	2728	SM9223B		
E. Coli	ND MPN/100mL		1.0	1	AH14327	08/18/21 16:35	08/19/21 16:35	2728	SM9223B		
Volatile Organic Compounds by EPA Method 524.2											
Bromodichloromethane	ND ug/L		1.00	1	AH14496	08/25/21 15:00	08/26/21 05:57	1551	EPA 524.2		
Bromoform	ND ug/L		1.00	1	AH14496	08/25/21 15:00	08/26/21 05:57	1551	EPA 524.2		
Chloroform	ND ug/L		1.00	1	AH14496	08/25/21 15:00	08/26/21 05:57	1551	EPA 524.2		
Dibromochloromethane	ND ug/L		1.00	1	AH14496	08/25/21 15:00	08/26/21 05:57	1551	EPA 524.2		
Trihalomethanes (total)	ND ug/L		1.00	1	AH14496	08/25/21 15:00	08/26/21 05:57	1551	EPA 524.2		
Surrogate: Bromofluorobenzene	94.7 %		70-130		AH14496	08/25/21 15:00	08/26/21 05:57	1551	EPA 524.2		
Surrogate: Dibromofluoromethane	89.9 %		70-130		AH14496	08/25/21 15:00	08/26/21 05:57	1551	EPA 524.2		
Surrogate: Toluene-d8	99.5 %		70-130		AH14496	08/25/21 15:00	08/26/21 05:57	1551	EPA 524.2		

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Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: Round 3 ASR Water Quality Baseline

Reported:
09/24/21 16:57

	Result	Reporting Limit	Dilution	Batch	Prepared	Analyzed	ELAP#	Method	Note
3127 (21H2633-05)									
Sample Type: Water				Sampled: 08/18/21 12:25					
Haloacetic Acids by EPA Method 552.2									
Monobromoacetic Acid	ND ug/L	1.0	1	AH14766	08/31/21 07:00	09/02/21 05:52	1551	EPA 552.2	
Monochloroacetic Acid	ND ug/L	2.0	1	AH14766	08/31/21 07:00	09/02/21 05:52	1551	EPA 552.2	
Dibromoacetic Acid	ND ug/L	1.0	1	AH14766	08/31/21 07:00	09/02/21 05:52	1551	EPA 552.2	
Dichloroacetic Acid	ND ug/L	1.0	1	AH14766	08/31/21 07:00	09/02/21 05:52	1551	EPA 552.2	
Trichloroacetic Acid	ND ug/L	1.0	1	AH14766	08/31/21 07:00	09/02/21 05:52	1551	EPA 552.2	
Total Haloacetic Acids (HAA5)	ND ug/L	1.0	1	AH14766	08/31/21 07:00	09/02/21 05:52	1551	EPA 552.2	
Surrogate: 2,3-Dibromopropionic Acid	123 %	70-130		AH14766	08/31/21 07:00	09/02/21 05:52	1551	EPA 552.2	
Surrogate: 2-Bromopropionic Acid	128 %	70-130		AH14766	08/31/21 07:00	09/02/21 05:52	1551	EPA 552.2	
Hollister #2 (21H2633-06)									
Sample Type: Water				Sampled: 08/18/21 13:15					
Metals (Dissolved) by EPA 200 Series Methods									
Mercury, dissolved	ND ug/L	0.20	1	AI13118	09/02/21 08:47	09/03/21 09:23	1551	EPA 245.1	FILT
Calcium, dissolved	71 mg/L	1.0	1	AH14872	09/01/21 13:35	09/03/21 17:45	1551	EPA 200.7	
Iron, dissolved	ND mg/L	0.10	1	AH14872	09/01/21 13:35	09/03/21 17:45	1551	EPA 200.7	
Magnesium, dissolved	84 mg/L	1.0	1	AH14872	09/01/21 13:35	09/03/21 17:45	1551	EPA 200.7	
Potassium, dissolved	3.2 mg/L	1.0	1	AH14872	09/01/21 13:35	09/03/21 17:45	1551	EPA 200.7	
Sodium, dissolved	140 mg/L	1.0	1	AH14872	09/01/21 13:35	09/03/21 17:45	1551	EPA 200.7	
Metals (Dissolved) by EPA Method 200.8 ICP/MS									
Aluminum, dissolved	ND ug/L	10	1	AH14197	08/24/21 17:10	09/03/21 14:41	1551	EPA 200.8	FILT
Antimony, dissolved	ND ug/L	0.50	1	AH14197	08/24/21 17:10	08/26/21 04:39	1551	EPA 200.8	
Arsenic, dissolved	1.9 ug/L	0.50	1	AH14197	08/24/21 17:10	08/26/21 04:39	1551	EPA 200.8	
Barium, dissolved	31 ug/L	0.50	1	AH14197	08/24/21 17:10	08/26/21 04:39	1551	EPA 200.8	
Beryllium, dissolved	ND ug/L	0.10	1	AH14197	08/24/21 17:10	08/26/21 04:39	1551	EPA 200.8	
Boron, dissolved	820 ug/L	50	1	AH14197	08/24/21 17:10	08/26/21 04:39	1551	EPA 200.8	
Cadmium, dissolved	ND ug/L	0.10	1	AH14197	08/24/21 17:10	08/26/21 04:39	1551	EPA 200.8	
Chromium, dissolved	12 ug/L	0.50	1	AH14197	08/24/21 17:10	08/26/21 04:39	1551	EPA 200.8	
Copper, dissolved	23 ug/L	0.50	1	AH14197	08/24/21 17:10	08/26/21 04:39	1551	EPA 200.8	
Lead, dissolved	ND ug/L	0.25	1	AH14197	08/24/21 17:10	08/26/21 04:39	1551	EPA 200.8	
Manganese, dissolved	ND ug/L	5.0	1	AH14197	08/24/21 17:10	08/26/21 04:39	1551	EPA 200.8	
Molybdenum, dissolved	3.4 ug/L	0.25	1	AH14197	08/24/21 17:10	08/26/21 04:39	1551	EPA 200.8	
Nickel, dissolved	2.4 ug/L	0.50	1	AH14197	08/24/21 17:10	08/26/21 04:39	1551	EPA 200.8	
Selenium, dissolved	4.1 ug/L	2.0	1	AH14197	08/24/21 17:10	08/26/21 04:39	1551	EPA 200.8	
Silver, dissolved	ND ug/L	0.10	1	AH14197	08/24/21 17:10	09/03/21 14:41	1551	EPA 200.8	
Thallium, dissolved	ND ug/L	0.10	1	AH14197	08/24/21 17:10	08/26/21 04:39	1551	EPA 200.8	
Vanadium, dissolved	2.9 ug/L	1.0	1	AH14197	08/24/21 17:10	08/26/21 04:39	1551	EPA 200.8	
Zinc, dissolved	8.5 ug/L	5.0	1	AH14197	08/24/21 17:10	08/26/21 04:39	1551	EPA 200.8	

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Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: Round 3 ASR Water Quality Baseline

Reported:
09/24/21 16:57

	Result	Reporting Limit	Dilution	Batch	Prepared	Analyzed	ELAP#	Method	Note
Hollister #2 (21H2633-06)									
		Sample Type: Water			Sampled: 08/18/21 13:15				
Conventional Chemistry Parameters by APHA/EPA Methods									
Color	ND CU	5.0	1	AH14313	08/18/21 16:48	08/18/21 16:48	2728	SM2120B	
MBAS, calculated as LAS, mw 340	ND mg/L	0.050	1	AH14260	08/20/21 08:15	08/20/21 16:30	1551	SM5540C	
Perchlorate	ND ug/L	2.0	1	AH14310	08/20/21 08:00	08/20/21 20:10	2303	EPA 314.0	
Sulfide	ND mg/L	0.10	1	AH14407	08/24/21 06:00	08/24/21 06:00	1551	SM4500-S2 D	
Total Dissolved Solids	1000 mg/L	10	1	AH14424	08/24/21 10:40	09/03/21 14:57	1551	SM2540C	
Turbidity	ND NTU	0.10	1	AH14314	08/18/21 16:57	08/18/21 16:57	2728	SM2130B	
Bicarbonate Alkalinity as CaCO3	320 mg/L	5.0	1	AH14703	08/30/21 08:00	08/30/21 12:21	1551	SM2320B	
Carbonate Alkalinity as CaCO3	ND mg/L	5.0	1	AH14703	08/30/21 08:00	08/30/21 12:21	1551	SM2320B	
Hydroxide Alkalinity as CaCO3	ND mg/L	5.0	1	AH14703	08/30/21 08:00	08/30/21 12:21	1551	SM2320B	
Total Alkalinity as CaCO3	320 mg/L	5.0	1	AH14703	08/30/21 08:00	08/30/21 12:21	1551	SM2320B	
Hardness, Total	525 mg/L	5	1	AH14872	09/01/21 13:35	09/03/21 17:45	1551	SM2340B	
Anions by EPA Method 300.0									
Chloride	120 mg/L	5.0	10	AH14195	08/19/21 19:23	08/19/21 19:23	1551	EPA 300.0	
Fluoride	0.33 mg/L	0.10	1	AH14195	08/19/21 19:07	08/19/21 19:07	1551	EPA 300.0	
Nitrate as N	3.8 mg/L	0.20	1	AH14195	08/19/21 19:07	08/19/21 19:07	1551	EPA 300.0	
Sulfate as SO4	280 mg/L	5.0	10	AH14195	08/19/21 19:23	08/19/21 19:23	1551	EPA 300.0	
Microbiological Parameters by APHA Standard Methods									
Total Coliforms	ND MPN/100mL	1.0	1	AH14327	08/18/21 16:35	08/19/21 16:35	2728	SM9223B	
E. Coli	ND MPN/100mL	1.0	1	AH14327	08/18/21 16:35	08/19/21 16:35	2728	SM9223B	
Volatile Organic Compounds by EPA Method 524.2									
Bromodichloromethane	ND ug/L	1.00	1	AH14496	08/25/21 15:00	08/26/21 06:33	1551	EPA 524.2	
Bromoform	ND ug/L	1.00	1	AH14496	08/25/21 15:00	08/26/21 06:33	1551	EPA 524.2	
Chloroform	ND ug/L	1.00	1	AH14496	08/25/21 15:00	08/26/21 06:33	1551	EPA 524.2	
Dibromochloromethane	ND ug/L	1.00	1	AH14496	08/25/21 15:00	08/26/21 06:33	1551	EPA 524.2	
Trihalomethanes (total)	ND ug/L	1.00	1	AH14496	08/25/21 15:00	08/26/21 06:33	1551	EPA 524.2	
Surrogate: Bromofluorobenzene	96.7 %	70-130		AH14496	08/25/21 15:00	08/26/21 06:33	1551	EPA 524.2	
Surrogate: Dibromofluoromethane	93.2 %	70-130		AH14496	08/25/21 15:00	08/26/21 06:33	1551	EPA 524.2	
Surrogate: Toluene-d8	96.4 %	70-130		AH14496	08/25/21 15:00	08/26/21 06:33	1551	EPA 524.2	



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Todd Groundwater 2490 Mariner Square Loop, Suite 215 Alameda, CA 94501	Project Manager: Nicole Grimm Project: Round 3 ASR Water Quality Baseline Project Number: Round 3 ASR Water Quality Baseline	Reported: 09/24/21 16:57
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	Result	Reporting Limit	Dilution	Batch	Prepared	Analyzed	ELAP#	Method	Note
Hollister #2 (21H2633-06)									
Sample Type: Water				Sampled: 08/18/21 13:15					
Haloacetic Acids by EPA Method 552.2									
Monobromoacetic Acid	ND ug/L	1.0	1	AH14766	08/31/21 07:00	09/02/21 06:34	1551	EPA 552.2	
Monochloroacetic Acid	ND ug/L	2.0	1	AH14766	08/31/21 07:00	09/02/21 06:34	1551	EPA 552.2	
Dibromoacetic Acid	ND ug/L	1.0	1	AH14766	08/31/21 07:00	09/02/21 06:34	1551	EPA 552.2	
Dichloroacetic Acid	ND ug/L	1.0	1	AH14766	08/31/21 07:00	09/02/21 06:34	1551	EPA 552.2	
Trichloroacetic Acid	ND ug/L	1.0	1	AH14766	08/31/21 07:00	09/02/21 06:34	1551	EPA 552.2	
Total Haloacetic Acids (HAA5)	ND ug/L	1.0	1	AH14766	08/31/21 07:00	09/02/21 06:34	1551	EPA 552.2	
Surrogate: 2,3-Dibromopropionic Acid	113 %	70-130		AH14766	08/31/21 07:00	09/02/21 06:34	1551	EPA 552.2	
Surrogate: 2-Bromopropionic Acid	127 %	70-130		AH14766	08/31/21 07:00	09/02/21 06:34	1551	EPA 552.2	



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Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: Round 3 ASR Water Quality Baseline

Reported:
09/24/21 16:57

Metals (Dissolved) by EPA 200 Series Methods - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Flag
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Batch AH14872 - Metals Digest (D)

Blank (AH14872-BLK1)

Prepared: 09/01/21 Analyzed: 09/03/21

Calcium, dissolved	ND	1.0	mg/L						
Iron, dissolved	ND	0.10	mg/L						
Magnesium, dissolved	ND	1.0	mg/L						
Potassium, dissolved	ND	1.0	mg/L						
Sodium, dissolved	ND	1.0	mg/L						

LCS (AH14872-BS1)

Prepared: 09/01/21 Analyzed: 09/03/21

Calcium, dissolved	8.37	1.0	mg/L	8.00	105	85-115			
Iron, dissolved	1.90	0.10	mg/L	2.00	95.1	85-115			
Magnesium, dissolved	8.66	1.0	mg/L	8.00	108	85-115			
Potassium, dissolved	8.06	1.0	mg/L	8.00	101	85-115			
Sodium, dissolved	8.12	1.0	mg/L	8.00	101	85-115			

Duplicate (AH14872-DUP1)

Source: 21H3452-01

Prepared: 09/01/21 Analyzed: 09/03/21

Calcium, dissolved	48.0	1.0	mg/L		47.3		1.38	20	
Iron, dissolved	ND	0.10	mg/L		ND			20	
Magnesium, dissolved	28.7	1.0	mg/L		28.2		1.74	20	
Potassium, dissolved	4.07	1.0	mg/L		4.04		0.855	20	
Sodium, dissolved	23.1	1.0	mg/L		22.8		1.01	20	

Matrix Spike (AH14872-MS1)

Source: 21H3452-01

Prepared: 09/01/21 Analyzed: 09/03/21

Calcium, dissolved	56.4	1.0	mg/L	8.00	47.3	114	70-130		
Iron, dissolved	1.91	0.10	mg/L	2.00	ND	95.5	70-130		
Magnesium, dissolved	37.9	1.0	mg/L	8.00	28.2	122	70-130		
Potassium, dissolved	12.6	1.0	mg/L	8.00	4.04	107	70-130		
Sodium, dissolved	30.6	1.0	mg/L	8.00	22.8	96.6	70-130		

Matrix Spike (AH14872-MS2)

Source: 21H3374-01

Prepared: 09/01/21 Analyzed: 09/03/21

Calcium, dissolved	21.6	1.0	mg/L	8.00	12.9	108	70-130		
Iron, dissolved	1.95	0.10	mg/L	2.00	ND	97.3	70-130		
Magnesium, dissolved	17.3	1.0	mg/L	8.00	8.10	115	70-130		
Potassium, dissolved	9.84	1.0	mg/L	8.00	1.75	101	70-130		
Sodium, dissolved	27.1	1.0	mg/L	8.00	19.7	92.7	70-130		



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Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: Round 3 ASR Water Quality Baseline

Reported:
09/24/21 16:57

Metals (Dissolved) by EPA 200 Series Methods - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
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Batch AH14872 - Metals Digest (D)

Matrix Spike Dup (AH14872-MSD1)

Source: 21H3452-01

Prepared: 09/01/21 Analyzed: 09/03/21

Calcium, dissolved	56.6	1.0	mg/L	8.00	47.3	117	70-130	0.409	20	
Iron, dissolved	1.87	0.10	mg/L	2.00	ND	93.6	70-130	1.95	20	
Magnesium, dissolved	37.4	1.0	mg/L	8.00	28.2	115	70-130	1.46	20	
Potassium, dissolved	12.4	1.0	mg/L	8.00	4.04	105	70-130	1.10	20	
Sodium, dissolved	30.8	1.0	mg/L	8.00	22.8	99.2	70-130	0.666	20	

Batch AI13118 - EPA 245.1 Hg Water

Blank (AI13118-BLK1)

Prepared: 09/02/21 Analyzed: 09/03/21

Mercury, dissolved	ND	0.20	ug/L							
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LCS (AI13118-BS1)

Prepared: 09/02/21 Analyzed: 09/03/21

Mercury, dissolved	2.56	0.20	ug/L	2.50		102	85-115			
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Duplicate (AI13118-DUP1)

Source: 21H2633-02

Prepared: 09/02/21 Analyzed: 09/03/21

Mercury, dissolved	ND	0.20	ug/L		ND				20	
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Matrix Spike (AI13118-MS1)

Source: 21H2633-02

Prepared: 09/02/21 Analyzed: 09/03/21

Mercury, dissolved	2.52	0.20	ug/L	2.50	ND	101	70-130			
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Matrix Spike Dup (AI13118-MSD1)

Source: 21H2633-02

Prepared: 09/02/21 Analyzed: 09/03/21

Mercury, dissolved	2.51	0.20	ug/L	2.50	ND	100	70-130	0.437	20	
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Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: Round 3 ASR Water Quality Baseline

Reported:
09/24/21 16:57

Metals (Dissolved) by EPA Method 200.8 ICP/MS - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Flag
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Batch AH14197 - EPA 200.8 (D)

Blank (AH14197-BLK1)

Prepared: 08/24/21 Analyzed: 08/27/21

Aluminum, dissolved	ND	10	ug/L
Antimony, dissolved	ND	0.50	ug/L
Arsenic, dissolved	ND	0.50	ug/L
Barium, dissolved	ND	0.50	ug/L
Beryllium, dissolved	ND	0.10	ug/L
Boron, dissolved	ND	50	ug/L
Cadmium, dissolved	ND	0.10	ug/L
Chromium, dissolved	ND	0.50	ug/L
Copper, dissolved	0.591	0.50	ug/L
Lead, dissolved	ND	0.25	ug/L
Manganese, dissolved	ND	5.0	ug/L
Molybdenum, dissolved	ND	0.25	ug/L
Nickel, dissolved	ND	0.50	ug/L
Selenium, dissolved	ND	2.0	ug/L
Silver, dissolved	ND	0.10	ug/L
Thallium, dissolved	ND	0.10	ug/L
Vanadium, dissolved	ND	1.0	ug/L
Zinc, dissolved	ND	5.0	ug/L

LCS (AH14197-BS1)

Prepared: 08/24/21 Analyzed: 08/27/21

Aluminum, dissolved	554	10	ug/L	520	107	85-115
Antimony, dissolved	20.8	0.50	ug/L	20.0	104	85-115
Arsenic, dissolved	21.1	0.50	ug/L	20.0	105	85-115
Barium, dissolved	20.3	0.50	ug/L	20.0	102	85-115
Beryllium, dissolved	20.7	0.10	ug/L	20.0	104	85-115
Boron, dissolved	106	50	ug/L	100	106	85-115
Cadmium, dissolved	20.3	0.10	ug/L	20.0	101	85-115
Chromium, dissolved	20.3	0.50	ug/L	20.0	101	85-115
Copper, dissolved	22.3	0.50	ug/L	20.0	112	85-115
Lead, dissolved	20.5	0.25	ug/L	20.0	103	85-115
Manganese, dissolved	20.5	5.0	ug/L	20.0	102	85-115
Molybdenum, dissolved	21.3	0.25	ug/L	20.0	106	85-115
Nickel, dissolved	20.1	0.50	ug/L	20.0	100	85-115
Selenium, dissolved	21.6	2.0	ug/L	20.0	108	85-115
Silver, dissolved	18.0	0.10	ug/L	20.0	90.1	85-115

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Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: Round 3 ASR Water Quality Baseline

Reported:
09/24/21 16:57

Metals (Dissolved) by EPA Method 200.8 ICP/MS - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch AH14197 - EPA 200.8 (D)										
LCS (AH14197-BS1)				Prepared: 08/24/21 Analyzed: 08/26/21						
Thallium, dissolved	20.4	0.10	ug/L	20.0		102	85-115			
Vanadium, dissolved	20.6	1.0	ug/L	20.0		103	85-115			
Zinc, dissolved	103	5.0	ug/L	100		103	85-115			
Duplicate (AH14197-DUP1)				Source: 21H2633-01 Prepared: 08/24/21 Analyzed: 08/27/21						
Aluminum, dissolved	ND	100	ug/L		ND				20	
Antimony, dissolved	ND	0.50	ug/L		ND				20	
Arsenic, dissolved	5.05	0.50	ug/L		4.88			3.43	20	
Barium, dissolved	41.3	0.50	ug/L		40.5			2.00	20	
Beryllium, dissolved	ND	0.10	ug/L		ND				20	
Boron, dissolved	1930	50	ug/L		1910			0.965	20	
Cadmium, dissolved	ND	0.10	ug/L		ND				20	
Chromium, dissolved	11.6	0.50	ug/L		11.5			1.13	20	
Copper, dissolved	24.4	0.50	ug/L		24.2			0.967	20	
Lead, dissolved	0.340	0.25	ug/L		0.296			14.0	20	
Manganese, dissolved	ND	5.0	ug/L		ND				20	
Molybdenum, dissolved	5.45	0.25	ug/L		5.36			1.49	20	
Nickel, dissolved	1.19	0.50	ug/L		1.20			0.848	20	
Selenium, dissolved	5.75	2.0	ug/L		5.43			5.61	20	
Silver, dissolved	ND	0.10	ug/L		0.218			200	20	
Thallium, dissolved	ND	0.10	ug/L		ND				20	
Vanadium, dissolved	6.40	1.0	ug/L		6.47			1.08	20	
Zinc, dissolved	13.8	5.0	ug/L		13.4			2.85	20	
MRL Check (AH14197-MRL1)				Prepared: 08/24/21 Analyzed: 08/27/21						
Aluminum, dissolved	12.2	10	ug/L	8.00		153	0-200			
Silver, dissolved	0.0833	0.10	ug/L	0.0800		104	0-200			
Thallium, dissolved	0.0721	0.10	ug/L	0.0800		90.1	0-200			
Vanadium, dissolved	0.878	1.0	ug/L	0.800		110	0-200			

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Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: Round 3 ASR Water Quality Baseline

Reported:
09/24/21 16:57

Metals (Dissolved) by EPA Method 200.8 ICP/MS - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch AH14197 - EPA 200.8 (D)										
Matrix Spike (AH14197-MS1)		Source: 21H2633-05		Prepared: 08/24/21		Analyzed: 08/27/21				
Aluminum, dissolved	616	10	ug/L	520	ND	117	70-130			QM-01
Antimony, dissolved	19.8	0.50	ug/L	20.0	ND	99.1	70-130			
Arsenic, dissolved	27.4	0.50	ug/L	20.0	7.71	98.7	70-130			
Barium, dissolved	82.4	0.50	ug/L	20.0	65.2	86.1	70-130			
Beryllium, dissolved	18.3	0.10	ug/L	20.0	ND	91.4	70-130			
Boron, dissolved	2380	50	ug/L	100	2470	NR	70-130			QM-4X
Cadmium, dissolved	18.5	0.10	ug/L	20.0	ND	92.6	70-130			
Chromium, dissolved	19.5	0.50	ug/L	20.0	ND	97.3	70-130			
Copper, dissolved	23.0	0.50	ug/L	20.0	3.01	100	70-130			
Lead, dissolved	16.2	0.25	ug/L	20.0	ND	80.8	70-130			
Manganese, dissolved	441	5.0	ug/L	20.0	429	63.4	70-130			QM-01
Molybdenum, dissolved	29.8	0.25	ug/L	20.0	8.61	106	70-130			
Nickel, dissolved	24.8	0.50	ug/L	20.0	7.15	88.4	70-130			
Selenium, dissolved	19.6	2.0	ug/L	20.0	ND	90.8	70-130			
Silver, dissolved	17.2	0.10	ug/L	20.0	ND	86.1	70-130			QM-01
Thallium, dissolved	16.0	0.10	ug/L	20.0	ND	80.2	70-130			
Vanadium, dissolved	24.9	1.0	ug/L	20.0	5.33	97.9	70-130			
Zinc, dissolved	98.0	5.0	ug/L	100	7.93	90.0	70-130			
Matrix Spike Dup (AH14197-MSD1)		Source: 21H2633-05		Prepared: 08/24/21		Analyzed: 08/27/21				
Aluminum, dissolved	621	10	ug/L	520	ND	118	70-130	0.734	20	QM-01
Antimony, dissolved	19.7	0.50	ug/L	20.0	ND	98.3	70-130	0.783	20	
Arsenic, dissolved	27.3	0.50	ug/L	20.0	7.71	98.0	70-130	0.533	20	
Barium, dissolved	82.5	0.50	ug/L	20.0	65.2	86.3	70-130	0.0474	20	
Beryllium, dissolved	18.3	0.10	ug/L	20.0	ND	91.7	70-130	0.349	20	
Boron, dissolved	2330	50	ug/L	100	2470	NR	70-130	2.06	20	QM-4X
Cadmium, dissolved	18.7	0.10	ug/L	20.0	ND	93.3	70-130	0.746	20	
Chromium, dissolved	19.8	0.50	ug/L	20.0	ND	99.0	70-130	1.72	20	
Copper, dissolved	23.1	0.50	ug/L	20.0	3.01	100	70-130	0.257	20	
Lead, dissolved	15.9	0.25	ug/L	20.0	ND	79.6	70-130	1.41	20	
Manganese, dissolved	448	5.0	ug/L	20.0	429	99.2	70-130	1.61	20	
Molybdenum, dissolved	29.8	0.25	ug/L	20.0	8.61	106	70-130	0.125	20	
Nickel, dissolved	25.3	0.50	ug/L	20.0	7.15	90.7	70-130	1.81	20	
Selenium, dissolved	19.8	2.0	ug/L	20.0	ND	91.7	70-130	0.900	20	
Silver, dissolved	17.6	0.10	ug/L	20.0	ND	88.1	70-130	2.40	20	QM-01

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Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: Round 3 ASR Water Quality Baseline

Reported:
09/24/21 16:57

Metals (Dissolved) by EPA Method 200.8 ICP/MS - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
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Batch AH14197 - EPA 200.8 (D)

Matrix Spike Dup (AH14197-MSD1)

Source: 21H2633-05

Prepared: 08/24/21 Analyzed: 08/26/21

Thallium, dissolved	15.6	0.10	ug/L	20.0	ND	78.2	70-130	2.57	20	
Vanadium, dissolved	25.3	1.0	ug/L	20.0	5.33	99.8	70-130	1.46	20	
Zinc, dissolved	98.6	5.0	ug/L	100	7.93	90.7	70-130	0.676	20	



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Project: Round 3 ASR Water Quality Baseline
Project Number: Round 3 ASR Water Quality Baseline

Reported:
09/24/21 16:57

Conventional Chemistry Parameters by APHA/EPA Methods - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch AH14260 - General Preparation										
Blank (AH14260-BLK1)				Prepared & Analyzed: 08/20/21						
MBAS, calculated as LAS, mw 340	ND	0.050	mg/L							
LCS (AH14260-BS1)				Prepared & Analyzed: 08/20/21						
MBAS, calculated as LAS, mw 340	0.201	0.050	mg/L	0.200		101	80-120			
Matrix Spike (AH14260-MS1)				Source: 21H2633-01		Prepared & Analyzed: 08/20/21				
MBAS, calculated as LAS, mw 340	0.188	0.050	mg/L	0.200	ND	94.0	80-120			
Matrix Spike Dup (AH14260-MSD1)				Source: 21H2633-01		Prepared & Analyzed: 08/20/21				
MBAS, calculated as LAS, mw 340	0.201	0.050	mg/L	0.200	ND	101	80-120	6.84	20	
Batch AH14310 - NB General Prep										
Blank (AH14310-BLK1)				Prepared & Analyzed: 08/20/21						
Perchlorate	ND	2.0	ug/L							
LCS (AH14310-BS1)				Prepared & Analyzed: 08/20/21						
Perchlorate	9.58	2.0	ug/L	10.0		95.8	85-115			
Duplicate (AH14310-DUP1)				Source: 21H2468-01		Prepared & Analyzed: 08/20/21				
Perchlorate	ND	2.0	ug/L		ND				15	
Matrix Spike (AH14310-MS1)				Source: 21H2414-13		Prepared & Analyzed: 08/20/21				
Perchlorate	9.36	2.0	ug/L	10.0	ND	93.6	70-130			
Matrix Spike Dup (AH14310-MSD1)				Source: 21H2414-13		Prepared & Analyzed: 08/20/21				
Perchlorate	9.72	2.0	ug/L	10.0	ND	97.2	70-130	3.77	15	



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Todd Groundwater	Project Manager: Nicole Grimm	Reported:
2490 Mariner Square Loop, Suite 215	Project: Round 3 ASR Water Quality Baseline	09/24/21 16:57
Alameda, CA 94501	Project Number: Round 3 ASR Water Quality Baseline	

Conventional Chemistry Parameters by APHA/EPA Methods - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch AH14314 - General Prep (BAL)										
Duplicate (AH14314-DUP1)		Source: 21H2633-03		Prepared & Analyzed: 08/18/21						
Turbidity	ND	0.10	NTU		ND				15	
Batch AH14407 - General Preparation										
Blank (AH14407-BLK1)		Prepared & Analyzed: 08/24/21								
Sulfide	ND	0.10	mg/L							
LCS (AH14407-BS1)		Prepared & Analyzed: 08/24/21								
Sulfide	0.230	0.10	mg/L	0.222		104	85-115			
Duplicate (AH14407-DUP1)		Source: 21H2633-01		Prepared & Analyzed: 08/24/21						
Sulfide	ND	0.10	mg/L		ND				15	
Matrix Spike (AH14407-MS1)		Source: 21H2633-01		Prepared & Analyzed: 08/24/21						
Sulfide	0.0910	0.10	mg/L	0.222	ND	41.0	80-120			QM-05
Matrix Spike Dup (AH14407-MSD1)		Source: 21H2633-01		Prepared & Analyzed: 08/24/21						
Sulfide	0.0900	0.10	mg/L	0.222	ND	40.5	80-120	1.10	15	QM-05
Batch AH14424 - General Preparation										
Blank (AH14424-BLK1)		Prepared: 08/24/21 Analyzed: 09/03/21								
Total Dissolved Solids	ND	10	mg/L							
Duplicate (AH14424-DUP1)		Source: 21H2326-01		Prepared: 08/24/21 Analyzed: 09/03/21						
Total Dissolved Solids	188	10	mg/L		172			8.89	15	



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Todd Groundwater	Project Manager: Nicole Grimm	Reported:
2490 Mariner Square Loop, Suite 215	Project: Round 3 ASR Water Quality Baseline	09/24/21 16:57
Alameda, CA 94501	Project Number: Round 3 ASR Water Quality Baseline	

Conventional Chemistry Parameters by APHA/EPA Methods - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
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Batch AH14424 - General Preparation

Duplicate (AH14424-DUP2)		Source: 21H2326-02		Prepared: 08/24/21		Analyzed: 09/03/21	
Total Dissolved Solids	156	10	mg/L	154		1.29	15

Batch AH14703 - General Preparation

Blank (AH14703-BLK1)				Prepared & Analyzed: 08/30/21
Total Alkalinity as CaCO3	ND	5.0	mg/L	
Carbonate Alkalinity as CaCO3	ND	5.0	mg/L	
Hydroxide Alkalinity as CaCO3	ND	5.0	mg/L	
Bicarbonate Alkalinity as CaCO3	ND	5.0	mg/L	

LCS (AH14703-BS1)				Prepared & Analyzed: 08/30/21			
Total Alkalinity as CaCO3	90.0	5.0	mg/L	80.0	112	70-130	

Duplicate (AH14703-DUP1)	Source: 21H2633-01			Prepared & Analyzed: 08/30/21		
Total Alkalinity as CaCO3	310	5.0	mg/L	310	0.00	20
Carbonate Alkalinity as CaCO3	ND	5.0	mg/L	ND		20
Hydroxide Alkalinity as CaCO3	ND	5.0	mg/L	ND		20
Bicarbonate Alkalinity as CaCO3	310	5.0	mg/L	310	0.00	20

Batch AH14872 - Metals Digest (D)

Blank (AH14872-BLK1)				Prepared: 09/01/21 Analyzed: 09/03/21	
Hardness, Total	ND	5	mg/L		

Duplicate (AH14872-DUP1)		Source: 21H3452-01		Prepared: 09/01/21		Analyzed: 09/03/21	
Hardness, Total	238	5	mg/L	234		1.56	20



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Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: Round 3 ASR Water Quality Baseline

Reported:
09/24/21 16:57

Anions by EPA Method 300.0 - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch AH14195 - EPA 300.0										
Blank (AH14195-BLK1)				Prepared & Analyzed: 08/19/21						
Nitrate as N	ND	0.20	mg/L							
Fluoride	ND	0.10	mg/L							
Sulfate as SO4	ND	0.50	mg/L							
Chloride	ND	0.50	mg/L							
LCS (AH14195-BS1)				Prepared & Analyzed: 08/19/21						
Nitrate as N	5.37	0.20	mg/L	5.56		96.7	90-110			
Fluoride	5.59	0.10	mg/L	5.56		101	90-110			
Chloride	10.9	0.50	mg/L	11.1		97.8	90-110			
Sulfate as SO4	22.2	0.50	mg/L	22.2		100	90-110			
Duplicate (AH14195-DUP1)				Source: 21H2530-02 Prepared & Analyzed: 08/19/21						
Sulfate as SO4	7.91	0.50	mg/L		7.92			0.0379	20	
Chloride	2.04	0.50	mg/L		2.04			0.0490	20	
Nitrate as N	0.277	0.20	mg/L		0.277			0.244	20	
Fluoride	0.163	0.10	mg/L		0.163			0.00	20	
Matrix Spike (AH14195-MS1)				Source: 21H2530-02 Prepared & Analyzed: 08/19/21						
Fluoride	5.01	1.0	mg/L	5.56	ND	90.2	80-120			
Nitrate as N	5.57	2.0	mg/L	5.56	ND	100	80-120			
Chloride	11.7	5.0	mg/L	11.1	ND	87.2	80-120			
Sulfate as SO4	26.4	5.0	mg/L	22.2	7.92	83.3	80-120			
Matrix Spike (AH14195-MS2)				Source: 21H2682-01 Prepared & Analyzed: 08/19/21						
Fluoride	4.71	1.0	mg/L	5.56	ND	84.8	80-120			
Nitrate as N	8.55	2.0	mg/L	5.56	3.70	87.3	80-120			
Sulfate as SO4	31.1	5.0	mg/L	22.2	12.9	82.2	80-120			
Chloride	17.1	5.0	mg/L	11.1	7.80	83.8	80-120			



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Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: Round 3 ASR Water Quality Baseline

Reported:
09/24/21 16:57

Anions by EPA Method 300.0 - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
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Batch AH14195 - EPA 300.0

Matrix Spike Dup (AH14195-MSD1)

Source: 21H2530-02

Prepared & Analyzed: 08/19/21

Sulfate as SO ₄	26.6	5.0	mg/L	22.2	7.92	84.2	80-120	0.796	20	
Fluoride	5.06	1.0	mg/L	5.56	ND	91.0	80-120	0.883	20	
Nitrate as N	5.61	2.0	mg/L	5.56	ND	101	80-120	0.717	20	
Chloride	11.8	5.0	mg/L	11.1	ND	88.0	80-120	0.755	20	



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2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: Round 3 ASR Water Quality Baseline

Reported:
09/24/21 16:57

Volatile Organic Compounds by EPA Method 524.2 - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch AH14496 - VOAs in Water GCMS										
Blank (AH14496-BLK1)				Prepared & Analyzed: 08/25/21						
Bromodichloromethane	ND	1.00	ug/L							
Bromoform	ND	1.00	ug/L							
Chloroform	ND	1.00	ug/L							
Dibromochloromethane	ND	1.00	ug/L							
Trihalomethanes (total)	ND	1.00	ug/L							
Surrogate: Bromofluorobenzene	25.4		ug/L	25.0		102	70-130			
Surrogate: Dibromofluoromethane	24.6		ug/L	25.0		98.5	70-130			
Surrogate: Toluene-d8	24.8		ug/L	25.0		99.1	70-130			
LCS (AH14496-BS1)				Prepared & Analyzed: 08/25/21						
Bromodichloromethane	4.57	1.00	ug/L	5.00		91.4	70-130			
Bromoform	4.31	1.00	ug/L	5.00		86.2	70-130			
Chloroform	5.19	1.00	ug/L	5.00		104	70-130			
Dibromochloromethane	4.45	1.00	ug/L	5.00		89.0	70-130			
Surrogate: Bromofluorobenzene	27.8		ug/L	25.0		111	70-130			
Surrogate: Dibromofluoromethane	23.5		ug/L	25.0		94.2	70-130			
Surrogate: Toluene-d8	24.8		ug/L	25.0		99.2	70-130			
LCS Dup (AH14496-BS1)				Prepared & Analyzed: 08/25/21						
Bromodichloromethane	4.59	1.00	ug/L	5.00		91.8	70-130	0.437	30	
Bromoform	4.11	1.00	ug/L	5.00		82.2	70-130	4.75	30	
Chloroform	5.14	1.00	ug/L	5.00		103	70-130	0.968	30	
Dibromochloromethane	4.58	1.00	ug/L	5.00		91.6	70-130	2.88	30	
Surrogate: Bromofluorobenzene	28.1		ug/L	25.0		113	70-130			
Surrogate: Dibromofluoromethane	22.4		ug/L	25.0		89.5	70-130			
Surrogate: Toluene-d8	24.9		ug/L	25.0		99.6	70-130			
Matrix Spike (AH14496-MS1)				Source: 21H2469-02	Prepared: 08/25/21	Analyzed: 08/26/21				
Bromodichloromethane	20.5	1.00	ug/L	5.00	14.0	130	70-130			
Bromoform	4.73	1.00	ug/L	5.00	ND	94.6	70-130			
Chloroform	79.8	1.00	ug/L	5.00	67.2	253	70-130			QM-05
Dibromochloromethane	8.71	1.00	ug/L	5.00	3.65	101	70-130			
Surrogate: Bromofluorobenzene	28.3		ug/L	25.0		113	70-130			
Surrogate: Dibromofluoromethane	23.0		ug/L	25.0		91.8	70-130			

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Todd Groundwater	Project Manager: Nicole Grimm	Reported:
2490 Mariner Square Loop, Suite 215	Project: Round 3 ASR Water Quality Baseline	09/24/21 16:57
Alameda, CA 94501	Project Number: Round 3 ASR Water Quality Baseline	

Volatile Organic Compounds by EPA Method 524.2 - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch AH14496 - VOAs in Water GCMS										
Matrix Spike (AH14496-MS1)		Source: 21H2469-02		Prepared: 08/25/21		Analyzed: 08/26/21				
Surrogate: Toluene-d8	24.4		ug/L	25.0		97.6	70-130			
Matrix Spike (AH14496-MS2)		Source: 21H2611-01		Prepared: 08/25/21		Analyzed: 08/26/21				
Bromodichloromethane	6.50	1.00	ug/L	5.00	1.77	94.6	70-130			
Bromoform	4.42	1.00	ug/L	5.00	ND	88.4	70-130			
Chloroform	60.2	1.00	ug/L	5.00	50.7	190	70-130			QM-05
Dibromochloromethane	4.27	1.00	ug/L	5.00	ND	85.4	70-130			
Surrogate: Bromofluorobenzene	27.8		ug/L	25.0		111	70-130			
Surrogate: Dibromofluoromethane	21.4		ug/L	25.0		85.8	70-130			
Surrogate: Toluene-d8	23.7		ug/L	25.0		94.7	70-130			



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Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: Round 3 ASR Water Quality Baseline

Reported:
09/24/21 16:57

Haloacetic Acids by EPA Method 552.2 - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch AH14766 - EPA 552.2										
Blank (AH14766-BLK1)				Prepared: 08/31/21 Analyzed: 09/01/21						
Monobromoacetic Acid	ND	1.0	ug/L							
Monochloroacetic Acid	ND	2.0	ug/L							
Dibromoacetic Acid	ND	1.0	ug/L							
Dichloroacetic Acid	ND	1.0	ug/L							
Trichloroacetic Acid	ND	1.0	ug/L							
Total Haloacetic Acids (HAA5)	ND	1.0	ug/L							
Surrogate: 2,3-Dibromopropionic Acid	8.28		ug/L	9.85		84.1	70-130			
Surrogate: 2-Bromopropionic Acid	10.9		ug/L	10.0		109	70-130			
LCS (AH14766-BS1)				Prepared: 08/31/21 Analyzed: 09/01/21						
Monobromoacetic Acid	28.6	1.0	ug/L	25.0		114	70-130			
Monochloroacetic Acid	28.6	2.0	ug/L	25.0		114	70-130			
Dibromoacetic Acid	24.9	1.0	ug/L	25.0		99.7	70-130			
Dichloroacetic Acid	28.5	1.0	ug/L	25.0		114	70-130			
Trichloroacetic Acid	24.5	1.0	ug/L	25.0		98.0	70-130			
Surrogate: 2,3-Dibromopropionic Acid	9.70		ug/L	9.85		98.5	70-130			
Surrogate: 2-Bromopropionic Acid	12.6		ug/L	10.0		126	70-130			
Matrix Spike (AH14766-MS1)				Source: 21H2633-01		Prepared: 08/31/21 Analyzed: 09/02/21				
Monobromoacetic Acid	31.8	1.0	ug/L	25.0	ND	127	70-130			
Monochloroacetic Acid	30.4	2.0	ug/L	25.0	ND	121	70-130			
Dibromoacetic Acid	28.2	1.0	ug/L	25.0	ND	113	70-130			
Dichloroacetic Acid	31.0	1.0	ug/L	25.0	ND	124	70-130			
Trichloroacetic Acid	27.6	1.0	ug/L	25.0	ND	110	70-130			
Surrogate: 2,3-Dibromopropionic Acid	11.8		ug/L	9.85		120	70-130			
Surrogate: 2-Bromopropionic Acid	14.3		ug/L	10.0		143	70-130			S-GC
Matrix Spike (AH14766-MS2)				Source: 21H2738-01		Prepared: 08/31/21 Analyzed: 09/02/21				
Monobromoacetic Acid	25.7	1.0	ug/L	25.0	ND	103	70-130			
Monochloroacetic Acid	51.4	2.0	ug/L	25.0	ND	205	70-130			QM-07
Dibromoacetic Acid	23.8	1.0	ug/L	25.0	ND	95.0	70-130			
Dichloroacetic Acid	26.3	1.0	ug/L	25.0	ND	105	70-130			
Trichloroacetic Acid	24.2	1.0	ug/L	25.0	ND	96.7	70-130			
Surrogate: 2,3-Dibromopropionic Acid	10.5		ug/L	9.85		107	70-130			

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Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: Round 3 ASR Water Quality Baseline

Reported:
09/24/21 16:57

Haloacetic Acids by EPA Method 552.2 - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
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Batch AH14766 - EPA 552.2

Matrix Spike (AH14766-MS2)

Source: 21H2738-01

Prepared: 08/31/21 Analyzed: 09/02/21

Surrogate: 2-Bromopropionic Acid

11.5

ug/L

10.0

115

70-130



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Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

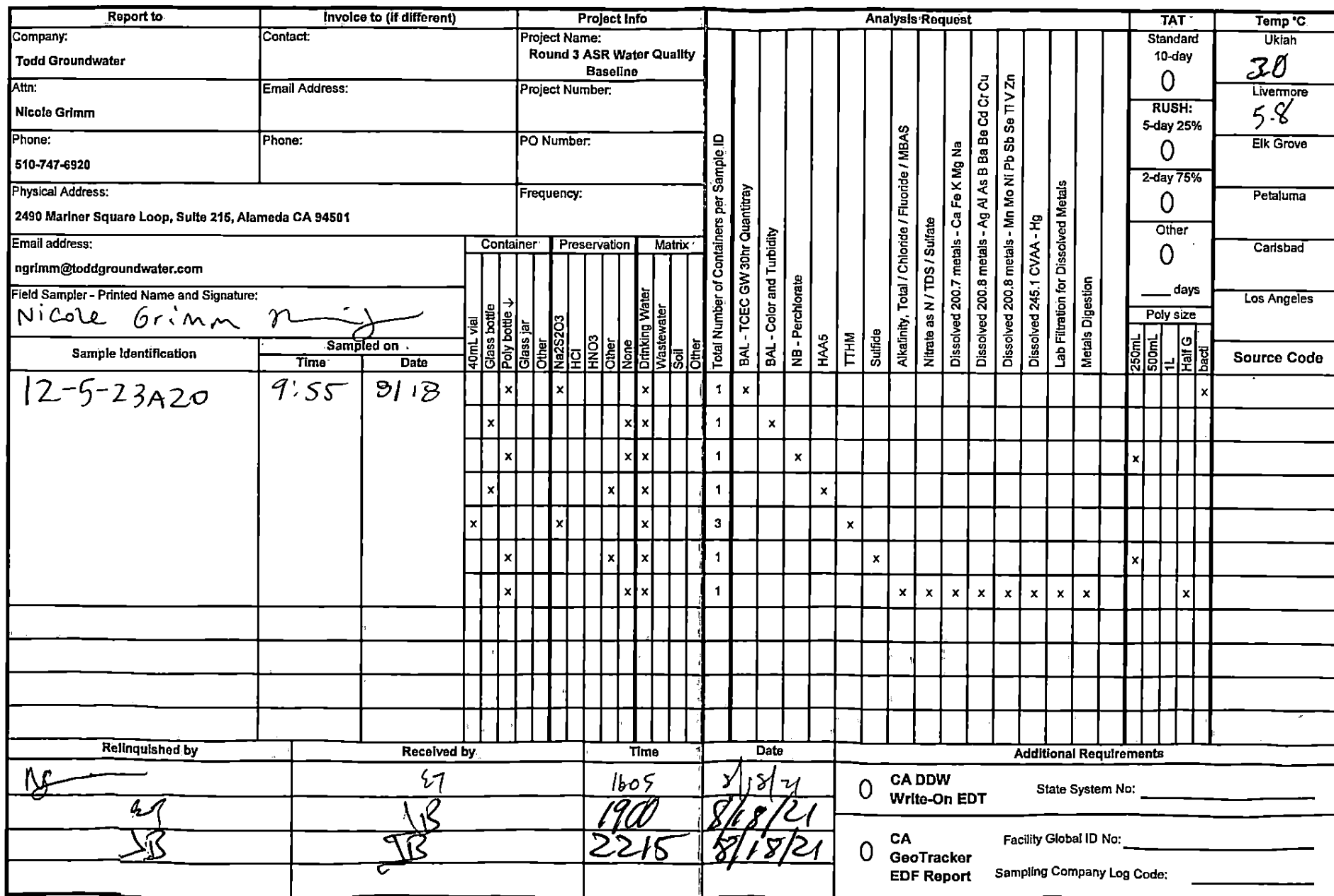
Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: Round 3 ASR Water Quality Baseline

Reported:
09/24/21 16:57

Notes and Definitions

FILT	The sample was filtered in the lab prior to analysis.
QM-01	The spike recovery for this QC sample is outside of established control limits possibly due to a sample matrix interference.
QM-05	The spike recovery was outside acceptance limits for the MS and/or MSD due to matrix interference. The LCS and/or LCSD were within acceptance limits showing that the laboratory is in control and the data is acceptable.
QM-07	The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.
QM-4X	The spike recovery was outside of QC acceptance limits for the MS and/or MSD due to analyte concentration at 4 times or greater the spike concentration. The QC batch was accepted based on LCS and/or LCSD recoveries within the acceptance limits.
R-01	The Reporting Limit for this analyte has been raised to account for matrix interference.
S-GC	Surrogate recovery outside of control limits. The data was accepted based on valid recovery of the remaining surrogates.
ND	Analyte NOT DETECTED at or above the reporting limit
dry	Sample results reported on a dry weight basis
REC	Recovery
RPD	Relative Percent Difference

[illegible]



[illegible]

[illegible]

[illegible]

21H2633

Alpha Analytical Laboratories Ukiah to North Bay Chain of Custody

Client: **Todd Groundwater** Client Code: **DP_TODENG** Bid: **Round 3 ASR Water Quality**
Project: **Round 3 ASR Water Quality Baseline** Project Number: **Round 3 ASR Water Quality PO #:**

Date Due: 09/02/21 15:00 (10 day TAT)

Received By: James Bixler

Date Received: 08/18/21 22:15

Logged In By: Sean Foley

Date Logged: 08/19/21 10:02

Samples Received at: _____ deg C

All containers received and intact: YES NO

Analysis	Department	Expires	Comments
21H2633-01 3121 [Water] Sampled 08/18/21 09:10			Lab Filter
NB Perchlorate EPA 314.0	NB Wet Chem	09/15/21 23:59	
21H2633-02 12-5-23A20 [Water] Sampled 08/18/21 09:55			Lab Filter
NB Perchlorate EPA 314.0	NB Wet Chem	09/15/21 23:59	
21H2633-03 3357 [Water] Sampled 08/18/21 10:30			Lab Filter
NB Perchlorate EPA 314.0	NB Wet Chem	09/15/21 23:59	
21H2633-04 3123 [Water] Sampled 08/18/21 11:50			Lab Filter
NB Perchlorate EPA 314.0	NB Wet Chem	09/15/21 23:59	
21H2633-05 3127 [Water] Sampled 08/18/21 12:25			Lab Filter
NB Perchlorate EPA 314.0	NB Wet Chem	09/15/21 23:59	
21H2633-06 Hollister #2 [Water] Sampled 08/18/21 13:15			Lab Filter
NB Perchlorate EPA 314.0	NB Wet Chem	09/15/21 23:59	

Containers Supplied:

250mL Poly Unpres (C)

250mL Poly Unpres (C)

250mL Poly Unpres (C)

250mL Poly Unpres (C)

250mL Poly Unpres (C)

250mL Poly Unpres (C)

Relinquished By

Date

Time

Received By

Date

Time

Relinquished By

Date

Time

Received By

Date

Time



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10 September 2021

Todd Groundwater

Attn: Nicole Grimm

2490 Mariner Square Loop, Suite 215

Alameda, CA 94501

RE: Round 3 ASR Water Quality Baseline

Work Order: 21H2826

Enclosed are the results of analyses for samples received by the laboratory on 08/19/21 22:00. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Alisabeth J. Wilcox For David S. Pingatore
Project Manager



Alpha Analytical Laboratories, Inc. email: clientservices@alpha-labs.com
Corporate: 208 Mason Street | Ukiah, CA 95482 | T: 707-468-0401 | F: 707-468-5267 | ELAP# 1551

Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: [none]

Reported:
09/10/21 16:29

Bay Area: 262 Rickenbacker Circle | Livermore, CA 94551 | T: 925-828-6226 | F: 925-828-6309 | ELAP# 2728
Central Valley: 9090 Union Park Way Suite 113 | Elk Grove, CA 95624 | T: 916-686-5190 | F: 916-686-5192 | ELAP# 2922
North Bay: 110 Liberty Street | Petaluma, CA 94952 | T: 707-769-3128 | F: 707-769-8093 | ELAP# 2303
San Diego: 2722 Loker Avenue West Suite A | Carlsbad, CA 92010 | T: 760-930-2555 | F: 760-930-2510 | ELAP# 3055

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
13-5-10L1	21H2826-01	Water	08/19/21 08:30	08/19/21 22:00



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Reported:
09/10/21 16:29

	Result	Reporting Limit	Dilution	Batch	Prepared	Analyzed	ELAP#	Method	Note
13-5-10L1 (21H2826-01)									
	Sample Type: Water			Sampled: 08/19/21 08:30					
Metals (Dissolved) by EPA 200 Series Methods									
Mercury, dissolved	ND ug/L	0.20	1	AH13118	09/02/21 08:47	09/03/21 09:26	1551	EPA 245.1	FILT
Calcium, dissolved	81 mg/L	1.0	1	AH14872	09/01/21 13:35	09/03/21 17:49	1551	EPA 200.7	
Iron, dissolved	ND mg/L	0.10	1	AH14872	09/01/21 13:35	09/03/21 17:49	1551	EPA 200.7	
Magnesium, dissolved	98 mg/L	1.0	1	AH14872	09/01/21 13:35	09/03/21 17:49	1551	EPA 200.7	
Potassium, dissolved	3.2 mg/L	1.0	1	AH14872	09/01/21 13:35	09/03/21 17:49	1551	EPA 200.7	
Sodium, dissolved	160 mg/L	1.0	1	AH14872	09/01/21 13:35	09/03/21 17:49	1551	EPA 200.7	
Metals (Dissolved) by EPA Method 200.8 ICP/MS									
Aluminum, dissolved	ND ug/L	10	1	AH14197	08/24/21 17:10	09/03/21 14:47	1551	EPA 200.8	FILT
Antimony, dissolved	ND ug/L	0.50	1	AH14197	08/24/21 17:10	08/26/21 04:47	1551	EPA 200.8	
Arsenic, dissolved	1.7 ug/L	0.50	1	AH14197	08/24/21 17:10	08/26/21 04:47	1551	EPA 200.8	
Barium, dissolved	30 ug/L	0.50	1	AH14197	08/24/21 17:10	08/26/21 04:47	1551	EPA 200.8	
Beryllium, dissolved	ND ug/L	0.10	1	AH14197	08/24/21 17:10	08/26/21 04:47	1551	EPA 200.8	
Boron, dissolved	910 ug/L	50	1	AH14197	08/24/21 17:10	08/26/21 04:47	1551	EPA 200.8	
Cadmium, dissolved	ND ug/L	0.10	1	AH14197	08/24/21 17:10	08/26/21 04:47	1551	EPA 200.8	
Chromium, dissolved	20 ug/L	0.50	1	AH14197	08/24/21 17:10	08/26/21 04:47	1551	EPA 200.8	
Copper, dissolved	7.5 ug/L	0.50	1	AH14197	08/24/21 17:10	08/26/21 04:47	1551	EPA 200.8	
Lead, dissolved	ND ug/L	0.25	1	AH14197	08/24/21 17:10	08/26/21 04:47	1551	EPA 200.8	
Manganese, dissolved	ND ug/L	5.0	1	AH14197	08/24/21 17:10	08/26/21 04:47	1551	EPA 200.8	
Molybdenum, dissolved	4.1 ug/L	0.25	1	AH14197	08/24/21 17:10	08/26/21 04:47	1551	EPA 200.8	
Nickel, dissolved	3.0 ug/L	0.50	1	AH14197	08/24/21 17:10	08/26/21 04:47	1551	EPA 200.8	
Selenium, dissolved	3.6 ug/L	2.0	1	AH14197	08/24/21 17:10	08/26/21 04:47	1551	EPA 200.8	
Silver, dissolved	ND ug/L	0.10	1	AH14197	08/24/21 17:10	09/03/21 14:47	1551	EPA 200.8	
Thallium, dissolved	ND ug/L	0.10	1	AH14197	08/24/21 17:10	08/26/21 04:47	1551	EPA 200.8	
Vanadium, dissolved	2.1 ug/L	1.0	1	AH14197	08/24/21 17:10	08/26/21 04:47	1551	EPA 200.8	
Zinc, dissolved	33 ug/L	5.0	1	AH14197	08/24/21 17:10	08/26/21 04:47	1551	EPA 200.8	



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Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: [none]

Reported:
09/10/21 16:29

	Result	Reporting Limit	Dilution	Batch	Prepared	Analyzed	ELAP#	Method	Note
13-5-10L1 (21H2826-01)									
Sample Type: Water				Sampled: 08/19/21 08:30					
Conventional Chemistry Parameters by APHA/EPA Methods									
Color	ND CU	5.0	1	AH14316	08/19/21 16:25	08/19/21 16:25	2728	SM2120B	
MBAS, calculated as LAS, mw 340	ND mg/L	0.050	1	AH14260	08/20/21 14:30	08/20/21 16:30	1551	SM5540C	
Perchlorate	ND ug/L	2.0	1	AH14654	08/26/21 08:00	08/26/21 19:13	2303	EPA 314.0	
Sulfide	ND mg/L	0.10	1	AH14407	08/24/21 06:00	08/24/21 06:00	1551	SM4500-S2 D	
Total Dissolved Solids	1100 mg/L	10	1	AH14335	08/23/21 04:40	08/31/21 08:13	1551	SM2540C	
Turbidity	0.15 NTU	0.10	1	AH14318	08/19/21 16:42	08/19/21 16:42	2728	SM2130B	
Bicarbonate Alkalinity as CaCO3	400 mg/L	5.0	1	AH14790	08/30/21 08:00	08/30/21 15:48	1551	SM2320B	
Carbonate Alkalinity as CaCO3	ND mg/L	5.0	1	AH14790	08/30/21 08:00	08/30/21 15:48	1551	SM2320B	
Hydroxide Alkalinity as CaCO3	ND mg/L	5.0	1	AH14790	08/30/21 08:00	08/30/21 15:48	1551	SM2320B	
Total Alkalinity as CaCO3	400 mg/L	5.0	1	AH14790	08/30/21 08:00	08/30/21 15:48	1551	SM2320B	
Hardness, Total	603 mg/L	5	1	AH14872	09/01/21 13:35	09/03/21 17:49	1551	SM2340B	
Anions by EPA Method 300.0									
Chloride	130 mg/L	10	20	AH14265	08/20/21 20:49	08/20/21 20:49	1551	EPA 300.0	
Fluoride	0.37 mg/L	0.10	1	AH14265	08/20/21 20:32	08/20/21 20:32	1551	EPA 300.0	
Nitrate as N	6.8 mg/L	0.20	1	AH14265	08/20/21 20:32	08/20/21 20:32	1551	EPA 300.0	
Sulfate as SO4	280 mg/L	10	20	AH14265	08/20/21 20:49	08/20/21 20:49	1551	EPA 300.0	
Microbiological Parameters by APHA Standard Methods									
Total Coliforms	ND MPN/100mL	1.0	1	AH14326	08/19/21 13:22	08/20/21 13:46	2728	SM9223B	
E. Coli	ND MPN/100mL	1.0	1	AH14326	08/19/21 13:22	08/20/21 13:46	2728	SM9223B	
Volatile Organic Compounds by EPA Method 524.2									
Bromodichloromethane	ND ug/L	1.00	1	AH14496	08/25/21 15:00	08/26/21 09:29	1551	EPA 524.2	
Bromoform	ND ug/L	1.00	1	AH14496	08/25/21 15:00	08/26/21 09:29	1551	EPA 524.2	
Chloroform	3.09 ug/L	1.00	1	AH14496	08/25/21 15:00	08/26/21 09:29	1551	EPA 524.2	
Dibromochloromethane	ND ug/L	1.00	1	AH14496	08/25/21 15:00	08/26/21 09:29	1551	EPA 524.2	
Trihalomethanes (total)	3.09 ug/L	1.00	1	AH14496	08/25/21 15:00	08/26/21 09:29	1551	EPA 524.2	
Surrogate: Bromofluorobenzene	94.0 %	70-130		AH14496	08/25/21 15:00	08/26/21 09:29	1551	EPA 524.2	
Surrogate: Dibromofluoromethane	87.0 %	70-130		AH14496	08/25/21 15:00	08/26/21 09:29	1551	EPA 524.2	
Surrogate: Toluene-d8	98.2 %	70-130		AH14496	08/25/21 15:00	08/26/21 09:29	1551	EPA 524.2	

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Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: [none]

Reported:
09/10/21 16:29

	Result	Reporting Limit	Dilution	Batch	Prepared	Analyzed	ELAP#	Method	Note
13-5-10L1 (21H2826-01)									
Sample Type: Water				Sampled: 08/19/21 08:30					
Haloacetic Acids by EPA Method 552.2									
Monobromoacetic Acid	ND ug/L	1.0	1	AH14766	08/31/21 07:00	09/02/21 11:30	1551	EPA 552.2	
Monochloroacetic Acid	ND ug/L	2.0	1	AH14766	08/31/21 07:00	09/02/21 11:30	1551	EPA 552.2	
Dibromoacetic Acid	ND ug/L	1.0	1	AH14766	08/31/21 07:00	09/02/21 11:30	1551	EPA 552.2	
Dichloroacetic Acid	ND ug/L	1.0	1	AH14766	08/31/21 07:00	09/02/21 11:30	1551	EPA 552.2	
Trichloroacetic Acid	ND ug/L	1.0	1	AH14766	08/31/21 07:00	09/02/21 11:30	1551	EPA 552.2	
Total Haloacetic Acids (HAA5)	ND ug/L	1.0	1	AH14766	08/31/21 07:00	09/02/21 11:30	1551	EPA 552.2	
Surrogate: 2,3-Dibromopropionic Acid	124 %	70-130		AH14766	08/31/21 07:00	09/02/21 11:30	1551	EPA 552.2	
Surrogate: 2-Bromopropionic Acid	130 %	70-130		AH14766	08/31/21 07:00	09/02/21 11:30	1551	EPA 552.2	



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Metals (Dissolved) by EPA 200 Series Methods - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch AH14872 - Metals Digest (D)										
Blank (AH14872-BLK1)				Prepared: 09/01/21 Analyzed: 09/03/21						
Calcium, dissolved	ND	1.0	mg/L							
Iron, dissolved	ND	0.10	mg/L							
Magnesium, dissolved	ND	1.0	mg/L							
Potassium, dissolved	ND	1.0	mg/L							
Sodium, dissolved	ND	1.0	mg/L							
LCS (AH14872-BS1)				Prepared: 09/01/21 Analyzed: 09/03/21						
Calcium, dissolved	8.37	1.0	mg/L	8.00		105	85-115			
Iron, dissolved	1.90	0.10	mg/L	2.00		95.1	85-115			
Magnesium, dissolved	8.66	1.0	mg/L	8.00		108	85-115			
Potassium, dissolved	8.06	1.0	mg/L	8.00		101	85-115			
Sodium, dissolved	8.12	1.0	mg/L	8.00		101	85-115			
Duplicate (AH14872-DUP1)				Source: 21H3452-01		Prepared: 09/01/21 Analyzed: 09/03/21				
Calcium, dissolved	48.0	1.0	mg/L		47.3			1.38	20	
Iron, dissolved	ND	0.10	mg/L		ND				20	
Magnesium, dissolved	28.7	1.0	mg/L		28.2			1.74	20	
Potassium, dissolved	4.07	1.0	mg/L		4.04			0.855	20	
Sodium, dissolved	23.1	1.0	mg/L		22.8			1.01	20	
Matrix Spike (AH14872-MS1)				Source: 21H3452-01		Prepared: 09/01/21 Analyzed: 09/03/21				
Calcium, dissolved	56.4	1.0	mg/L	8.00	47.3	114	70-130			
Iron, dissolved	1.91	0.10	mg/L	2.00	ND	95.5	70-130			
Magnesium, dissolved	37.9	1.0	mg/L	8.00	28.2	122	70-130			
Potassium, dissolved	12.6	1.0	mg/L	8.00	4.04	107	70-130			
Sodium, dissolved	30.6	1.0	mg/L	8.00	22.8	96.6	70-130			
Matrix Spike (AH14872-MS2)				Source: 21H3374-01		Prepared: 09/01/21 Analyzed: 09/03/21				
Calcium, dissolved	21.6	1.0	mg/L	8.00	12.9	108	70-130			
Iron, dissolved	1.95	0.10	mg/L	2.00	ND	97.3	70-130			
Magnesium, dissolved	17.3	1.0	mg/L	8.00	8.10	115	70-130			
Potassium, dissolved	9.84	1.0	mg/L	8.00	1.75	101	70-130			
Sodium, dissolved	27.1	1.0	mg/L	8.00	19.7	92.7	70-130			

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Metals (Dissolved) by EPA 200 Series Methods - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
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Batch AH14872 - Metals Digest (D)

Matrix Spike Dup (AH14872-MSD1)

Source: 21H3452-01

Prepared: 09/01/21 Analyzed: 09/03/21

Calcium, dissolved	56.6	1.0	mg/L	8.00	47.3	117	70-130	0.409	20	
Iron, dissolved	1.87	0.10	mg/L	2.00	ND	93.6	70-130	1.95	20	
Magnesium, dissolved	37.4	1.0	mg/L	8.00	28.2	115	70-130	1.46	20	
Potassium, dissolved	12.4	1.0	mg/L	8.00	4.04	105	70-130	1.10	20	
Sodium, dissolved	30.8	1.0	mg/L	8.00	22.8	99.2	70-130	0.666	20	

Batch AI13118 - EPA 245.1 Hg Water

Blank (AI13118-BLK1)

Prepared: 09/02/21 Analyzed: 09/03/21

Mercury, dissolved	ND	0.20	ug/L							
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LCS (AI13118-BS1)

Prepared: 09/02/21 Analyzed: 09/03/21

Mercury, dissolved	2.56	0.20	ug/L	2.50		102	85-115			
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Duplicate (AI13118-DUP1)

Source: 21H2633-02

Prepared: 09/02/21 Analyzed: 09/03/21

Mercury, dissolved	ND	0.20	ug/L		ND				20	
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Matrix Spike (AI13118-MS1)

Source: 21H2633-02

Prepared: 09/02/21 Analyzed: 09/03/21

Mercury, dissolved	2.52	0.20	ug/L	2.50	ND	101	70-130			
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Matrix Spike Dup (AI13118-MSD1)

Source: 21H2633-02

Prepared: 09/02/21 Analyzed: 09/03/21

Mercury, dissolved	2.51	0.20	ug/L	2.50	ND	100	70-130	0.437	20	
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Metals (Dissolved) by EPA Method 200.8 ICP/MS - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Flag
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Batch AH14197 - EPA 200.8 (D)

Blank (AH14197-BLK1)

Prepared: 08/24/21 Analyzed: 08/27/21

Aluminum, dissolved	ND	10	ug/L
Antimony, dissolved	ND	0.50	ug/L
Arsenic, dissolved	ND	0.50	ug/L
Barium, dissolved	ND	0.50	ug/L
Beryllium, dissolved	ND	0.10	ug/L
Boron, dissolved	ND	50	ug/L
Cadmium, dissolved	ND	0.10	ug/L
Chromium, dissolved	ND	0.50	ug/L
Copper, dissolved	0.591	0.50	ug/L
Lead, dissolved	ND	0.25	ug/L
Manganese, dissolved	ND	5.0	ug/L
Molybdenum, dissolved	ND	0.25	ug/L
Nickel, dissolved	ND	0.50	ug/L
Selenium, dissolved	ND	2.0	ug/L
Silver, dissolved	ND	0.10	ug/L
Thallium, dissolved	ND	0.10	ug/L
Vanadium, dissolved	ND	1.0	ug/L
Zinc, dissolved	ND	5.0	ug/L

LCS (AH14197-BS1)

Prepared: 08/24/21 Analyzed: 08/27/21

Aluminum, dissolved	554	10	ug/L	520	107	85-115
Antimony, dissolved	20.8	0.50	ug/L	20.0	104	85-115
Arsenic, dissolved	21.1	0.50	ug/L	20.0	105	85-115
Barium, dissolved	20.3	0.50	ug/L	20.0	102	85-115
Beryllium, dissolved	20.7	0.10	ug/L	20.0	104	85-115
Boron, dissolved	106	50	ug/L	100	106	85-115
Cadmium, dissolved	20.3	0.10	ug/L	20.0	101	85-115
Chromium, dissolved	20.3	0.50	ug/L	20.0	101	85-115
Copper, dissolved	22.3	0.50	ug/L	20.0	112	85-115
Lead, dissolved	20.5	0.25	ug/L	20.0	103	85-115
Manganese, dissolved	20.5	5.0	ug/L	20.0	102	85-115
Molybdenum, dissolved	21.3	0.25	ug/L	20.0	106	85-115
Nickel, dissolved	20.1	0.50	ug/L	20.0	100	85-115
Selenium, dissolved	21.6	2.0	ug/L	20.0	108	85-115
Silver, dissolved	18.0	0.10	ug/L	20.0	90.1	85-115

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Project Number: [none]

Reported:
09/10/21 16:29

Metals (Dissolved) by EPA Method 200.8 ICP/MS - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch AH14197 - EPA 200.8 (D)										
LCS (AH14197-BS1)				Prepared: 08/24/21 Analyzed: 08/26/21						
Thallium, dissolved	20.4	0.10	ug/L	20.0		102	85-115			
Vanadium, dissolved	20.6	1.0	ug/L	20.0		103	85-115			
Zinc, dissolved	103	5.0	ug/L	100		103	85-115			
Duplicate (AH14197-DUP1)				Source: 21H2633-01 Prepared: 08/24/21 Analyzed: 08/27/21						
Aluminum, dissolved	ND	100	ug/L		ND				20	
Antimony, dissolved	ND	0.50	ug/L		ND				20	
Arsenic, dissolved	5.05	0.50	ug/L		4.88			3.43	20	
Barium, dissolved	41.3	0.50	ug/L		40.5			2.00	20	
Beryllium, dissolved	ND	0.10	ug/L		ND				20	
Boron, dissolved	1930	50	ug/L		1910			0.965	20	
Cadmium, dissolved	ND	0.10	ug/L		ND				20	
Chromium, dissolved	11.6	0.50	ug/L		11.5			1.13	20	
Copper, dissolved	24.4	0.50	ug/L		24.2			0.967	20	
Lead, dissolved	0.340	0.25	ug/L		0.296			14.0	20	
Manganese, dissolved	ND	5.0	ug/L		ND				20	
Molybdenum, dissolved	5.45	0.25	ug/L		5.36			1.49	20	
Nickel, dissolved	1.19	0.50	ug/L		1.20			0.848	20	
Selenium, dissolved	5.75	2.0	ug/L		5.43			5.61	20	
Silver, dissolved	ND	0.10	ug/L		0.218			200	20	
Thallium, dissolved	ND	0.10	ug/L		ND				20	
Vanadium, dissolved	6.40	1.0	ug/L		6.47			1.08	20	
Zinc, dissolved	13.8	5.0	ug/L		13.4			2.85	20	
MRL Check (AH14197-MRL1)				Prepared: 08/24/21 Analyzed: 08/27/21						
Aluminum, dissolved	12.2	10	ug/L	8.00		153	0-200			
Silver, dissolved	0.0833	0.10	ug/L	0.0800		104	0-200			
Thallium, dissolved	0.0721	0.10	ug/L	0.0800		90.1	0-200			
Vanadium, dissolved	0.878	1.0	ug/L	0.800		110	0-200			



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Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: [none]

Reported:
09/10/21 16:29

Metals (Dissolved) by EPA Method 200.8 ICP/MS - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch AH14197 - EPA 200.8 (D)										
Matrix Spike (AH14197-MS1)		Source: 21H2633-05		Prepared: 08/24/21		Analyzed: 08/27/21				
Aluminum, dissolved	616	10	ug/L	520	ND	117	70-130			QM-01
Antimony, dissolved	19.8	0.50	ug/L	20.0	ND	99.1	70-130			
Arsenic, dissolved	27.4	0.50	ug/L	20.0	7.71	98.7	70-130			
Barium, dissolved	82.4	0.50	ug/L	20.0	65.2	86.1	70-130			
Beryllium, dissolved	18.3	0.10	ug/L	20.0	ND	91.4	70-130			
Boron, dissolved	2380	50	ug/L	100	2470	NR	70-130			QM-4X
Cadmium, dissolved	18.5	0.10	ug/L	20.0	ND	92.6	70-130			
Chromium, dissolved	19.5	0.50	ug/L	20.0	ND	97.3	70-130			
Copper, dissolved	23.0	0.50	ug/L	20.0	3.01	100	70-130			
Lead, dissolved	16.2	0.25	ug/L	20.0	ND	80.8	70-130			
Manganese, dissolved	441	5.0	ug/L	20.0	429	63.4	70-130			QM-01
Molybdenum, dissolved	29.8	0.25	ug/L	20.0	8.61	106	70-130			
Nickel, dissolved	24.8	0.50	ug/L	20.0	7.15	88.4	70-130			
Selenium, dissolved	19.6	2.0	ug/L	20.0	ND	90.8	70-130			
Silver, dissolved	17.2	0.10	ug/L	20.0	ND	86.1	70-130			QM-01
Thallium, dissolved	16.0	0.10	ug/L	20.0	ND	80.2	70-130			
Vanadium, dissolved	24.9	1.0	ug/L	20.0	5.33	97.9	70-130			
Zinc, dissolved	98.0	5.0	ug/L	100	7.93	90.0	70-130			
Matrix Spike Dup (AH14197-MSD1)		Source: 21H2633-05		Prepared: 08/24/21		Analyzed: 08/27/21				
Aluminum, dissolved	621	10	ug/L	520	ND	118	70-130	0.734	20	QM-01
Antimony, dissolved	19.7	0.50	ug/L	20.0	ND	98.3	70-130	0.783	20	
Arsenic, dissolved	27.3	0.50	ug/L	20.0	7.71	98.0	70-130	0.533	20	
Barium, dissolved	82.5	0.50	ug/L	20.0	65.2	86.3	70-130	0.0474	20	
Beryllium, dissolved	18.3	0.10	ug/L	20.0	ND	91.7	70-130	0.349	20	
Boron, dissolved	2330	50	ug/L	100	2470	NR	70-130	2.06	20	QM-4X
Cadmium, dissolved	18.7	0.10	ug/L	20.0	ND	93.3	70-130	0.746	20	
Chromium, dissolved	19.8	0.50	ug/L	20.0	ND	99.0	70-130	1.72	20	
Copper, dissolved	23.1	0.50	ug/L	20.0	3.01	100	70-130	0.257	20	
Lead, dissolved	15.9	0.25	ug/L	20.0	ND	79.6	70-130	1.41	20	
Manganese, dissolved	448	5.0	ug/L	20.0	429	99.2	70-130	1.61	20	
Molybdenum, dissolved	29.8	0.25	ug/L	20.0	8.61	106	70-130	0.125	20	
Nickel, dissolved	25.3	0.50	ug/L	20.0	7.15	90.7	70-130	1.81	20	
Selenium, dissolved	19.8	2.0	ug/L	20.0	ND	91.7	70-130	0.900	20	
Silver, dissolved	17.6	0.10	ug/L	20.0	ND	88.1	70-130	2.40	20	QM-01

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



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Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: [none]

Reported:
09/10/21 16:29

Metals (Dissolved) by EPA Method 200.8 ICP/MS - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
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Batch AH14197 - EPA 200.8 (D)

Matrix Spike Dup (AH14197-MSD1)

Source: 21H2633-05

Prepared: 08/24/21 Analyzed: 08/26/21

Thallium, dissolved	15.6	0.10	ug/L	20.0	ND	78.2	70-130	2.57	20	
Vanadium, dissolved	25.3	1.0	ug/L	20.0	5.33	99.8	70-130	1.46	20	
Zinc, dissolved	98.6	5.0	ug/L	100	7.93	90.7	70-130	0.676	20	



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Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: [none]

Reported:
09/10/21 16:29

Conventional Chemistry Parameters by APHA/EPA Methods - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch AH14260 - General Preparation										
Blank (AH14260-BLK1)				Prepared & Analyzed: 08/20/21						
MBAS, calculated as LAS, mw 340	ND	0.050	mg/L							
LCS (AH14260-BS1)				Prepared & Analyzed: 08/20/21						
MBAS, calculated as LAS, mw 340	0.201	0.050	mg/L	0.200		101	80-120			
Matrix Spike (AH14260-MS1)				Source: 21H2633-01		Prepared & Analyzed: 08/20/21				
MBAS, calculated as LAS, mw 340	0.188	0.050	mg/L	0.200	ND	94.0	80-120			
Matrix Spike Dup (AH14260-MSD1)				Source: 21H2633-01		Prepared & Analyzed: 08/20/21				
MBAS, calculated as LAS, mw 340	0.201	0.050	mg/L	0.200	ND	101	80-120	6.84	20	
Batch AH14318 - General Prep (BAL)										
Duplicate (AH14318-DUP1)				Source: 21H2826-01		Prepared & Analyzed: 08/19/21				
Turbidity	0.150	0.10	NTU		0.150			0.00	15	
Batch AH14335 - General Preparation										
Blank (AH14335-BLK1)				Prepared: 08/23/21 Analyzed: 08/31/21						
Total Dissolved Solids	ND	10	mg/L							
Duplicate (AH14335-DUP1)				Source: 21H2213-01		Prepared: 08/23/21 Analyzed: 08/31/21				
Total Dissolved Solids	138	10	mg/L		138			0.00	15	
Duplicate (AH14335-DUP2)				Source: 21H2262-07		Prepared: 08/23/21 Analyzed: 08/31/21				
Total Dissolved Solids	200	10	mg/L		198			1.01	15	



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Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: [none]

Reported:
09/10/21 16:29

Conventional Chemistry Parameters by APHA/EPA Methods - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch AH14407 - General Preparation										
Blank (AH14407-BLK1)				Prepared & Analyzed: 08/24/21						
Sulfide	ND	0.10	mg/L							
LCS (AH14407-BS1)				Prepared & Analyzed: 08/24/21						
Sulfide	0.230	0.10	mg/L	0.222		104	85-115			
Duplicate (AH14407-DUP1)				Source: 21H2633-01		Prepared & Analyzed: 08/24/21				
Sulfide	ND	0.10	mg/L		ND				15	
Matrix Spike (AH14407-MS1)				Source: 21H2633-01		Prepared & Analyzed: 08/24/21				
Sulfide	0.0910	0.10	mg/L	0.222	ND	41.0	80-120			QM-05
Matrix Spike Dup (AH14407-MSD1)				Source: 21H2633-01		Prepared & Analyzed: 08/24/21				
Sulfide	0.0900	0.10	mg/L	0.222	ND	40.5	80-120	1.10	15	QM-05
Batch AH14654 - NB General Prep										
Blank (AH14654-BLK1)				Prepared & Analyzed: 08/26/21						
Perchlorate	ND	2.0	ug/L							
LCS (AH14654-BS1)				Prepared & Analyzed: 08/26/21						
Perchlorate	9.55	2.0	ug/L	10.0		95.5	85-115			
Duplicate (AH14654-DUP1)				Source: 21H3032-01		Prepared & Analyzed: 08/26/21				
Perchlorate	ND	2.0	ug/L		ND				15	
Matrix Spike (AH14654-MS1)				Source: 21H3032-07		Prepared & Analyzed: 08/26/21				
Perchlorate	9.73	2.0	ug/L	10.0	ND	97.3	70-130			



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Todd Groundwater	Project Manager: Nicole Grimm	Reported:
2490 Mariner Square Loop, Suite 215	Project: Round 3 ASR Water Quality Baseline	09/10/21 16:29
Alameda, CA 94501	Project Number: [none]	

Conventional Chemistry Parameters by APHA/EPA Methods - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
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Batch AH14654 - NB General Prep

Matrix Spike Dup (AH14654-MSD1)

Source: 21H3032-07

Prepared & Analyzed: 08/26/21

Perchlorate	9.60	2.0	ug/L	10.0	ND	96.0	70-130	1.35	15	
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Batch AH14790 - General Preparation

Blank (AH14790-BLK1)

Prepared & Analyzed: 08/30/21

Bicarbonate Alkalinity as CaCO ₃	ND	5.0	mg/L							
Carbonate Alkalinity as CaCO ₃	ND	5.0	mg/L							
Total Alkalinity as CaCO ₃	ND	5.0	mg/L							
Hydroxide Alkalinity as CaCO ₃	ND	5.0	mg/L							

LCS (AH14790-BS1)

Prepared & Analyzed: 08/30/21

Total Alkalinity as CaCO ₃	75.0	5.0	mg/L	80.0		93.8	70-130			
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Duplicate (AH14790-DUP1)

Source: 21H3072-03

Prepared & Analyzed: 08/30/21

Hydroxide Alkalinity as CaCO ₃	ND	5.0	mg/L		ND				20	
Carbonate Alkalinity as CaCO ₃	ND	5.0	mg/L		ND				20	
Bicarbonate Alkalinity as CaCO ₃	111	5.0	mg/L		110			0.905	20	
Total Alkalinity as CaCO ₃	111	5.0	mg/L		110			0.905	20	

Batch AH14872 - Metals Digest (D)

Blank (AH14872-BLK1)

Prepared: 09/01/21 Analyzed: 09/03/21

Hardness, Total	ND	5	mg/L							
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Duplicate (AH14872-DUP1)

Source: 21H3452-01

Prepared: 09/01/21 Analyzed: 09/03/21

Hardness, Total	238	5	mg/L		234			1.56	20	
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Todd Groundwater
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Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: [none]

Reported:
09/10/21 16:29

Anions by EPA Method 300.0 - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch AH14265 - EPA 300.0										
Blank (AH14265-BLK1)				Prepared & Analyzed: 08/20/21						
Sulfate as SO ₄	ND	0.50	mg/L							
Nitrate as N	ND	0.20	mg/L							
Fluoride	ND	0.10	mg/L							
Chloride	ND	0.50	mg/L							
LCS (AH14265-BS1)				Prepared & Analyzed: 08/20/21						
Sulfate as SO ₄	23.2	0.50	mg/L	22.2		105	90-110			
Nitrate as N	5.63	0.20	mg/L	5.56		101	90-110			
Fluoride	5.81	0.10	mg/L	5.56		105	90-110			
Chloride	11.4	0.50	mg/L	11.1		103	90-110			
Duplicate (AH14265-DUP1)				Source: 21H2723-01 Prepared & Analyzed: 08/20/21						
Fluoride	0.115	0.10	mg/L		0.102			12.0	20	
Sulfate as SO ₄	22.6	0.50	mg/L		22.6			0.115	20	
Chloride	31.8	5.0	mg/L		32.0			0.564	20	
Nitrate as N	ND	0.20	mg/L		ND			1.23	20	
Matrix Spike (AH14265-MS1)				Source: 21H2723-01 Prepared & Analyzed: 08/20/21						
Nitrate as N	5.51	2.0	mg/L	5.56	ND	99.2	80-120			
Fluoride	4.93	1.0	mg/L	5.56	ND	88.8	80-120			
Chloride	42.4	5.0	mg/L	11.1	32.0	93.4	80-120			
Sulfate as SO ₄	41.1	5.0	mg/L	22.2	22.6	83.3	80-120			
Matrix Spike (AH14265-MS2)				Source: 21H2815-01 Prepared & Analyzed: 08/20/21						
Sulfate as SO ₄	25.7	5.0	mg/L	22.2	6.41	86.9	80-120			
Chloride	12.7	5.0	mg/L	11.1	ND	90.0	80-120			
Nitrate as N	5.81	2.0	mg/L	5.56	ND	105	80-120			
Fluoride	5.08	1.0	mg/L	5.56	ND	91.4	80-120			



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Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: [none]

Reported:
09/10/21 16:29

Anions by EPA Method 300.0 - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
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Batch AH14265 - EPA 300.0

Matrix Spike Dup (AH14265-MSD1)

Source: 21H2723-01

Prepared: 08/20/21 Analyzed: 08/23/21

Chloride	42.4	5.0	mg/L	11.1	32.0	93.4	80-120	0.00	20	
Sulfate as SO ₄	41.2	5.0	mg/L	22.2	22.6	83.8	80-120	0.297	20	
Fluoride	5.06	1.0	mg/L	5.56	ND	91.0	80-120	2.45	20	
Nitrate as N	5.55	2.0	mg/L	5.56	ND	99.8	80-120	0.680	20	



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Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: [none]

Reported:
09/10/21 16:29

Volatile Organic Compounds by EPA Method 524.2 - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch AH14496 - VOAs in Water GCMS										
Blank (AH14496-BLK1)				Prepared & Analyzed: 08/25/21						
Bromodichloromethane	ND	1.00	ug/L							
Bromoform	ND	1.00	ug/L							
Chloroform	ND	1.00	ug/L							
Dibromochloromethane	ND	1.00	ug/L							
Trihalomethanes (total)	ND	1.00	ug/L							
Surrogate: Bromofluorobenzene	25.4		ug/L	25.0		102	70-130			
Surrogate: Dibromofluoromethane	24.6		ug/L	25.0		98.5	70-130			
Surrogate: Toluene-d8	24.8		ug/L	25.0		99.1	70-130			
LCS (AH14496-BS1)				Prepared & Analyzed: 08/25/21						
Bromodichloromethane	4.57	1.00	ug/L	5.00		91.4	70-130			
Bromoform	4.31	1.00	ug/L	5.00		86.2	70-130			
Chloroform	5.19	1.00	ug/L	5.00		104	70-130			
Dibromochloromethane	4.45	1.00	ug/L	5.00		89.0	70-130			
Surrogate: Bromofluorobenzene	27.8		ug/L	25.0		111	70-130			
Surrogate: Dibromofluoromethane	23.5		ug/L	25.0		94.2	70-130			
Surrogate: Toluene-d8	24.8		ug/L	25.0		99.2	70-130			
LCS Dup (AH14496-BS1)				Prepared & Analyzed: 08/25/21						
Bromodichloromethane	4.59	1.00	ug/L	5.00		91.8	70-130	0.437	30	
Bromoform	4.11	1.00	ug/L	5.00		82.2	70-130	4.75	30	
Chloroform	5.14	1.00	ug/L	5.00		103	70-130	0.968	30	
Dibromochloromethane	4.58	1.00	ug/L	5.00		91.6	70-130	2.88	30	
Surrogate: Bromofluorobenzene	28.1		ug/L	25.0		113	70-130			
Surrogate: Dibromofluoromethane	22.4		ug/L	25.0		89.5	70-130			
Surrogate: Toluene-d8	24.9		ug/L	25.0		99.6	70-130			
Matrix Spike (AH14496-MS1)				Source: 21H2469-02	Prepared: 08/25/21	Analyzed: 08/26/21				
Bromodichloromethane	20.5	1.00	ug/L	5.00	14.0	130	70-130			
Bromoform	4.73	1.00	ug/L	5.00	ND	94.6	70-130			
Chloroform	79.8	1.00	ug/L	5.00	67.2	253	70-130			QM-05
Dibromochloromethane	8.71	1.00	ug/L	5.00	3.65	101	70-130			
Surrogate: Bromofluorobenzene	28.3		ug/L	25.0		113	70-130			
Surrogate: Dibromofluoromethane	23.0		ug/L	25.0		91.8	70-130			

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Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: [none]

Reported:
09/10/21 16:29

Volatile Organic Compounds by EPA Method 524.2 - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch AH14496 - VOAs in Water GCMS										
Matrix Spike (AH14496-MS1)		Source: 21H2469-02		Prepared: 08/25/21		Analyzed: 08/26/21				
Surrogate: Toluene-d8	24.4		ug/L	25.0		97.6	70-130			
Matrix Spike (AH14496-MS2)		Source: 21H2611-01		Prepared: 08/25/21		Analyzed: 08/26/21				
Bromodichloromethane	6.50	1.00	ug/L	5.00	1.77	94.6	70-130			
Bromoform	4.42	1.00	ug/L	5.00	ND	88.4	70-130			
Chloroform	60.2	1.00	ug/L	5.00	50.7	190	70-130			QM-05
Dibromochloromethane	4.27	1.00	ug/L	5.00	ND	85.4	70-130			
Surrogate: Bromofluorobenzene	27.8		ug/L	25.0		111	70-130			
Surrogate: Dibromofluoromethane	21.4		ug/L	25.0		85.8	70-130			
Surrogate: Toluene-d8	23.7		ug/L	25.0		94.7	70-130			



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Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: [none]

Reported:
09/10/21 16:29

Haloacetic Acids by EPA Method 552.2 - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch AH14766 - EPA 552.2										
Blank (AH14766-BLK1)				Prepared: 08/31/21 Analyzed: 09/01/21						
Monobromoacetic Acid	ND	1.0	ug/L							
Monochloroacetic Acid	ND	2.0	ug/L							
Dibromoacetic Acid	ND	1.0	ug/L							
Dichloroacetic Acid	ND	1.0	ug/L							
Trichloroacetic Acid	ND	1.0	ug/L							
Total Haloacetic Acids (HAA5)	ND	1.0	ug/L							
Surrogate: 2,3-Dibromopropionic Acid	8.28		ug/L	9.85		84.1	70-130			
Surrogate: 2-Bromopropionic Acid	10.9		ug/L	10.0		109	70-130			
LCS (AH14766-BS1)				Prepared: 08/31/21 Analyzed: 09/01/21						
Monobromoacetic Acid	28.6	1.0	ug/L	25.0		114	70-130			
Monochloroacetic Acid	28.6	2.0	ug/L	25.0		114	70-130			
Dibromoacetic Acid	24.9	1.0	ug/L	25.0		99.7	70-130			
Dichloroacetic Acid	28.5	1.0	ug/L	25.0		114	70-130			
Trichloroacetic Acid	24.5	1.0	ug/L	25.0		98.0	70-130			
Surrogate: 2,3-Dibromopropionic Acid	9.70		ug/L	9.85		98.5	70-130			
Surrogate: 2-Bromopropionic Acid	12.6		ug/L	10.0		126	70-130			
Matrix Spike (AH14766-MS1)				Source: 21H2633-01		Prepared: 08/31/21 Analyzed: 09/02/21				
Monobromoacetic Acid	31.8	1.0	ug/L	25.0	ND	127	70-130			
Monochloroacetic Acid	30.4	2.0	ug/L	25.0	ND	121	70-130			
Dibromoacetic Acid	28.2	1.0	ug/L	25.0	ND	113	70-130			
Dichloroacetic Acid	31.0	1.0	ug/L	25.0	ND	124	70-130			
Trichloroacetic Acid	27.6	1.0	ug/L	25.0	ND	110	70-130			
Surrogate: 2,3-Dibromopropionic Acid	11.8		ug/L	9.85		120	70-130			
Surrogate: 2-Bromopropionic Acid	14.3		ug/L	10.0		143	70-130			S-GC
Matrix Spike (AH14766-MS2)				Source: 21H2738-01		Prepared: 08/31/21 Analyzed: 09/02/21				
Monobromoacetic Acid	25.7	1.0	ug/L	25.0	ND	103	70-130			
Monochloroacetic Acid	51.4	2.0	ug/L	25.0	ND	205	70-130			QM-07
Dibromoacetic Acid	23.8	1.0	ug/L	25.0	ND	95.0	70-130			
Dichloroacetic Acid	26.3	1.0	ug/L	25.0	ND	105	70-130			
Trichloroacetic Acid	24.2	1.0	ug/L	25.0	ND	96.7	70-130			
Surrogate: 2,3-Dibromopropionic Acid	10.5		ug/L	9.85		107	70-130			

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Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: [none]

Reported:
09/10/21 16:29

Haloacetic Acids by EPA Method 552.2 - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
------------	--------	--------------------	-------	----------------	------------------	------	----------------	-----	--------------	------

Batch AH14766 - EPA 552.2

Matrix Spike (AH14766-MS2)

Source: 21H2738-01

Prepared: 08/31/21 Analyzed: 09/02/21

Surrogate: 2-Bromopropionic Acid

11.5

ug/L

10.0

115

70-130



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Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: [none]

Reported:
09/10/21 16:29

Notes and Definitions

FILT	The sample was filtered in the lab prior to analysis.
QM-01	The spike recovery for this QC sample is outside of established control limits possibly due to a sample matrix interference.
QM-05	The spike recovery was outside acceptance limits for the MS and/or MSD due to matrix interference. The LCS and/or LCSD were within acceptance limits showing that the laboratory is in control and the data is acceptable.
QM-07	The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.
QM-4X	The spike recovery was outside of QC acceptance limits for the MS and/or MSD due to analyte concentration at 4 times or greater the spike concentration. The QC batch was accepted based on LCS and/or LCSD recoveries within the acceptance limits.
S-GC	Surrogate recovery outside of control limits. The data was accepted based on valid recovery of the remaining surrogates.
ND	Analyte NOT DETECTED at or above the reporting limit
dry	Sample results reported on a dry weight basis
REC	Recovery
RPD	Relative Percent Difference

[illegible]

21H2826

Alpha Analytical Laboratories Ukiah to North Bay Chain of Custody

Client: **Todd Groundwater** Client Code: **DP_TODENG** Bid: **Round 3 ASR Water Quality**
Project: **Round 3 ASR Water Quality Baseline** Project Number: **[none]** PO #:

Date Due: 09/03/21 15:00 (10 day TAT)

Received By: James Bixler


Date Received: 08/19/21 22:00

Logged In By: Sean Foley

Date Logged: 08/20/21 13:49

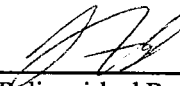
Samples Received at: _____ deg C

All containers received and intact: YES NO

Analysis	Department	Expires	Comments
21H2826-01 13-5-10L1 [Water] Sampled 08/19/21 08:30			Lab Filter 
NB Perchlorate EPA 314.0	NB Wet Chem	09/16/21 23:59	

Containers Supplied:

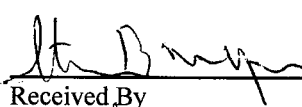
250mL Poly Unpres (C)

Relinquished By 

8-20-21

Date

Time


Received By 

8/23/21

Date

7:30

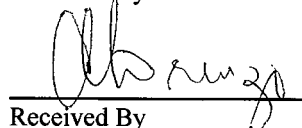
Time

Relinquished By 

8/23/21 11:50

Date

Time

Received By 

8/23/21 1150

Date

Time



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17 September 2021

Todd Groundwater

Attn: Nicole Grimm

2490 Mariner Square Loop, Suite 215

Alameda, CA 94501

RE: Round 3 ASR Water Quality Baseline

Work Order: 21H3513

Enclosed are the results of analyses for samples received by the laboratory on 08/26/21 22:15. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Jeanette L. Poplin For David S. Pingatore
Project Manager



Alpha Analytical Laboratories, Inc. email: clientservices@alpha-labs.com
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Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: [none]

Reported:
09/17/21 10:32

Bay Area: 262 Rickenbacker Circle | Livermore, CA 94551 | T: 925-828-6226 | F: 925-828-6309 | ELAP# 2728
Central Valley: 9090 Union Park Way Suite 113 | Elk Grove, CA 95624 | T: 916-686-5190 | F: 916-686-5192 | ELAP# 2922
North Bay: 110 Liberty Street | Petaluma, CA 94952 | T: 707-769-3128 | F: 707-769-8093 | ELAP# 2303
San Diego: 2722 Loker Avenue West Suite A | Carlsbad, CA 92010 | T: 760-930-2555 | F: 760-930-2510 | ELAP# 3055

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
12-5-23A20	21H3513-01	Water	08/26/21 09:30	08/26/21 22:15



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Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: [none]

Reported:
09/17/21 10:32

	Result	Reporting Limit	Dilution	Batch	Prepared	Analyzed	ELAP#	Method	Note
12-5-23A20 (21H3513-01)									
		Sample Type: Water			Sampled: 08/26/21 09:30				
Metals by EPA 200 Series Methods									
Silica (SiO2)	27 mg/L	1.0	1	AI13318	09/07/21 15:07	09/10/21 12:00	2303	EPA 200.7	
Calcium	40 mg/L	1.0	1	AI13153	09/07/21 17:05	09/10/21 16:47	1551	EPA 200.7	
Chromium, hexavalent	5.0 ug/L	1.0	1	AH14689	08/30/21 20:18	08/30/21 20:18	1551	EPA 218.6	
Magnesium	52 mg/L	1.0	1	AI13153	09/07/21 17:05	09/10/21 16:47	1551	EPA 200.7	
Metals by EPA Method 200.8 ICP/MS									
Cobalt	ND ug/L	0.40	4	AH14797	09/01/21 14:17	09/02/21 20:06	1551	EPA 200.8	R-01
Uranium	1.3 pCi/l	1.0	4	AH14797	09/01/21 14:17	09/02/21 20:06	1551	EPA 200.8	
Conventional Chemistry Parameters by APHA/EPA Methods									
Ammonia as NH3	ND mg/L	0.50	1	AI13747	09/15/21 10:00	09/15/21 16:00	1551	SM4500NH3B,C	
Hardness, Total	315 mg/L	5	1	AI13153	09/07/21 17:05	09/10/21 16:47	1551	SM2340B	
Phosphorus, total	0.095 mg/L	0.040	1	AH14761	08/31/21 10:42	08/31/21 14:55	1551	SM4500-P E	
Total Organic Carbon	ND mg/L	1.00	1	AI13418	09/09/21 14:35	09/10/21 07:08	1551	SM5310C	
Volatile Organic Compounds by EPA Method 524.2									
Acetone	ND ug/L	5.0	1	AI13372	09/08/21 09:00	09/08/21 16:31	1551	EPA 524.2	
Acrylonitrile	ND ug/L	5.0	1	AI13372	09/08/21 09:00	09/08/21 16:31	1551	EPA 524.2	
Benzene	ND ug/L	0.50	1	AI13372	09/08/21 09:00	09/08/21 16:31	1551	EPA 524.2	
Bromobenzene	ND ug/L	0.50	1	AI13372	09/08/21 09:00	09/08/21 16:31	1551	EPA 524.2	
Bromochloromethane	ND ug/L	0.50	1	AI13372	09/08/21 09:00	09/08/21 16:31	1551	EPA 524.2	
Bromodichloromethane	ND ug/L	1.0	1	AI13372	09/08/21 09:00	09/08/21 16:31	1551	EPA 524.2	
Bromoform	ND ug/L	1.0	1	AI13372	09/08/21 09:00	09/08/21 16:31	1551	EPA 524.2	
Bromomethane	ND ug/L	0.50	1	AI13372	09/08/21 09:00	09/08/21 16:31	1551	EPA 524.2	
n-Butylbenzene	ND ug/L	0.50	1	AI13372	09/08/21 09:00	09/08/21 16:31	1551	EPA 524.2	
sec-Butylbenzene	ND ug/L	0.50	1	AI13372	09/08/21 09:00	09/08/21 16:31	1551	EPA 524.2	
tert-Butylbenzene	ND ug/L	0.50	1	AI13372	09/08/21 09:00	09/08/21 16:31	1551	EPA 524.2	
Carbon disulfide	ND ug/L	0.50	1	AI13372	09/08/21 09:00	09/08/21 16:31	1551	EPA 524.2	
Carbon tetrachloride	ND ug/L	0.50	1	AI13372	09/08/21 09:00	09/08/21 16:31	1551	EPA 524.2	
Chlorobenzene	ND ug/L	0.50	1	AI13372	09/08/21 09:00	09/08/21 16:31	1551	EPA 524.2	
Chloroethane	ND ug/L	0.50	1	AI13372	09/08/21 09:00	09/08/21 16:31	1551	EPA 524.2	
Chloroform	ND ug/L	1.0	1	AI13372	09/08/21 09:00	09/08/21 16:31	1551	EPA 524.2	
Chloromethane	ND ug/L	0.50	1	AI13372	09/08/21 09:00	09/08/21 16:31	1551	EPA 524.2	
2-Chlorotoluene	ND ug/L	0.50	1	AI13372	09/08/21 09:00	09/08/21 16:31	1551	EPA 524.2	
4-Chlorotoluene	ND ug/L	0.50	1	AI13372	09/08/21 09:00	09/08/21 16:31	1551	EPA 524.2	
Dibromochloromethane	ND ug/L	1.0	1	AI13372	09/08/21 09:00	09/08/21 16:31	1551	EPA 524.2	
Dibromomethane	ND ug/L	0.50	1	AI13372	09/08/21 09:00	09/08/21 16:31	1551	EPA 524.2	
1,2-Dichlorobenzene	ND ug/L	0.50	1	AI13372	09/08/21 09:00	09/08/21 16:31	1551	EPA 524.2	
1,3-Dichlorobenzene	ND ug/L	0.50	1	AI13372	09/08/21 09:00	09/08/21 16:31	1551	EPA 524.2	
1,4-Dichlorobenzene	ND ug/L	0.50	1	AI13372	09/08/21 09:00	09/08/21 16:31	1551	EPA 524.2	
Dichlorodifluoromethane	ND ug/L	0.50	1	AI13372	09/08/21 09:00	09/08/21 16:31	1551	EPA 524.2	
1,1-Dichloroethane	ND ug/L	0.50	1	AI13372	09/08/21 09:00	09/08/21 16:31	1551	EPA 524.2	
1,2-Dichloroethane	ND ug/L	0.50	1	AI13372	09/08/21 09:00	09/08/21 16:31	1551	EPA 524.2	

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Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: [none]

Reported:
09/17/21 10:32

	Result	Reporting Limit	Dilution	Batch	Prepared	Analyzed	ELAP#	Method	Note
12-5-23A20 (21H3513-01)									
Sample Type: Water									
Sampled: 08/26/21 09:30									
Volatile Organic Compounds by EPA Method 524.2 (cont'd)									
1,1-Dichloroethene	ND ug/L	0.50	1	AI13372	09/08/21 09:00	09/08/21 16:31	1551	EPA 524.2	
cis-1,2-Dichloroethene	ND ug/L	0.50	1	AI13372	09/08/21 09:00	09/08/21 16:31	1551	EPA 524.2	
trans-1,2-Dichloroethene	ND ug/L	0.50	1	AI13372	09/08/21 09:00	09/08/21 16:31	1551	EPA 524.2	
1,3-Dichloropropene (total)	ND ug/L	0.50	1	AI13372	09/08/21 09:00	09/08/21 16:31	1551	EPA 524.2	
1,2-Dichloropropane	ND ug/L	0.50	1	AI13372	09/08/21 09:00	09/08/21 16:31	1551	EPA 524.2	
1,3-Dichloropropane	ND ug/L	0.50	1	AI13372	09/08/21 09:00	09/08/21 16:31	1551	EPA 524.2	
2,2-Dichloropropane	ND ug/L	0.50	1	AI13372	09/08/21 09:00	09/08/21 16:31	1551	EPA 524.2	
1,1-Dichloropropene	ND ug/L	0.50	1	AI13372	09/08/21 09:00	09/08/21 16:31	1551	EPA 524.2	
cis-1,3-Dichloropropene	ND ug/L	0.50	1	AI13372	09/08/21 09:00	09/08/21 16:31	1551	EPA 524.2	
trans-1,3-Dichloropropene	ND ug/L	0.50	1	AI13372	09/08/21 09:00	09/08/21 16:31	1551	EPA 524.2	
Ethylbenzene	ND ug/L	0.50	1	AI13372	09/08/21 09:00	09/08/21 16:31	1551	EPA 524.2	
Hexachlorobutadiene	ND ug/L	0.50	1	AI13372	09/08/21 09:00	09/08/21 16:31	1551	EPA 524.2	
Isopropylbenzene	ND ug/L	0.50	1	AI13372	09/08/21 09:00	09/08/21 16:31	1551	EPA 524.2	
p-Isopropyltoluene	ND ug/L	0.50	1	AI13372	09/08/21 09:00	09/08/21 16:31	1551	EPA 524.2	
Methyl ethyl ketone	ND ug/L	5.0	1	AI13372	09/08/21 09:00	09/08/21 16:31	1551	EPA 524.2	
Methyl isobutyl ketone	ND ug/L	5.0	1	AI13372	09/08/21 09:00	09/08/21 16:31	1551	EPA 524.2	
Methyl tert-butyl ether	ND ug/L	3.0	1	AI13372	09/08/21 09:00	09/08/21 16:31	1551	EPA 524.2	
Methylene chloride	ND ug/L	0.50	1	AI13372	09/08/21 09:00	09/08/21 16:31	1551	EPA 524.2	
Naphthalene	ND ug/L	0.50	1	AI13372	09/08/21 09:00	09/08/21 16:31	1551	EPA 524.2	
n-Propylbenzene	ND ug/L	0.50	1	AI13372	09/08/21 09:00	09/08/21 16:31	1551	EPA 524.2	
Styrene	ND ug/L	0.50	1	AI13372	09/08/21 09:00	09/08/21 16:31	1551	EPA 524.2	
1,1,1,2-Tetrachloroethane	ND ug/L	0.50	1	AI13372	09/08/21 09:00	09/08/21 16:31	1551	EPA 524.2	
1,1,2,2-Tetrachloroethane	ND ug/L	0.50	1	AI13372	09/08/21 09:00	09/08/21 16:31	1551	EPA 524.2	
Tetrachloroethene	ND ug/L	0.50	1	AI13372	09/08/21 09:00	09/08/21 16:31	1551	EPA 524.2	
Toluene	ND ug/L	0.50	1	AI13372	09/08/21 09:00	09/08/21 16:31	1551	EPA 524.2	
1,2,3-Trichlorobenzene	ND ug/L	0.50	1	AI13372	09/08/21 09:00	09/08/21 16:31	1551	EPA 524.2	
1,2,4-Trichlorobenzene	ND ug/L	0.50	1	AI13372	09/08/21 09:00	09/08/21 16:31	1551	EPA 524.2	
1,1,1-Trichloroethane	ND ug/L	0.50	1	AI13372	09/08/21 09:00	09/08/21 16:31	1551	EPA 524.2	
1,1,2-Trichloroethane	ND ug/L	0.50	1	AI13372	09/08/21 09:00	09/08/21 16:31	1551	EPA 524.2	
Trichloroethene	ND ug/L	0.50	1	AI13372	09/08/21 09:00	09/08/21 16:31	1551	EPA 524.2	
Trichlorofluoromethane	ND ug/L	5.0	1	AI13372	09/08/21 09:00	09/08/21 16:31	1551	EPA 524.2	
Trichlorotrifluoroethane	ND ug/L	10	1	AI13372	09/08/21 09:00	09/08/21 16:31	1551	EPA 524.2	
1,2,4-Trimethylbenzene	ND ug/L	0.50	1	AI13372	09/08/21 09:00	09/08/21 16:31	1551	EPA 524.2	
1,3,5-Trimethylbenzene	ND ug/L	0.50	1	AI13372	09/08/21 09:00	09/08/21 16:31	1551	EPA 524.2	
Vinyl chloride	ND ug/L	0.50	1	AI13372	09/08/21 09:00	09/08/21 16:31	1551	EPA 524.2	
m,p-Xylene	ND ug/L	0.50	1	AI13372	09/08/21 09:00	09/08/21 16:31	1551	EPA 524.2	
o-Xylene	ND ug/L	0.50	1	AI13372	09/08/21 09:00	09/08/21 16:31	1551	EPA 524.2	
Xylenes (total)	ND ug/L	0.50	1	AI13372	09/08/21 09:00	09/08/21 16:31	1551	EPA 524.2	
Trihalomethanes (total)	ND ug/L	0.50	1	AI13372	09/08/21 09:00	09/08/21 16:31	1551	EPA 524.2	
Surrogate: Bromofluorobenzene	103 %	70-130		AI13372	09/08/21 09:00	09/08/21 16:31	1551	EPA 524.2	

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Todd Groundwater 2490 Mariner Square Loop, Suite 215 Alameda, CA 94501	Project Manager: Nicole Grimm Project: Round 3 ASR Water Quality Baseline Project Number: [none]	Reported: 09/17/21 10:32
--	--	-----------------------------

	Result	Reporting Limit	Dilution	Batch	Prepared	Analyzed	ELAP#	Method	Note
12-5-23A20 (21H3513-01)		Sample Type: Water			Sampled: 08/26/21 09:30				
Volatile Organic Compounds by EPA Method 524.2 (cont'd)									
Surrogate: Dibromofluoromethane	91.0 %	70-130		AI13372	09/08/21 09:00	09/08/21 16:31	1551	EPA 524.2	
Surrogate: Toluene-d8	107 %	70-130		AI13372	09/08/21 09:00	09/08/21 16:31	1551	EPA 524.2	



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Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: [none]

Reported:
09/17/21 10:32

Metals by EPA 200 Series Methods - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch AH14689 - General Prep										
Blank (AH14689-BLK1)				Prepared & Analyzed: 08/30/21						
Chromium, hexavalent	ND	1.0	ug/L							
LCS (AH14689-BS1)				Prepared & Analyzed: 08/30/21						
Chromium, hexavalent	9.13	1.0	ug/L	10.0		91.3	90-110			
Duplicate (AH14689-DUP1)				Source: 21H3513-01		Prepared & Analyzed: 08/30/21				
Chromium, hexavalent	5.00	1.0	ug/L		4.99			0.180	20	
Matrix Spike (AH14689-MS1)				Source: 21H3513-01		Prepared & Analyzed: 08/30/21				
Chromium, hexavalent	13.8	1.0	ug/L	10.0	4.99	88.4	90-110			QM-01
Matrix Spike Dup (AH14689-MSD1)				Source: 21H3513-01		Prepared & Analyzed: 08/30/21				
Chromium, hexavalent	13.8	1.0	ug/L	10.0	4.99	88.3	90-110	0.0940	20	QM-01
Batch AI13153 - Metals Digest										
Blank (AI13153-BLK1)				Prepared: 09/07/21 Analyzed: 09/09/21						
Calcium	ND	1.0	mg/L							
Magnesium	ND	1.0	mg/L							
LCS (AI13153-BS1)				Prepared: 09/07/21 Analyzed: 09/09/21						
Calcium	7.92	1.0	mg/L	8.00		99.0	85-115			
Magnesium	8.43	1.0	mg/L	8.00		105	85-115			
Duplicate (AI13153-DUP1)				Source: 21H3561-01		Prepared: 09/07/21 Analyzed: 09/09/21				
Calcium	4.22	1.0	mg/L		4.16			1.49	20	
Magnesium	ND	1.0	mg/L		ND			1.35	20	



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Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: [none]

Reported:
09/17/21 10:32

Metals by EPA 200 Series Methods - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch AI13153 - Metals Digest										
Matrix Spike (AI13153-MS1)		Source: 21H3561-01		Prepared: 09/07/21		Analyzed: 09/09/21				
Calcium	12.8	1.0	mg/L	8.00	4.16	107	70-130			
Magnesium	9.33	1.0	mg/L	8.00	ND	111	70-130			
Matrix Spike (AI13153-MS2)		Source: 21H3535-01		Prepared: 09/07/21		Analyzed: 09/09/21				
Calcium	84.8	1.0	mg/L	8.00	78.5	79.0	70-130			
Magnesium	33.6	1.0	mg/L	8.00	26.1	93.5	70-130			
Matrix Spike Dup (AI13153-MSD1)		Source: 21H3561-01		Prepared: 09/07/21		Analyzed: 09/09/21				
Calcium	12.9	1.0	mg/L	8.00	4.16	109	70-130	0.943	20	
Magnesium	9.43	1.0	mg/L	8.00	ND	112	70-130	1.05	20	
Batch AI13318 - NB EPA 200 series DA										
Blank (AI13318-BLK1)				Prepared: 09/07/21		Analyzed: 09/10/21				
Silica (SiO ₂)	ND	1.0	mg/L							
LCS (AI13318-BS1)				Prepared: 09/07/21		Analyzed: 09/10/21				
Silica (SiO ₂)	5.16	1.0	mg/L	5.35		96.4	0-200			
LCS Dup (AI13318-BSD1)				Prepared: 09/07/21		Analyzed: 09/10/21				
Silica (SiO ₂)	5.22	1.0	mg/L	5.35		97.7	0-200	1.26	200	
Duplicate (AI13318-DUP1)		Source: 21H3438-02		Prepared: 09/07/21		Analyzed: 09/10/21				
Silica (SiO ₂)	22.7	1.0	mg/L		23.1			1.64	200	
Matrix Spike (AI13318-MS1)		Source: 21H3403-01		Prepared: 09/07/21		Analyzed: 09/10/21				
Silica (SiO ₂)	48.1	1.0	mg/L	5.35	48.4	NR	0-200			QM-07



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Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: [none]

Reported:
09/17/21 10:32

Metals by EPA 200 Series Methods - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch AI13318 - NB EPA 200 series DA										
Matrix Spike (AI13318-MS2)		Source: 21H3438-01		Prepared: 09/07/21 Analyzed: 09/10/21						
Silica (SiO2)	19.5	1.0	mg/L	5.35	16.0	65.6	0-200			
Matrix Spike Dup (AI13318-MSD1)		Source: 21H3403-01		Prepared: 09/07/21 Analyzed: 09/10/21						
Silica (SiO2)	46.8	1.0	mg/L	5.35	48.4	NR	0-200	2.72	200	QM-07



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Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: [none]

Reported:
09/17/21 10:32

Metals by EPA Method 200.8 ICP/MS - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch AH14797 - EPA 200.8										
Blank (AH14797-BLK1)				Prepared: 09/01/21 Analyzed: 09/02/21						
Cobalt	ND	0.10	ug/L							
Uranium	ND	1.0	pCi/l							
LCS (AH14797-BS1)				Prepared: 09/01/21 Analyzed: 09/02/21						
Cobalt	19.9	0.10	ug/L	20.0		99.6	85-115			
Uranium	13.4	1.0	pCi/l	13.4		99.8	85-115			
Duplicate (AH14797-DUP1)				Source: 21H3348-01		Prepared: 09/01/21 Analyzed: 09/02/21				
Cobalt	ND	0.40	ug/L		ND			20		R-01
Uranium	ND	1.0	pCi/l		ND			20		
Matrix Spike (AH14797-MS1)				Source: 21H3348-01		Prepared: 09/01/21 Analyzed: 09/02/21				
Cobalt	19.6	0.40	ug/L	20.0	ND	98.1	70-130			
Uranium	13.3	1.0	pCi/l	13.4	ND	99.4	70-130			
Matrix Spike (AH14797-MS2)				Source: 21H3797-01		Prepared: 09/01/21 Analyzed: 09/02/21				
Cobalt	19.8	0.40	ug/L	20.0	ND	99.2	70-130			
Uranium	13.3	1.0	pCi/l	13.4	ND	99.5	70-130			
Matrix Spike Dup (AH14797-MSD1)				Source: 21H3348-01		Prepared: 09/01/21 Analyzed: 09/02/21				
Cobalt	19.4	0.40	ug/L	20.0	ND	97.0	70-130	1.14	20	
Uranium	13.1	1.0	pCi/l	13.4	ND	97.9	70-130	1.50	20	



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Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: [none]

Reported:
09/17/21 10:32

Conventional Chemistry Parameters by APHA/EPA Methods - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch AH14761 - General Prep										
Blank (AH14761-BLK1)				Prepared & Analyzed: 08/31/21						
Phosphorus, total	ND	0.040	mg/L							
LCS (AH14761-BS1)				Prepared & Analyzed: 08/31/21						
Phosphorus, total	0.195	0.040	mg/L	0.200		97.5	85-115			
Duplicate (AH14761-DUP1)				Source: 21H3289-01		Prepared & Analyzed: 08/31/21				
Phosphorus, total	ND	0.040	mg/L		ND			0.00	20	
Matrix Spike (AH14761-MS1)				Source: 21H3289-01		Prepared & Analyzed: 08/31/21				
Phosphorus, total	0.207	0.040	mg/L	0.200	ND	97.0	70-130			
Matrix Spike (AH14761-MS2)				Source: 21H3189-02		Prepared & Analyzed: 08/31/21				
Phosphorus, total	0.225	0.040	mg/L	0.200	ND	112	70-130			
Matrix Spike Dup (AH14761-MSD1)				Source: 21H3289-01		Prepared & Analyzed: 08/31/21				
Phosphorus, total	0.215	0.040	mg/L	0.200	ND	101	70-130	3.79	20	
Batch AI13153 - Metals Digest										
Blank (AI13153-BLK1)				Prepared: 09/07/21 Analyzed: 09/09/21						
Hardness, Total	ND	5	mg/L							
Batch AI13418 - General Prep										
Blank (AI13418-BLK1)				Prepared & Analyzed: 09/09/21						
Total Organic Carbon	ND	1.00	mg/L							



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Project Number: [none]

Reported:
09/17/21 10:32

Conventional Chemistry Parameters by APHA/EPA Methods - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch AI13418 - General Prep										
LCS (AI13418-BS1)				Prepared & Analyzed: 09/09/21						
Total Organic Carbon	8.96	1.00	mg/L	10.0		89.6	85-115			
LCS Dup (AI13418-BSD1)				Prepared & Analyzed: 09/09/21						
Total Organic Carbon	9.03	1.00	mg/L	10.0		90.3	85-115	0.864	20	
Duplicate (AI13418-DUP1)				Source: 21H3343-03		Prepared & Analyzed: 09/09/21				
Total Organic Carbon	3.11	1.00	mg/L		3.08			1.08	20	
MRL Check (AI13418-MRL1)				Prepared & Analyzed: 09/09/21						
Total Organic Carbon	0.350	1.00	mg/L	0.300		117	0-200			
Matrix Spike (AI13418-MS1)				Source: 21H3343-03		Prepared & Analyzed: 09/09/21				
Total Organic Carbon	11.8	1.00	mg/L	10.0	3.08	87.2	70-130			
Matrix Spike Dup (AI13418-MSD1)				Source: 21H3343-03		Prepared & Analyzed: 09/09/21				
Total Organic Carbon	12.0	1.00	mg/L	10.0	3.08	89.4	70-130	1.82	20	
Batch AI13747 - General Preparation										
LCS (AI13747-BS1)				Prepared & Analyzed: 09/15/21						
Ammonia as NH3	5.85	0.50	mg/L	6.10		96.0	90-110			
LCS Dup (AI13747-BSD1)				Prepared & Analyzed: 09/15/21						
Ammonia as NH3	5.96	0.50	mg/L	6.10		97.7	90-110	1.81	20	
Matrix Spike (AI13747-MS1)				Source: 2110041-02		Prepared & Analyzed: 09/15/21				
Ammonia as NH3	5.75	0.50	mg/L	6.10	ND	94.2	85-115			

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Conventional Chemistry Parameters by APHA/EPA Methods - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
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Batch AI13747 - General Preparation

Matrix Spike Dup (AI13747-MSD1)

Source: 21I0041-02

Prepared & Analyzed: 09/15/21

Ammonia as NH3	5.85	0.50	mg/L	6.10	ND	96.0	85-115	1.83	20	
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Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: [none]

Reported:
09/17/21 10:32

Volatile Organic Compounds by EPA Method 524.2 - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch AI13372 - VOAs in Water GCMS										
Blank (AI13372-BLK1)				Prepared: 09/07/21 Analyzed: 09/08/21						
Acetone	ND	5.0	ug/L							
Acrylonitrile	ND	5.0	ug/L							
Benzene	ND	0.50	ug/L							
Bromobenzene	ND	0.50	ug/L							
Bromochloromethane	ND	0.50	ug/L							
Bromodichloromethane	ND	1.0	ug/L							
Bromoform	ND	1.0	ug/L							
Bromomethane	ND	0.50	ug/L							
n-Butylbenzene	ND	0.50	ug/L							
sec-Butylbenzene	ND	0.50	ug/L							
tert-Butylbenzene	ND	0.50	ug/L							
Carbon disulfide	ND	0.50	ug/L							
Carbon tetrachloride	ND	0.50	ug/L							
Chlorobenzene	ND	0.50	ug/L							
Chloroethane	ND	0.50	ug/L							
Chloroform	ND	1.0	ug/L							
Chloromethane	ND	0.50	ug/L							
2-Chlorotoluene	ND	0.50	ug/L							
4-Chlorotoluene	ND	0.50	ug/L							
Dibromochloromethane	ND	1.0	ug/L							
Dibromomethane	ND	0.50	ug/L							
1,2-Dichlorobenzene	ND	0.50	ug/L							
1,3-Dichlorobenzene	ND	0.50	ug/L							
1,4-Dichlorobenzene	ND	0.50	ug/L							
Dichlorodifluoromethane	ND	0.50	ug/L							
1,1-Dichloroethane	ND	0.50	ug/L							
1,2-Dichloroethane	ND	0.50	ug/L							
1,1-Dichloroethene	ND	0.50	ug/L							
cis-1,2-Dichloroethene	ND	0.50	ug/L							
trans-1,2-Dichloroethene	ND	0.50	ug/L							
1,3-Dichloropropene (total)	ND	0.50	ug/L							
1,2-Dichloropropane	ND	0.50	ug/L							
1,3-Dichloropropane	ND	0.50	ug/L							
2,2-Dichloropropane	ND	0.50	ug/L							
1,1-Dichloropropene	ND	0.50	ug/L							

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Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: [none]

Reported:
09/17/21 10:32

Volatile Organic Compounds by EPA Method 524.2 - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch AI13372 - VOAs in Water GCMS										
Blank (AI13372-BLK1)				Prepared: 09/07/21 Analyzed: 09/08/21						
cis-1,3-Dichloropropene	ND	0.50	ug/L							
trans-1,3-Dichloropropene	ND	0.50	ug/L							
Ethylbenzene	ND	0.50	ug/L							
Hexachlorobutadiene	ND	0.50	ug/L							
Isopropylbenzene	ND	0.50	ug/L							
p-Isopropyltoluene	ND	0.50	ug/L							
Methyl ethyl ketone	ND	5.0	ug/L							
Methyl isobutyl ketone	ND	5.0	ug/L							
Methyl tert-butyl ether	ND	3.0	ug/L							
Methylene chloride	ND	0.50	ug/L							
Naphthalene	ND	0.50	ug/L							
n-Propylbenzene	ND	0.50	ug/L							
Styrene	ND	0.50	ug/L							
1,1,1,2-Tetrachloroethane	ND	0.50	ug/L							
1,1,2,2-Tetrachloroethane	ND	0.50	ug/L							
Tetrachloroethene	ND	0.50	ug/L							
Toluene	ND	0.50	ug/L							
1,2,3-Trichlorobenzene	ND	0.50	ug/L							
1,2,4-Trichlorobenzene	ND	0.50	ug/L							
1,1,1-Trichloroethane	ND	0.50	ug/L							
1,1,2-Trichloroethane	ND	0.50	ug/L							
Trichloroethene	ND	0.50	ug/L							
Trichlorofluoromethane	ND	5.0	ug/L							
Trichlorotrifluoroethane	ND	10	ug/L							
1,2,4-Trimethylbenzene	ND	0.50	ug/L							
1,3,5-Trimethylbenzene	ND	0.50	ug/L							
Vinyl chloride	ND	0.50	ug/L							
m,p-Xylene	ND	0.50	ug/L							
o-Xylene	ND	0.50	ug/L							
Xylenes (total)	ND	0.50	ug/L							
Trihalomethanes (total)	ND	0.50	ug/L							
Surrogate: Bromofluorobenzene	27.4		ug/L	25.0		110	70-130			
Surrogate: Dibromofluoromethane	30.3		ug/L	25.0		121	70-130			
Surrogate: Toluene-d8	26.5		ug/L	25.0		106	70-130			

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2490 Mariner Square Loop, Suite 215
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Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: [none]

Reported:
09/17/21 10:32

Volatile Organic Compounds by EPA Method 524.2 - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch AI13372 - VOAs in Water GCMS										
LCS (AI13372-BS1)				Prepared: 09/07/21 Analyzed: 09/08/21						
Acetone	24.4	5.0	ug/L	20.0		122	70-130			
Acrylonitrile	5.16	5.0	ug/L	5.00		103	70-130			
Benzene	4.78	0.50	ug/L	5.00		95.6	70-130			
Bromobenzene	4.89	0.50	ug/L	5.00		97.8	70-130			
Bromochloromethane	5.01	0.50	ug/L	5.00		100	70-130			
Bromodichloromethane	4.38	1.0	ug/L	5.00		87.6	70-130			
Bromoform	4.21	1.0	ug/L	5.00		84.2	70-130			
Bromomethane	6.12	0.50	ug/L	5.00		122	70-130			
n-Butylbenzene	4.82	0.50	ug/L	5.00		96.4	70-130			
sec-Butylbenzene	5.11	0.50	ug/L	5.00		102	70-130			
tert-Butylbenzene	4.96	0.50	ug/L	5.00		99.2	70-130			
Carbon disulfide	5.23	0.50	ug/L	5.00		105	70-130			
Carbon tetrachloride	4.41	0.50	ug/L	5.00		88.2	70-130			
Chlorobenzene	4.63	0.50	ug/L	5.00		92.6	70-130			
Chloroethane	4.78	0.50	ug/L	5.00		95.6	70-130			
Chloroform	4.57	1.0	ug/L	5.00		91.4	70-130			
Chloromethane	5.65	0.50	ug/L	5.00		113	70-130			
2-Chlorotoluene	4.98	0.50	ug/L	5.00		99.6	70-130			
4-Chlorotoluene	4.71	0.50	ug/L	5.00		94.2	70-130			
Dibromochloromethane	4.11	1.0	ug/L	5.00		82.2	70-130			
Dibromomethane	4.48	0.50	ug/L	5.00		89.6	70-130			
1,2-Dichlorobenzene	4.45	0.50	ug/L	5.00		89.0	70-130			
1,3-Dichlorobenzene	4.73	0.50	ug/L	5.00		94.6	70-130			
1,4-Dichlorobenzene	4.36	0.50	ug/L	5.00		87.2	70-130			
Dichlorodifluoromethane	5.63	0.50	ug/L	5.00		113	70-130			
1,1-Dichloroethane	5.04	0.50	ug/L	5.00		101	70-130			
1,2-Dichloroethane	4.30	0.50	ug/L	5.00		86.0	70-130			
1,1-Dichloroethene	4.49	0.50	ug/L	5.00		89.8	70-130			
cis-1,2-Dichloroethene	4.99	0.50	ug/L	5.00		99.8	70-130			
trans-1,2-Dichloroethene	5.05	0.50	ug/L	5.00		101	70-130			
1,2-Dichloropropane	4.22	0.50	ug/L	5.00		84.4	70-130			
1,3-Dichloropropane	4.57	0.50	ug/L	5.00		91.4	70-130			
2,2-Dichloropropane	5.04	0.50	ug/L	5.00		101	70-130			
1,1-Dichloropropene	4.98	0.50	ug/L	5.00		99.6	70-130			
cis-1,3-Dichloropropene	4.22	0.50	ug/L	5.00		84.4	70-130			

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Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: [none]

Reported:
09/17/21 10:32

Volatile Organic Compounds by EPA Method 524.2 - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch AI13372 - VOAs in Water GCMS										
LCS (AI13372-BS1)				Prepared: 09/07/21 Analyzed: 09/08/21						
trans-1,3-Dichloropropene	4.25	0.50	ug/L	5.00		85.0	70-130			
Ethylbenzene	4.74	0.50	ug/L	5.00		94.8	70-130			
Hexachlorobutadiene	4.23	0.50	ug/L	5.00		84.6	70-130			
Isopropylbenzene	5.08	0.50	ug/L	5.00		102	70-130			
p-Isopropyltoluene	5.00	0.50	ug/L	5.00		100	70-130			
Methyl ethyl ketone	9.51	5.0	ug/L	10.0		95.1	70-130			
Methyl isobutyl ketone	8.98	5.0	ug/L	10.0		89.8	70-130			
Methyl tert-butyl ether	4.89	3.0	ug/L	5.00		97.8	70-130			
Methylene chloride	5.74	0.50	ug/L	5.00		115	70-130			
Naphthalene	4.25	0.50	ug/L	5.00		85.0	70-130			
n-Propylbenzene	4.90	0.50	ug/L	5.00		98.0	70-130			
Styrene	4.52	0.50	ug/L	5.00		90.4	70-130			
1,1,1,2-Tetrachloroethane	4.44	0.50	ug/L	5.00		88.8	70-130			
1,1,2,2-Tetrachloroethane	4.72	0.50	ug/L	5.00		94.4	70-130			
Tetrachloroethene	4.37	0.50	ug/L	5.00		87.4	70-130			
Toluene	4.75	0.50	ug/L	5.00		95.0	70-130			
1,2,3-Trichlorobenzene	4.26	0.50	ug/L	5.00		85.2	70-130			
1,2,4-Trichlorobenzene	4.15	0.50	ug/L	5.00		83.0	70-130			
1,1,1-Trichloroethane	4.94	0.50	ug/L	5.00		98.8	70-130			
1,1,2-Trichloroethane	4.50	0.50	ug/L	5.00		90.0	70-130			
Trichloroethene	4.71	0.50	ug/L	5.00		94.2	70-130			
Trichlorofluoromethane	5.28	5.0	ug/L	5.00		106	70-130			
Trichlorotrifluoroethane	5.61	10	ug/L	5.00		112	70-130			
1,2,4-Trimethylbenzene	4.96	0.50	ug/L	5.00		99.2	70-130			
1,3,5-Trimethylbenzene	4.90	0.50	ug/L	5.00		98.0	70-130			
Vinyl chloride	4.00	0.50	ug/L	5.00		80.0	70-130			
m,p-Xylene	9.45	0.50	ug/L	10.0		94.5	70-130			
o-Xylene	4.83	0.50	ug/L	5.00		96.6	70-130			
Xylenes (total)	14.3	0.50	ug/L	15.0		95.2	70-130			
Surrogate: Bromofluorobenzene	26.8		ug/L	25.0		107	70-130			
Surrogate: Dibromofluoromethane	26.8		ug/L	25.0		107	70-130			
Surrogate: Toluene-d8	25.5		ug/L	25.0		102	70-130			

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Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: [none]

Reported:
09/17/21 10:32

Volatile Organic Compounds by EPA Method 524.2 - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch AI13372 - VOAs in Water GCMS										
LCS Dup (AI13372-BSD1)				Prepared: 09/07/21 Analyzed: 09/08/21						
Acetone	24.2	5.0	ug/L	20.0		121	70-130	0.659	30	
Acrylonitrile	5.75	5.0	ug/L	5.00		115	70-130	10.8	30	
Benzene	4.80	0.50	ug/L	5.00		96.0	70-130	0.418	30	
Bromobenzene	4.98	0.50	ug/L	5.00		99.6	70-130	1.82	30	
Bromochloromethane	5.36	0.50	ug/L	5.00		107	70-130	6.75	30	
Bromodichloromethane	4.41	1.0	ug/L	5.00		88.2	70-130	0.683	30	
Bromoform	4.25	1.0	ug/L	5.00		85.0	70-130	0.946	30	
Bromomethane	4.86	0.50	ug/L	5.00		97.2	70-130	23.0	30	
n-Butylbenzene	4.78	0.50	ug/L	5.00		95.6	70-130	0.833	30	
sec-Butylbenzene	5.20	0.50	ug/L	5.00		104	70-130	1.75	30	
tert-Butylbenzene	5.06	0.50	ug/L	5.00		101	70-130	2.00	30	
Carbon disulfide	5.59	0.50	ug/L	5.00		112	70-130	6.65	30	
Carbon tetrachloride	4.75	0.50	ug/L	5.00		95.0	70-130	7.42	30	
Chlorobenzene	4.72	0.50	ug/L	5.00		94.4	70-130	1.93	30	
Chloroethane	3.77	0.50	ug/L	5.00		75.4	70-130	23.6	30	
Chloroform	4.80	1.0	ug/L	5.00		96.0	70-130	4.91	30	
Chloromethane	5.80	0.50	ug/L	5.00		116	70-130	2.62	30	
2-Chlorotoluene	5.01	0.50	ug/L	5.00		100	70-130	0.601	30	
4-Chlorotoluene	4.82	0.50	ug/L	5.00		96.4	70-130	2.31	30	
Dibromochloromethane	4.14	1.0	ug/L	5.00		82.8	70-130	0.727	30	
Dibromomethane	4.51	0.50	ug/L	5.00		90.2	70-130	0.667	30	
1,2-Dichlorobenzene	4.46	0.50	ug/L	5.00		89.2	70-130	0.224	30	
1,3-Dichlorobenzene	4.89	0.50	ug/L	5.00		97.8	70-130	3.33	30	
1,4-Dichlorobenzene	4.38	0.50	ug/L	5.00		87.6	70-130	0.458	30	
Dichlorodifluoromethane	5.67	0.50	ug/L	5.00		113	70-130	0.708	30	
1,1-Dichloroethane	5.34	0.50	ug/L	5.00		107	70-130	5.78	30	
1,2-Dichloroethane	4.78	0.50	ug/L	5.00		95.6	70-130	10.6	30	
1,1-Dichloroethene	4.89	0.50	ug/L	5.00		97.8	70-130	8.53	30	
trans-1,2-Dichloroethene	5.44	0.50	ug/L	5.00		109	70-130	7.44	30	
cis-1,2-Dichloroethene	5.38	0.50	ug/L	5.00		108	70-130	7.52	30	
1,2-Dichloropropane	4.30	0.50	ug/L	5.00		86.0	70-130	1.88	30	
1,3-Dichloropropane	4.54	0.50	ug/L	5.00		90.8	70-130	0.659	30	
2,2-Dichloropropane	6.03	0.50	ug/L	5.00		121	70-130	17.9	30	
1,1-Dichloropropene	4.83	0.50	ug/L	5.00		96.6	70-130	3.06	30	
cis-1,3-Dichloropropene	4.57	0.50	ug/L	5.00		91.4	70-130	7.96	30	

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Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: [none]

Reported:
09/17/21 10:32

Volatile Organic Compounds by EPA Method 524.2 - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch AI13372 - VOAs in Water GCMS										
LCS Dup (AI13372-BSD1)				Prepared: 09/07/21 Analyzed: 09/08/21						
trans-1,3-Dichloropropene	4.41	0.50	ug/L	5.00		88.2	70-130	3.70	30	
Ethylbenzene	4.79	0.50	ug/L	5.00		95.8	70-130	1.05	30	
Hexachlorobutadiene	4.20	0.50	ug/L	5.00		84.0	70-130	0.712	30	
Isopropylbenzene	5.15	0.50	ug/L	5.00		103	70-130	1.37	30	
p-Isopropyltoluene	5.13	0.50	ug/L	5.00		103	70-130	2.57	30	
Methyl ethyl ketone	10.4	5.0	ug/L	10.0		104	70-130	8.94	30	
Methyl tert-butyl ether	5.64	3.0	ug/L	5.00		113	70-130	14.2	30	
Methyl isobutyl ketone	9.18	5.0	ug/L	10.0		91.8	70-130	2.20	30	
Methylene chloride	6.22	0.50	ug/L	5.00		124	70-130	8.03	30	
Naphthalene	4.33	0.50	ug/L	5.00		86.6	70-130	1.86	30	
n-Propylbenzene	5.03	0.50	ug/L	5.00		101	70-130	2.62	30	
Styrene	4.61	0.50	ug/L	5.00		92.2	70-130	1.97	30	
1,1,1,2-Tetrachloroethane	4.60	0.50	ug/L	5.00		92.0	70-130	3.54	30	
1,1,2,2-Tetrachloroethane	4.79	0.50	ug/L	5.00		95.8	70-130	1.47	30	
Tetrachloroethene	4.35	0.50	ug/L	5.00		87.0	70-130	0.459	30	
Toluene	4.81	0.50	ug/L	5.00		96.2	70-130	1.26	30	
1,2,3-Trichlorobenzene	4.31	0.50	ug/L	5.00		86.2	70-130	1.17	30	
1,2,4-Trichlorobenzene	4.21	0.50	ug/L	5.00		84.2	70-130	1.44	30	
1,1,1-Trichloroethane	5.15	0.50	ug/L	5.00		103	70-130	4.16	30	
1,1,2-Trichloroethane	4.53	0.50	ug/L	5.00		90.6	70-130	0.664	30	
Trichloroethene	4.69	0.50	ug/L	5.00		93.8	70-130	0.426	30	
Trichlorofluoromethane	5.39	5.0	ug/L	5.00		108	70-130	2.06	30	
Trichlorotrifluoroethane	6.12	10	ug/L	5.00		122	70-130	8.70	30	
1,2,4-Trimethylbenzene	5.14	0.50	ug/L	5.00		103	70-130	3.56	30	
1,3,5-Trimethylbenzene	4.94	0.50	ug/L	5.00		98.8	70-130	0.813	30	
Vinyl chloride	3.58	0.50	ug/L	5.00		71.6	70-130	11.1	30	
m,p-Xylene	9.74	0.50	ug/L	10.0		97.4	70-130	3.02	30	
o-Xylene	4.95	0.50	ug/L	5.00		99.0	70-130	2.45	30	
Xylenes (total)	14.7	0.50	ug/L	15.0		97.9	70-130	2.83	30	
Surrogate: Bromofluorobenzene	26.6		ug/L	25.0		107	70-130			
Surrogate: Dibromofluoromethane	28.0		ug/L	25.0		112	70-130			
Surrogate: Toluene-d8	25.6		ug/L	25.0		102	70-130			

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Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: [none]

Reported:
09/17/21 10:32

Volatile Organic Compounds by EPA Method 524.2 - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch AI13372 - VOAs in Water GCMS										
Matrix Spike (AI13372-MS1)		Source: 21H3773-01		Prepared: 09/07/21		Analyzed: 09/08/21				
Acetone	25.6	5.0	ug/L	20.0	ND	128	70-130			
Acrylonitrile	4.59	5.0	ug/L	5.00	ND	91.8	70-130			
Benzene	5.20	0.50	ug/L	5.00	ND	104	70-130			
Bromobenzene	5.50	0.50	ug/L	5.00	ND	110	70-130			
Bromochloromethane	4.83	0.50	ug/L	5.00	ND	96.6	70-130			
Bromodichloromethane	10.2	1.0	ug/L	5.00	4.46	116	70-130			
Bromoform	8.99	1.0	ug/L	5.00	2.19	136	70-130			QM-05
Bromomethane	3.59	0.50	ug/L	5.00	ND	71.8	70-130			
n-Butylbenzene	5.91	0.50	ug/L	5.00	ND	118	70-130			
sec-Butylbenzene	5.75	0.50	ug/L	5.00	ND	115	70-130			
tert-Butylbenzene	5.60	0.50	ug/L	5.00	ND	112	70-130			
Carbon disulfide	4.85	0.50	ug/L	5.00	ND	97.0	70-130			
Carbon tetrachloride	4.87	0.50	ug/L	5.00	ND	97.4	70-130			
Chlorobenzene	5.33	0.50	ug/L	5.00	ND	107	70-130			
Chloroethane	4.69	0.50	ug/L	5.00	ND	93.8	70-130			
Chloroform	7.83	1.0	ug/L	5.00	3.25	91.6	70-130			
Chloromethane	6.24	0.50	ug/L	5.00	ND	125	70-130			
2-Chlorotoluene	5.53	0.50	ug/L	5.00	ND	111	70-130			
4-Chlorotoluene	5.43	0.50	ug/L	5.00	ND	109	70-130			
Dibromochloromethane	11.3	1.0	ug/L	5.00	4.85	128	70-130			
Dibromomethane	4.76	0.50	ug/L	5.00	ND	95.2	70-130			
1,2-Dichlorobenzene	4.99	0.50	ug/L	5.00	ND	99.8	70-130			
1,3-Dichlorobenzene	5.27	0.50	ug/L	5.00	ND	105	70-130			
1,4-Dichlorobenzene	5.02	0.50	ug/L	5.00	ND	100	70-130			
Dichlorodifluoromethane	6.10	0.50	ug/L	5.00	ND	122	70-130			
1,1-Dichloroethane	4.94	0.50	ug/L	5.00	ND	98.8	70-130			
1,2-Dichloroethane	4.73	0.50	ug/L	5.00	ND	94.6	70-130			
1,1-Dichloroethene	4.50	0.50	ug/L	5.00	ND	90.0	70-130			
cis-1,2-Dichloroethene	4.90	0.50	ug/L	5.00	ND	98.0	70-130			
trans-1,2-Dichloroethene	4.90	0.50	ug/L	5.00	ND	98.0	70-130			
1,2-Dichloropropane	4.83	0.50	ug/L	5.00	ND	96.6	70-130			
1,3-Dichloropropane	5.29	0.50	ug/L	5.00	ND	106	70-130			
2,2-Dichloropropane	6.00	0.50	ug/L	5.00	ND	120	70-130			
1,1-Dichloropropene	5.33	0.50	ug/L	5.00	ND	107	70-130			
cis-1,3-Dichloropropene	4.94	0.50	ug/L	5.00	ND	98.8	70-130			

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Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: [none]

Reported:
09/17/21 10:32

Volatile Organic Compounds by EPA Method 524.2 - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch AI13372 - VOAs in Water GCMS										
Matrix Spike (AI13372-MS1)		Source: 21H3773-01			Prepared: 09/07/21		Analyzed: 09/08/21			
trans-1,3-Dichloropropene	4.31	0.50	ug/L	5.00	ND	86.2	70-130			
Ethylbenzene	5.57	0.50	ug/L	5.00	ND	111	70-130			
Hexachlorobutadiene	5.23	0.50	ug/L	5.00	ND	105	70-130			
Isopropylbenzene	5.63	0.50	ug/L	5.00	ND	113	70-130			
p-Isopropyltoluene	5.66	0.50	ug/L	5.00	ND	113	70-130			
Methyl ethyl ketone	10.9	5.0	ug/L	10.0	ND	109	70-130			
Methyl isobutyl ketone	10.5	5.0	ug/L	10.0	ND	105	70-130			
Methyl tert-butyl ether	3.77	3.0	ug/L	5.00	ND	75.4	70-130			
Methylene chloride	5.18	0.50	ug/L	5.00	ND	104	70-130			
Naphthalene	4.65	0.50	ug/L	5.00	ND	93.0	70-130			
n-Propylbenzene	5.59	0.50	ug/L	5.00	ND	112	70-130			
Styrene	5.51	0.50	ug/L	5.00	ND	110	70-130			
1,1,1,2-Tetrachloroethane	4.83	0.50	ug/L	5.00	ND	96.6	70-130			
1,1,2,2-Tetrachloroethane	4.82	0.50	ug/L	5.00	ND	96.4	70-130			
Tetrachloroethene	5.08	0.50	ug/L	5.00	ND	102	70-130			
Toluene	5.49	0.50	ug/L	5.00	ND	110	70-130			
1,2,3-Trichlorobenzene	4.71	0.50	ug/L	5.00	ND	94.2	70-130			
1,2,4-Trichlorobenzene	4.68	0.50	ug/L	5.00	ND	93.6	70-130			
1,1,1-Trichloroethane	5.21	0.50	ug/L	5.00	ND	104	70-130			
1,1,2-Trichloroethane	5.15	0.50	ug/L	5.00	ND	103	70-130			
Trichloroethene	5.20	0.50	ug/L	5.00	ND	104	70-130			
Trichlorofluoromethane	5.85	5.0	ug/L	5.00	ND	117	70-130			
Trichlorotrifluoroethane	6.06	10	ug/L	5.00	ND	121	70-130			
1,2,4-Trimethylbenzene	5.61	0.50	ug/L	5.00	ND	112	70-130			
1,3,5-Trimethylbenzene	5.49	0.50	ug/L	5.00	ND	110	70-130			
Vinyl chloride	5.13	0.50	ug/L	5.00	ND	103	70-130			
m,p-Xylene	11.4	0.50	ug/L	10.0	ND	114	70-130			
o-Xylene	6.16	0.50	ug/L	5.00	ND	123	70-130			
Xylenes (total)	17.6	0.50	ug/L	15.0	ND	117	70-130			
Surrogate: Bromofluorobenzene	25.8		ug/L	25.0		103	70-130			
Surrogate: Dibromofluoromethane	23.1		ug/L	25.0		92.2	70-130			
Surrogate: Toluene-d8	25.5		ug/L	25.0		102	70-130			

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Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: [none]

Reported:
09/17/21 10:32

Volatile Organic Compounds by EPA Method 524.2 - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch AI13372 - VOAs in Water GCMS										
Matrix Spike Dup (AI13372-MSD1)		Source: 21H3773-01		Prepared: 09/07/21		Analyzed: 09/08/21				
Acetone	15.7	5.0	ug/L	20.0	ND	78.6	70-130	47.7	30	QM-05
Acrylonitrile	3.95	5.0	ug/L	5.00	ND	79.0	70-130	15.0	30	
Benzene	5.23	0.50	ug/L	5.00	ND	105	70-130	0.575	30	
Bromobenzene	5.68	0.50	ug/L	5.00	ND	114	70-130	3.22	30	
Bromochloromethane	4.63	0.50	ug/L	5.00	ND	92.6	70-130	4.23	30	
Bromodichloromethane	10.7	1.0	ug/L	5.00	4.46	125	70-130	4.49	30	
Bromoform	11.4	1.0	ug/L	5.00	2.19	185	70-130	24.1	30	QM-05
Bromomethane	4.42	0.50	ug/L	5.00	ND	88.4	70-130	20.7	30	
n-Butylbenzene	5.93	0.50	ug/L	5.00	ND	119	70-130	0.338	30	
sec-Butylbenzene	5.94	0.50	ug/L	5.00	ND	119	70-130	3.25	30	
tert-Butylbenzene	5.82	0.50	ug/L	5.00	ND	116	70-130	3.85	30	
Carbon disulfide	5.12	0.50	ug/L	5.00	ND	102	70-130	5.42	30	
Carbon tetrachloride	5.16	0.50	ug/L	5.00	ND	103	70-130	5.78	30	
Chlorobenzene	5.37	0.50	ug/L	5.00	ND	107	70-130	0.748	30	
Chloroethane	4.64	0.50	ug/L	5.00	ND	92.8	70-130	1.07	30	
Chloroform	8.03	1.0	ug/L	5.00	3.25	95.6	70-130	2.52	30	
Chloromethane	7.90	0.50	ug/L	5.00	ND	158	70-130	23.5	30	QM-05
2-Chlorotoluene	5.65	0.50	ug/L	5.00	ND	113	70-130	2.15	30	
4-Chlorotoluene	5.36	0.50	ug/L	5.00	ND	107	70-130	1.30	30	
Dibromochloromethane	12.6	1.0	ug/L	5.00	4.85	156	70-130	11.5	30	QM-05
Dibromomethane	4.40	0.50	ug/L	5.00	ND	88.0	70-130	7.86	30	
1,2-Dichlorobenzene	4.96	0.50	ug/L	5.00	ND	99.2	70-130	0.603	30	
1,3-Dichlorobenzene	5.40	0.50	ug/L	5.00	ND	108	70-130	2.44	30	
1,4-Dichlorobenzene	5.00	0.50	ug/L	5.00	ND	100	70-130	0.399	30	
Dichlorodifluoromethane	6.32	0.50	ug/L	5.00	ND	126	70-130	3.54	30	
1,1-Dichloroethane	5.12	0.50	ug/L	5.00	ND	102	70-130	3.58	30	
1,2-Dichloroethane	4.23	0.50	ug/L	5.00	ND	84.6	70-130	11.2	30	
1,1-Dichloroethene	4.73	0.50	ug/L	5.00	ND	94.6	70-130	4.98	30	
trans-1,2-Dichloroethene	5.03	0.50	ug/L	5.00	ND	101	70-130	2.62	30	
cis-1,2-Dichloroethene	4.83	0.50	ug/L	5.00	ND	96.6	70-130	1.44	30	
1,2-Dichloropropane	4.78	0.50	ug/L	5.00	ND	95.6	70-130	1.04	30	
1,3-Dichloropropane	5.13	0.50	ug/L	5.00	ND	103	70-130	3.07	30	
2,2-Dichloropropane	6.27	0.50	ug/L	5.00	ND	125	70-130	4.40	30	
1,1-Dichloropropene	5.50	0.50	ug/L	5.00	ND	110	70-130	3.14	30	
cis-1,3-Dichloropropene	5.25	0.50	ug/L	5.00	ND	105	70-130	6.08	30	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



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Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: [none]

Reported:
09/17/21 10:32

Volatile Organic Compounds by EPA Method 524.2 - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch AI13372 - VOAs in Water GCMS										
Matrix Spike Dup (AI13372-MSD1)		Source: 21H3773-01		Prepared: 09/07/21		Analyzed: 09/08/21				
trans-1,3-Dichloropropene	4.34	0.50	ug/L	5.00	ND	86.8	70-130	0.694	30	
Ethylbenzene	5.69	0.50	ug/L	5.00	ND	114	70-130	2.13	30	
Hexachlorobutadiene	5.22	0.50	ug/L	5.00	ND	104	70-130	0.191	30	
Isopropylbenzene	5.83	0.50	ug/L	5.00	ND	117	70-130	3.49	30	
p-Isopropyltoluene	5.91	0.50	ug/L	5.00	ND	118	70-130	4.32	30	
Methyl ethyl ketone	9.57	5.0	ug/L	10.0	ND	95.7	70-130	13.4	30	
Methyl tert-butyl ether	3.70	3.0	ug/L	5.00	ND	74.0	70-130	1.87	30	
Methyl isobutyl ketone	9.05	5.0	ug/L	10.0	ND	90.5	70-130	14.5	30	
Methylene chloride	4.42	0.50	ug/L	5.00	ND	88.4	70-130	15.8	30	
Naphthalene	4.54	0.50	ug/L	5.00	ND	90.8	70-130	2.39	30	
n-Propylbenzene	5.83	0.50	ug/L	5.00	ND	117	70-130	4.20	30	
Styrene	5.58	0.50	ug/L	5.00	ND	112	70-130	1.26	30	
1,1,1,2-Tetrachloroethane	4.81	0.50	ug/L	5.00	ND	96.2	70-130	0.415	30	
1,1,2,2-Tetrachloroethane	4.65	0.50	ug/L	5.00	ND	93.0	70-130	3.59	30	
Tetrachloroethene	5.12	0.50	ug/L	5.00	ND	102	70-130	0.784	30	
Toluene	5.50	0.50	ug/L	5.00	ND	110	70-130	0.182	30	
1,2,3-Trichlorobenzene	4.72	0.50	ug/L	5.00	ND	94.4	70-130	0.212	30	
1,2,4-Trichlorobenzene	4.68	0.50	ug/L	5.00	ND	93.6	70-130	0.00	30	
1,1,1-Trichloroethane	5.23	0.50	ug/L	5.00	ND	105	70-130	0.383	30	
1,1,2-Trichloroethane	4.82	0.50	ug/L	5.00	ND	96.4	70-130	6.62	30	
Trichloroethene	5.27	0.50	ug/L	5.00	ND	105	70-130	1.34	30	
Trichlorofluoromethane	6.27	5.0	ug/L	5.00	ND	125	70-130	6.93	30	
Trichlorotrifluoroethane	6.46	10	ug/L	5.00	ND	129	70-130	6.39	30	
1,2,4-Trimethylbenzene	5.84	0.50	ug/L	5.00	ND	117	70-130	4.02	30	
1,3,5-Trimethylbenzene	5.68	0.50	ug/L	5.00	ND	114	70-130	3.40	30	
Vinyl chloride	4.97	0.50	ug/L	5.00	ND	99.4	70-130	3.17	30	
m,p-Xylene	11.7	0.50	ug/L	10.0	ND	117	70-130	2.42	30	
o-Xylene	6.34	0.50	ug/L	5.00	ND	127	70-130	2.88	30	
Xylenes (total)	18.0	0.50	ug/L	15.0	ND	120	70-130	2.58	30	
Surrogate: Bromofluorobenzene	26.2		ug/L	25.0		105	70-130			
Surrogate: Dibromofluoromethane	23.0		ug/L	25.0		92.0	70-130			
Surrogate: Toluene-d8	25.2		ug/L	25.0		101	70-130			

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Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: [none]

Reported:
09/17/21 10:32

Notes and Definitions

- QM-01 The spike recovery for this QC sample is outside of established control limits possibly due to a sample matrix interference.
- QM-05 The spike recovery was outside acceptance limits for the MS and/or MSD due to matrix interference. The LCS and/or LCSD were within acceptance limits showing that the laboratory is in control and the data is acceptable.
- QM-07 The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.
- R-01 The Reporting Limit for this analyte has been raised to account for matrix interference.
- ND Analyte NOT DETECTED at or above the reporting limit
- dry Sample results reported on a dry weight basis
- REC Recovery
- RPD Relative Percent Difference

[illegible]

21H3513

Alpha Analytical Laboratories Ukiah to North Bay Chain of Custody

Client: Todd Groundwater

Client Code: DP_TODENG

Bid: Round 3 ASR Water Quality

Project: Round 3 ASR Water Quality Baseline

Project Number: [none]

PO #:

Date Due: 09/13/21 15:00 (10 day TAT)

Received By: James Bixler

Date Received: 08/26/21 22:15

Logged In By: Sean Foley

Date Logged: 08/27/21 08:49

Samples Received at: _____ deg C

All containers received and intact: YES NO

Analysis**Department****Expires****Comments****21H3513-01 12-5-23A20 [Water] Sampled 08/26/21 09:30**NB Silica as SiO₂ ICP 200.7

NB Metals

02/22/22 09:30

Containers Supplied:250mL Poly HNO₃ (C)

Relinquished By

Date

Time

Received By

Date

Time

Relinquished By

Date

Time

Received By

Date

Time



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17 September 2021

Todd Groundwater

Attn: Nicole Grimm

2490 Mariner Square Loop, Suite 215

Alameda, CA 94501

RE: Round 3 ASR Water Quality Baseline

Work Order: 21I1311

Enclosed are the results of analyses for samples received by the laboratory on 09/10/21 10:20. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Jeanette L. Poplin For David S. Pingatore
Project Manager



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Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: [none]

Reported:
09/17/21 14:14

Bay Area: 262 Rickenbacker Circle | Livermore, CA 94551 | T: 925-828-6226 | F: 925-828-6309 | ELAP# 2728
Central Valley: 9090 Union Park Way Suite 113 | Elk Grove, CA 95624 | T: 916-686-5190 | F: 916-686-5192 | ELAP# 2922
North Bay: 110 Liberty Street | Petaluma, CA 94952 | T: 707-769-3128 | F: 707-769-8093 | ELAP# 2303
San Diego: 2722 Loker Avenue West Suite A | Carlsbad, CA 92010 | T: 760-930-2555 | F: 760-930-2510 | ELAP# 3055

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
13-5-10L1 (Ref 21H2826-01)	21H1311-01	Water	08/19/21 08:30	09/10/21 10:20
3121 (Ref 21H2633-01)	21H1311-02	Water	08/18/21 09:10	09/10/21 10:20
12-5-23A20 (Ref 21H2633-02)	21H1311-03	Water	08/18/21 09:55	09/10/21 10:20
3357 (Ref 21H2633-03)	21H1311-04	Water	08/18/21 10:30	09/10/21 10:20
3123 (Ref 21H2633-04)	21H1311-05	Water	08/18/21 11:50	09/10/21 10:20
3127 (Ref 21H2633-05)	21H1311-06	Water	08/18/21 12:25	09/10/21 10:20
Hollister #2 (Ref 21H2633-06)	21H1311-07	Water	08/18/21 13:15	09/10/21 10:20

Received date indicates date additional analyses requested. Actual received date was 8/19/21@ 22:00 (21H5826), Rec 8/18/21 @ 22:15 (21H2633)



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Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: [none]

Reported:
09/17/21 14:14

	Result	Reporting Limit	Dilution	Batch	Prepared	Analyzed	ELAP#	Method	Note
13-5-10L1 (Ref 21H2826-01) (21I1311-01)									
		Sample Type: Water			Sampled: 08/19/21 08:30				
Metals by EPA 200 Series Methods									
Calcium	73 mg/L	0.050	1	AI13785	09/15/21 10:33	09/17/21 13:05	2303	EPA 200.7	
Magnesium	88 mg/L	0.050	1	AI13785	09/15/21 10:33	09/17/21 13:05	2303	EPA 200.7	
Conventional Chemistry Parameters by APHA/EPA Methods									
Hardness, Total	542 mg/L	1	1	AI13785	09/15/21 10:33	09/17/21 13:05	2303	SM2340B	
3121 (Ref 21H2633-01) (21I1311-02)									
		Sample Type: Water			Sampled: 08/18/21 09:10				
Metals by EPA 200 Series Methods									
Calcium	47 mg/L	0.050	1	AI13785	09/15/21 10:33	09/17/21 13:05	2303	EPA 200.7	
Magnesium	53 mg/L	0.050	1	AI13785	09/15/21 10:33	09/17/21 13:05	2303	EPA 200.7	
Conventional Chemistry Parameters by APHA/EPA Methods									
Hardness, Total	336 mg/L	1	1	AI13785	09/15/21 10:33	09/17/21 13:05	2303	SM2340B	
12-5-23A20 (Ref 21H2633-02) (21I1311-03)									
		Sample Type: Water			Sampled: 08/18/21 09:55				
Metals by EPA 200 Series Methods									
Calcium	33 mg/L	0.050	1	AI13785	09/15/21 10:33	09/17/21 13:05	2303	EPA 200.7	
Magnesium	46 mg/L	0.050	1	AI13785	09/15/21 10:33	09/17/21 13:05	2303	EPA 200.7	
Conventional Chemistry Parameters by APHA/EPA Methods									
Hardness, Total	271 mg/L	1	1	AI13785	09/15/21 10:33	09/17/21 13:05	2303	SM2340B	
3357 (Ref 21H2633-03) (21I1311-04)									
		Sample Type: Water			Sampled: 08/18/21 10:30				
Metals by EPA 200 Series Methods									
Calcium	39 mg/L	0.050	1	AI13785	09/15/21 10:33	09/17/21 13:05	2303	EPA 200.7	
Magnesium	39 mg/L	0.050	1	AI13785	09/15/21 10:33	09/17/21 13:05	2303	EPA 200.7	



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Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: [none]

Reported:
09/17/21 14:14

	Result	Reporting Limit	Dilution	Batch	Prepared	Analyzed	ELAP#	Method	Note
3357 (Ref 21H2633-03) (21I1311-04)									
		Sample Type: Water			Sampled: 08/18/21 10:30				
Conventional Chemistry Parameters by APHA/EPA Methods									
Hardness, Total	259 mg/L	1	1	AI13785	09/15/21 10:33	09/17/21 13:05	2303	SM2340B	
3123 (Ref 21H2633-04) (21I1311-05)									
		Sample Type: Water			Sampled: 08/18/21 11:50				
Metals by EPA 200 Series Methods									
Calcium	42 mg/L	0.050	1	AI13785	09/15/21 10:33	09/17/21 13:05	2303	EPA 200.7	
Magnesium	25 mg/L	0.050	1	AI13785	09/15/21 10:33	09/17/21 13:05	2303	EPA 200.7	
Conventional Chemistry Parameters by APHA/EPA Methods									
Hardness, Total	209 mg/L	1	1	AI13785	09/15/21 10:33	09/17/21 13:05	2303	SM2340B	
3127 (Ref 21H2633-05) (21I1311-06)									
		Sample Type: Water			Sampled: 08/18/21 12:25				
Metals by EPA 200 Series Methods									
Calcium	41 mg/L	0.050	1	AI13785	09/15/21 10:33	09/17/21 13:05	2303	EPA 200.7	
Magnesium	48 mg/L	0.050	1	AI13785	09/15/21 10:33	09/17/21 13:05	2303	EPA 200.7	
Conventional Chemistry Parameters by APHA/EPA Methods									
Hardness, Total	300 mg/L	1	1	AI13785	09/15/21 10:33	09/17/21 13:05	2303	SM2340B	
Hollister #2 (Ref 21H2633-06) (21I1311-07)									
		Sample Type: Water			Sampled: 08/18/21 13:15				
Metals by EPA 200 Series Methods									
Calcium	64 mg/L	0.050	1	AI13785	09/15/21 10:33	09/17/21 13:05	2303	EPA 200.7	
Magnesium	76 mg/L	0.050	1	AI13785	09/15/21 10:33	09/17/21 13:05	2303	EPA 200.7	



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Todd Groundwater 2490 Mariner Square Loop, Suite 215 Alameda, CA 94501	Project Manager: Nicole Grimm Project: Round 3 ASR Water Quality Baseline Project Number: [none]	Reported: 09/17/21 14:14
--	--	-----------------------------

	Result	Reporting Limit	Dilution	Batch	Prepared	Analyzed	ELAP#	Method	Note
Hollister #2 (Ref 21H2633-06) (21I1311-07)		Sample Type: Water			Sampled: 08/18/21 13:15				
Conventional Chemistry Parameters by APHA/EPA Methods									
Hardness, Total	473 mg/L	1	1	AI13785	09/15/21 10:33	09/17/21 13:05	2303	SM2340B	



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Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: [none]

Reported:
09/17/21 14:14

Metals by EPA 200 Series Methods - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Flag
Batch AI13785 - NB EPA 200 series									
Blank (AI13785-BLK1)				Prepared: 09/15/21 Analyzed: 09/17/21					
Calcium	ND	0.050	mg/L						
Magnesium	ND	0.050	mg/L						
LCS (AI13785-BS1)				Prepared: 09/15/21 Analyzed: 09/17/21					
Calcium	23.2	0.050	mg/L	25.5		91.0 85-115			
Magnesium	23.3	0.050	mg/L	25.5		91.3 85-115			
LCS Dup (AI13785-BSD1)				Prepared: 09/15/21 Analyzed: 09/17/21					
Calcium	22.9	0.050	mg/L	25.5		90.0 85-115	1.15	20	
Magnesium	23.0	0.050	mg/L	25.5		90.1 85-115	1.31	20	
Duplicate (AI13785-DUP1)				Source: 21I1311-03		Prepared: 09/15/21 Analyzed: 09/17/21			
Calcium	34.8	0.050	mg/L		33.1		5.01	20	
Magnesium	47.9	0.050	mg/L		45.7		4.68	20	



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Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: [none]

Reported:
09/17/21 14:14

Conventional Chemistry Parameters by APHA/EPA Methods - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch AI13785 - NB EPA 200 series										
Blank (AI13785-BLK1)				Prepared: 09/15/21 Analyzed: 09/17/21						
Hardness, Total	ND	1	mg/L							
Duplicate (AI13785-DUP1)				Source: 2111311-03 Prepared: 09/15/21 Analyzed: 09/17/21						
Hardness, Total	284	1	mg/L		271			4.78	20	



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Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: [none]

Reported:
09/17/21 14:14

Notes and Definitions

ND Analyte NOT DETECTED at or above the reporting limit
dry Sample results reported on a dry weight basis
REC Recovery
RPD Relative Percent Difference

211311

Chain of Custody Record

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262 Rickenbacker Circle, Livermore CA 9

Central Valley Laboratory (2922) 916-686-5190
9090 Union Park Way #113, Elk Grove CA 95624

**Corporate Laboratory (1551) 707-468-0401
208 Mason Street, Ukiah CA 95482**

Los Angeles (Service Center) 310-743-5711
1230 E 233rd St #205, Carson CA 90745

San Diego Laboratory (3055) 760-930-2555
2722 Loker Ave West, Ste A, Carlsbad CA



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WATERS: SEDIMENTS, SOLIDS

[illegible]

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1230 E 233rd St #205 Carson CA 90745

San Diego Laboratory (3055) 760-930-2555

Alpha Analytical Laboratories Inc.
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Report to		Invoice to (if different)		Project Info	
Company:	Contact:	Project Name:	Project Number:	PO Number:	Frequency:
Todd Groundwater		Round 3 ASR Water Quality Baseline			
Attn:	Email Address:				
Nicole Grinn					
Phone:					
610-747-6920					
Physical Address:		2490 Mariner Square Loop, Suite 215, Alameda CA 94601			
Email address:		ngrimm@oddgroundwater.com			
Field Sampler - Printed Name and Signature:		Nicole Grinn			
Sample Identification	Time	Date	Container	Preservation	Matrix
3121	9:10	8/15/21	40mL vial		
			Glass bottle		
			Poly bottle		
			Glass jar		
			Other		
			Na2S2O3		
			HCl		
			HNO3		
			Other		
			None		
			Drinking Water		
			Wastewater		
			Soil		
			Other		
Total Number of Containers per Sample ID		BAL - TC/EC GW 30hr Quantity	BAL - Color and Turbidity	NB - Perchlorate	HAAS
1	x				
1	x				
1	x				
1	x				
3					
1					
1					
Additional Requirements		Date: 8/18/21			
State System No:		CA DDW Write-On EDT			
Facility Global ID No:		8/18/21			
Sampling Company Log Code:		2215			
Relinquished by:		Received by:			
Time		Time			
1605		1700			
2215		2215			



WATERS, SEDIMENTS, SOLIDS

WATERS, SEDIMENTS, SOLIDS

**Los Angeles (Service Center) 310-743-5711
1230 E 233rd St #205, Carson CA 90745**

San Diego Laboratory (305) 760-930-2555
2722 Loker Ave West, Ste A, Carlsbad CA

Bay Area Laboratory (2728) 925-828-8228
262 Rickenbacker Circle, Livermore CA 9

Central Valley Laboratory (2922) 916-686-5190
9080 Union Park Way #113 Elk Grove CA 95624

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Lab No.

CA 95624

9090 Union Park Way #113, Elk Grove CA 95624

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2722 Jucker Ave West, Ste A, Carlsbad CA

2722 Ticker Ave West, Ste A, Carlsbad CA 92010

North Bay Laboratory (2303) 707-769-3128
110 Liberty Street, Petaluma CA 94952

1110 Liberty Street, Petaluma CA 94952

Bay Area Laboratory (2728) 925-828-6226

262 Rickenbacker Circle, Livermore CA 94551

Central Valley Laboratory (2922) 916-8888-5140

Central Valley Laboratory (2922) 916-686-5190
9090 Union Park Way #113, Elk Grove CA 95624

Chain

Reports and Invoices delivered.

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Lab No.

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9090 Union Park Way

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A, Canha

West, St.

er Ave

2722 14

2

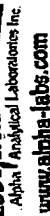
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EDITOR

WATERS,

1000-0000

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Fw: Todd Groundwater / edits to three reports

SM

Stephen McWeeney

Fri 9/10/2021 10:03 AM

To: Cade Burkhammer

👍 ↶ ⏮ ➜ ...

From: Sean Foley <sfoley@alpha-labs.com>
Sent: Friday, September 10, 2021 9:54 AM
To: Stephen McWeeney <stephen@alpha-labs.com>
Cc: David Pingatore <david@alpha-labs.com>
Subject: FW: Todd Groundwater / edits to three reports

Hi Stephen,

Please scan in email below.

Thanks

From: David Pingatore
Sent: Thursday, September 09, 2021 3:08 PM
To: Sean Foley <sfoley@alpha-labs.com>; Chelsea Sandelin <chelsea@alpha-labs.com>; Jeanette Poplin <jpoplin@alpha-labs.com>
Cc: Nicole Grimm <ng Grimm@toddgroundwater.com>
Subject: Todd Groundwater / edits to three reports
Importance: High

Please create a new work order for the samples on 21H2633 and 21H2826, running Total Hardness. This can be placed on a 5-day TAT, plus surcharge.

Thanks,
David

Reply | Forward



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24 September 2021

Todd Groundwater

Attn: Nicole Grimm

2490 Mariner Square Loop, Suite 215

Alameda, CA 94501

RE: Round 3 ASR Water Quality Baseline

Work Order: 21H2617

Enclosed are the results of analyses for samples received by the laboratory on 08/18/21 22:15. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Jeanette L. Poplin For David S. Pingatore
Project Manager



Alpha Analytical Laboratories, Inc. email: clientservices@alpha-labs.com
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Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: Round 3 ASR Water Quality Baseline

Reported:
09/24/21 14:03

Bay Area: 262 Rickenbacker Circle | Livermore, CA 94551 | T: 925-828-6226 | F: 925-828-6309 | ELAP# 2728
Central Valley: 9090 Union Park Way Suite 113 | Elk Grove, CA 95624 | T: 916-686-5190 | F: 916-686-5192 | ELAP# 2922
North Bay: 110 Liberty Street | Petaluma, CA 94952 | T: 707-769-3128 | F: 707-769-8093 | ELAP# 2303
San Diego: 2722 Loker Avenue West Suite A | Carlsbad, CA 92010 | T: 760-930-2555 | F: 760-930-2510 | ELAP# 3055

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
3121	21H2617-01	Water	08/18/21 08:38	08/18/21 22:15



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Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: Round 3 ASR Water Quality Baseline

Reported:
09/24/21 14:03

	Result	Reporting Limit	Dilution	Batch	Prepared	Analyzed	ELAP#	Method	Note
3121 (21H2617-01)									
Sample Type: Water									
Sampled: 08/18/21 08:38									
Metals by EPA 200 Series Methods									
Silica (SiO ₂)	18 mg/L	1.0	1	AH13078	09/01/21 11:47	09/03/21 15:15	2303	EPA 200.7	
Calcium	52 mg/L	1.0	1	AH14695	08/31/21 08:57	09/03/21 18:06	1551	EPA 200.7	
Chromium, hexavalent	11 ug/L	1.0	1	AH14395	08/23/21 15:19	08/24/21 00:46	1551	EPA 218.6	
Magnesium	59 mg/L	1.0	1	AH14695	08/31/21 08:57	09/03/21 18:06	1551	EPA 200.7	
Metals by EPA Method 200.8 ICP/MS									
Cobalt	ND ug/L	0.40	4	AH14675	08/27/21 13:50	08/30/21 17:01	1551	EPA 200.8	R-01
Uranium	2.9 pCi/l	1.0	4	AH14675	08/27/21 13:50	08/30/21 17:01	1551	EPA 200.8	
Conventional Chemistry Parameters by APHA/EPA Methods									
Ammonia as NH ₃	ND mg/L	0.50	1	AH13121	09/07/21 09:30	09/07/21 16:30	1551	SM4500NH3B,C	
Hardness, Total	374 mg/L	5	1	AH14695	08/31/21 08:57	09/03/21 18:06	1551	SM2340B	
Phosphorus, total	0.079 mg/L	0.040	1	AH14650	08/27/21 10:18	08/27/21 16:20	1551	SM4500-P E	
Total Organic Carbon	ND mg/L	1.00	1	AH14594	08/31/21 14:40	09/01/21 00:45	1551	SM5310C	
Volatile Organic Compounds by EPA Method 524.2									
Acetone	ND ug/L	5.0	1	AH14583	08/26/21 12:00	08/26/21 15:32	1551	EPA 524.2	
Acrylonitrile	ND ug/L	5.0	1	AH14583	08/26/21 12:00	08/26/21 15:32	1551	EPA 524.2	
Benzene	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 15:32	1551	EPA 524.2	
Bromobenzene	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 15:32	1551	EPA 524.2	
Bromochloromethane	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 15:32	1551	EPA 524.2	
Bromodichloromethane	ND ug/L	1.0	1	AH14583	08/26/21 12:00	08/26/21 15:32	1551	EPA 524.2	
Bromoform	ND ug/L	1.0	1	AH14583	08/26/21 12:00	08/26/21 15:32	1551	EPA 524.2	
Bromomethane	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 15:32	1551	EPA 524.2	
n-Butylbenzene	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 15:32	1551	EPA 524.2	
sec-Butylbenzene	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 15:32	1551	EPA 524.2	
tert-Butylbenzene	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 15:32	1551	EPA 524.2	
Carbon disulfide	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 15:32	1551	EPA 524.2	
Carbon tetrachloride	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 15:32	1551	EPA 524.2	
Chlorobenzene	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 15:32	1551	EPA 524.2	
Chloroethane	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 15:32	1551	EPA 524.2	
Chloroform	ND ug/L	1.0	1	AH14583	08/26/21 12:00	08/26/21 15:32	1551	EPA 524.2	
Chloromethane	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 15:32	1551	EPA 524.2	
2-Chlorotoluene	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 15:32	1551	EPA 524.2	
4-Chlorotoluene	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 15:32	1551	EPA 524.2	
Dibromochloromethane	ND ug/L	1.0	1	AH14583	08/26/21 12:00	08/26/21 15:32	1551	EPA 524.2	
Dibromomethane	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 15:32	1551	EPA 524.2	
1,2-Dichlorobenzene	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 15:32	1551	EPA 524.2	
1,3-Dichlorobenzene	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 15:32	1551	EPA 524.2	
1,4-Dichlorobenzene	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 15:32	1551	EPA 524.2	
Dichlorodifluoromethane	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 15:32	1551	EPA 524.2	
1,1-Dichloroethane	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 15:32	1551	EPA 524.2	
1,2-Dichloroethane	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 15:32	1551	EPA 524.2	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



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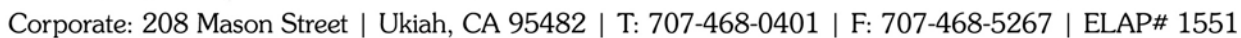
Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: Round 3 ASR Water Quality Baseline

Reported:
09/24/21 14:03

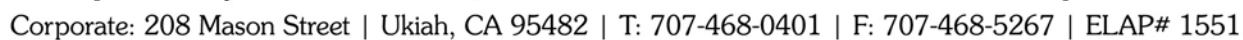
	Result	Reporting Limit	Dilution	Batch	Prepared	Analyzed	ELAP#	Method	Note
3121 (21H2617-01)									
		Sample Type: Water			Sampled: 08/18/21 08:38				
Volatile Organic Compounds by EPA Method 524.2 (cont'd)									
1,1-Dichloroethene	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 15:32	1551	EPA 524.2	
cis-1,2-Dichloroethene	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 15:32	1551	EPA 524.2	
trans-1,2-Dichloroethene	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 15:32	1551	EPA 524.2	
1,3-Dichloropropene (total)	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 15:32	1551	EPA 524.2	
1,2-Dichloropropane	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 15:32	1551	EPA 524.2	
1,3-Dichloropropane	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 15:32	1551	EPA 524.2	
2,2-Dichloropropane	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 15:32	1551	EPA 524.2	
1,1-Dichloropropene	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 15:32	1551	EPA 524.2	
cis-1,3-Dichloropropene	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 15:32	1551	EPA 524.2	
trans-1,3-Dichloropropene	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 15:32	1551	EPA 524.2	
Ethylbenzene	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 15:32	1551	EPA 524.2	
Hexachlorobutadiene	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 15:32	1551	EPA 524.2	
Isopropylbenzene	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 15:32	1551	EPA 524.2	
p-Isopropyltoluene	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 15:32	1551	EPA 524.2	
Methyl ethyl ketone	ND ug/L	5.0	1	AH14583	08/26/21 12:00	08/26/21 15:32	1551	EPA 524.2	
Methyl isobutyl ketone	ND ug/L	5.0	1	AH14583	08/26/21 12:00	08/26/21 15:32	1551	EPA 524.2	
Methyl tert-butyl ether	ND ug/L	3.0	1	AH14583	08/26/21 12:00	08/26/21 15:32	1551	EPA 524.2	
Methylene chloride	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 15:32	1551	EPA 524.2	
Naphthalene	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 15:32	1551	EPA 524.2	
n-Propylbenzene	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 15:32	1551	EPA 524.2	
Styrene	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 15:32	1551	EPA 524.2	
1,1,1,2-Tetrachloroethane	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 15:32	1551	EPA 524.2	
1,1,2,2-Tetrachloroethane	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 15:32	1551	EPA 524.2	
Tetrachloroethene	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 15:32	1551	EPA 524.2	
Toluene	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 15:32	1551	EPA 524.2	
1,2,3-Trichlorobenzene	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 15:32	1551	EPA 524.2	
1,2,4-Trichlorobenzene	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 15:32	1551	EPA 524.2	
1,1,1-Trichloroethane	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 15:32	1551	EPA 524.2	
1,1,2-Trichloroethane	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 15:32	1551	EPA 524.2	
Trichloroethene	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 15:32	1551	EPA 524.2	
Trichlorofluoromethane	ND ug/L	5.0	1	AH14583	08/26/21 12:00	08/26/21 15:32	1551	EPA 524.2	
Trichlorotrifluoroethane	ND ug/L	10	1	AH14583	08/26/21 12:00	08/26/21 15:32	1551	EPA 524.2	
1,2,4-Trimethylbenzene	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 15:32	1551	EPA 524.2	
1,3,5-Trimethylbenzene	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 15:32	1551	EPA 524.2	
Vinyl chloride	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 15:32	1551	EPA 524.2	
m,p-Xylene	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 15:32	1551	EPA 524.2	
o-Xylene	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 15:32	1551	EPA 524.2	
Xylenes (total)	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 15:32	1551	EPA 524.2	
Trihalomethanes (total)	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 15:32	1551	EPA 524.2	
Surrogate: Bromofluorobenzene	110 %	70-130		AH14583	08/26/21 12:00	08/26/21 15:32	1551	EPA 524.2	

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Reported:
09/24/21 14:03

Page 4 of 22



Reported:
09/24/21 14:03

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Todd Groundwater	Project Manager: Nicole Grimm	Reported:
2490 Mariner Square Loop, Suite 215	Project: Round 3 ASR Water Quality Baseline	09/24/21 14:03
Alameda, CA 94501	Project Number: Round 3 ASR Water Quality Baseline	

	Result	Reporting Limit	Dilution	Batch	Prepared	Analyzed	ELAP#	Method	Note
[REDACTED]									
[REDACTED]									
[REDACTED]									
[REDACTED]									
[REDACTED]									
[REDACTED]									
[REDACTED]									
[REDACTED]									
[REDACTED]									
[REDACTED]									

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Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: Round 3 ASR Water Quality Baseline

Reported:
09/24/21 14:03

Metals by EPA 200 Series Methods - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch AH14395 - General Prep										
Blank (AH14395-BLK1)				Prepared & Analyzed: 08/23/21						
Chromium, hexavalent	ND	1.0	ug/L							
LCS (AH14395-BS1)				Prepared & Analyzed: 08/23/21						
Chromium, hexavalent	9.27	1.0	ug/L	10.0		92.7	90-110			
Duplicate (AH14395-DUP1)				Source: 21H2604-01		Prepared & Analyzed: 08/23/21				
Chromium, hexavalent	1.96	1.0	ug/L		2.00			2.07	20	
Matrix Spike (AH14395-MS1)				Source: 21H2604-01		Prepared & Analyzed: 08/23/21				
Chromium, hexavalent	10.9	1.0	ug/L	10.0	2.00	88.6	90-110			QM-07
Matrix Spike Dup (AH14395-MSD1)				Source: 21H2604-01		Prepared & Analyzed: 08/23/21				
Chromium, hexavalent	10.8	1.0	ug/L	10.0	2.00	87.7	90-110	0.804	20	QM-07
Batch AH14695 - Metals Digest										
Blank (AH14695-BLK1)				Prepared: 08/31/21 Analyzed: 09/03/21						
Calcium	ND	1.0	mg/L							
Magnesium	ND	1.0	mg/L							
LCS (AH14695-BS1)				Prepared: 08/31/21 Analyzed: 09/03/21						
Calcium	8.45	1.0	mg/L	8.00		106	85-115			
Magnesium	8.88	1.0	mg/L	8.00		111	85-115			
Duplicate (AH14695-DUP1)				Source: 21H2640-04		Prepared: 08/31/21 Analyzed: 09/03/21				
Calcium	5.03	1.0	mg/L		5.06			0.681	20	
Magnesium	1.08	1.0	mg/L		1.09			0.428	20	



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Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: Round 3 ASR Water Quality Baseline

Reported:
09/24/21 14:03

Metals by EPA 200 Series Methods - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch AH14695 - Metals Digest										
Matrix Spike (AH14695-MS1)		Source: 21H2640-04		Prepared: 08/31/21		Analyzed: 09/03/21				
Calcium	13.5	1.0	mg/L	8.00	5.06	106	70-130			
Magnesium	9.94	1.0	mg/L	8.00	1.09	111	70-130			
Matrix Spike (AH14695-MS2)		Source: 21H2675-03		Prepared: 08/31/21		Analyzed: 09/03/21				
Calcium	14.9	1.0	mg/L	8.00	5.89	112	70-130			
Magnesium	11.6	1.0	mg/L	8.00	2.41	115	70-130			
Matrix Spike Dup (AH14695-MSD1)		Source: 21H2640-04		Prepared: 08/31/21		Analyzed: 09/03/21				
Calcium	13.8	1.0	mg/L	8.00	5.06	109	70-130	1.84	20	
Magnesium	9.83	1.0	mg/L	8.00	1.09	109	70-130	1.10	20	
Batch AI13078 - NB EPA 200 series										
Blank (AI13078-BLK1)				Prepared: 09/01/21		Analyzed: 09/03/21				
Silica (SiO2)	ND	1.0	mg/L							
LCS (AI13078-BS1)				Prepared: 09/01/21		Analyzed: 09/03/21				
Silica (SiO2)	5.13	1.0	mg/L	5.35		95.9	0-200			
LCS Dup (AI13078-BSD1)				Prepared: 09/01/21		Analyzed: 09/03/21				
Silica (SiO2)	5.03	1.0	mg/L	5.35		94.0	0-200	1.90	200	
Matrix Spike (AI13078-MS1)		Source: 21H2817-01		Prepared: 09/01/21		Analyzed: 09/03/21				
Silica (SiO2)	67.2	1.0	mg/L	5.35	73.9	NR	0-200			QM-07



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Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: Round 3 ASR Water Quality Baseline

Reported:
09/24/21 14:03

Metals by EPA Method 200.8 ICP/MS - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch AH14675 - EPA 200.8										
Blank (AH14675-BLK1)				Prepared: 08/27/21 Analyzed: 08/30/21						
Cobalt	ND	0.10	ug/L							
Uranium	ND	1.0	pCi/l							
LCS (AH14675-BS1)				Prepared: 08/27/21 Analyzed: 08/30/21						
Cobalt	21.4	0.10	ug/L	20.0		107	85-115			
Uranium	13.3	1.0	pCi/l	13.4		99.1	85-115			
Duplicate (AH14675-DUP1)				Source: 21H2261-01		Prepared: 08/27/21 Analyzed: 08/30/21				
Cobalt	ND	0.40	ug/L		ND			16.9	20	R-01
Uranium	ND	1.0	pCi/l		ND				20	
Matrix Spike (AH14675-MS1)				Source: 21H2261-01		Prepared: 08/27/21 Analyzed: 08/30/21				
Cobalt	21.0	0.40	ug/L	20.0	ND	104	70-130			
Uranium	13.3	1.0	pCi/l	13.4	ND	99.3	70-130			
Matrix Spike (AH14675-MS2)				Source: 21H2668-02		Prepared: 08/27/21 Analyzed: 08/30/21				
Cobalt	20.6	0.40	ug/L	20.0	ND	103	70-130			
Uranium	12.9	1.0	pCi/l	13.4	ND	96.1	70-130			
Matrix Spike Dup (AH14675-MSD1)				Source: 21H2261-01		Prepared: 08/27/21 Analyzed: 08/30/21				
Cobalt	20.4	0.40	ug/L	20.0	ND	101	70-130	2.94	20	
Uranium	13.0	1.0	pCi/l	13.4	ND	97.4	70-130	1.94	20	



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Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: Round 3 ASR Water Quality Baseline

Reported:
09/24/21 14:03

Conventional Chemistry Parameters by APHA/EPA Methods - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch AH14594 - General Prep										
Blank (AH14594-BLK1)				Prepared & Analyzed: 08/31/21						
Total Organic Carbon	ND	1.00	mg/L							
LCS (AH14594-BS1)				Prepared & Analyzed: 08/31/21						
Total Organic Carbon	9.27	1.00	mg/L	10.0		92.7	85-115			
LCS Dup (AH14594-BSD1)				Prepared & Analyzed: 08/31/21						
Total Organic Carbon	9.28	1.00	mg/L	10.0		92.8	85-115	0.141	20	
Duplicate (AH14594-DUP1)				Source: 21H2428-02		Prepared & Analyzed: 08/31/21				
Total Organic Carbon	ND	1.00	mg/L		ND			0.838	20	
Matrix Spike (AH14594-MS1)				Source: 21H2428-02		Prepared & Analyzed: 08/31/21				
Total Organic Carbon	10.1	1.00	mg/L	10.0	ND	92.0	70-130			
Matrix Spike Dup (AH14594-MSD1)				Source: 21H2428-02		Prepared & Analyzed: 08/31/21				
Total Organic Carbon	10.2	1.00	mg/L	10.0	ND	93.5	70-130	1.44	20	
Batch AH14650 - General Prep										
Blank (AH14650-BLK1)				Prepared & Analyzed: 08/27/21						
Phosphorus, total	ND	0.040	mg/L							
LCS (AH14650-BS1)				Prepared & Analyzed: 08/27/21						
Phosphorus, total	0.195	0.040	mg/L	0.200		97.5	85-115			
Duplicate (AH14650-DUP1)				Source: 21H2326-01		Prepared & Analyzed: 08/27/21				
Phosphorus, total	ND	0.040	mg/L		ND			2.67	20	

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Todd Groundwater	Project Manager: Nicole Grimm	Reported:
2490 Mariner Square Loop, Suite 215	Project: Round 3 ASR Water Quality Baseline	09/24/21 14:03
Alameda, CA 94501	Project Number: Round 3 ASR Water Quality Baseline	

Conventional Chemistry Parameters by APHA/EPA Methods - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch AH14650 - General Prep										
Matrix Spike (AH14650-MS1)		Source: 21H2326-01		Prepared & Analyzed: 08/27/21						
Phosphorus, total	0.234	0.040	mg/L	0.200	ND	98.0	70-130			
Matrix Spike (AH14650-MS2)		Source: 21H2617-01		Prepared & Analyzed: 08/27/21						
Phosphorus, total	0.268	0.040	mg/L	0.200	0.0790	94.5	70-130			
Matrix Spike Dup (AH14650-MSD1)		Source: 21H2326-01		Prepared & Analyzed: 08/27/21						
Phosphorus, total	0.232	0.040	mg/L	0.200	ND	97.0	70-130	0.858	20	
Batch AH14695 - Metals Digest										
Blank (AH14695-BLK1)		Prepared: 08/31/21 Analyzed: 09/03/21								
Hardness, Total	ND	5	mg/L							
Batch AI13121 - General Preparation										
LCS (AI13121-BS1)		Prepared & Analyzed: 09/07/21								
Ammonia as NH3	6.17	0.50	mg/L	6.10		101	90-110			
LCS Dup (AI13121-BSD1)		Prepared & Analyzed: 09/07/21								
Ammonia as NH3	5.75	0.50	mg/L	6.10		94.2	90-110	7.13	20	
Matrix Spike (AI13121-MS1)		Source: 21H3372-01		Prepared & Analyzed: 09/07/21						
Ammonia as NH3	11.5	0.50	mg/L	12.2	ND	94.2	85-115			
Matrix Spike Dup (AI13121-MSD1)		Source: 21H3372-01		Prepared & Analyzed: 09/07/21						
Ammonia as NH3	11.7	0.50	mg/L	12.2	ND	96.0	85-115	1.84	20	



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Project Number: Round 3 ASR Water Quality Baseline

Reported:
09/24/21 14:03

Volatile Organic Compounds by EPA Method 524.2 - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch AH14583 - VOAs in Water GCMS										
Blank (AH14583-BLK1)				Prepared & Analyzed: 08/26/21						
Acetone	ND	5.0	ug/L							
Acrylonitrile	ND	5.0	ug/L							
Benzene	ND	0.50	ug/L							
Bromobenzene	ND	0.50	ug/L							
Bromochloromethane	ND	0.50	ug/L							
Bromodichloromethane	ND	1.0	ug/L							
Bromoform	ND	1.0	ug/L							
Bromomethane	ND	0.50	ug/L							
n-Butylbenzene	ND	0.50	ug/L							
sec-Butylbenzene	ND	0.50	ug/L							
tert-Butylbenzene	ND	0.50	ug/L							
Carbon disulfide	ND	0.50	ug/L							
Carbon tetrachloride	ND	0.50	ug/L							
Chlorobenzene	ND	0.50	ug/L							
Chloroethane	ND	0.50	ug/L							
Chloroform	ND	1.0	ug/L							
Chloromethane	ND	0.50	ug/L							
2-Chlorotoluene	ND	0.50	ug/L							
4-Chlorotoluene	ND	0.50	ug/L							
Dibromochloromethane	ND	1.0	ug/L							
Dibromomethane	ND	0.50	ug/L							
1,2-Dichlorobenzene	ND	0.50	ug/L							
1,3-Dichlorobenzene	ND	0.50	ug/L							
1,4-Dichlorobenzene	ND	0.50	ug/L							
Dichlorodifluoromethane	ND	0.50	ug/L							
1,1-Dichloroethane	ND	0.50	ug/L							
1,2-Dichloroethane	ND	0.50	ug/L							
1,1-Dichloroethene	ND	0.50	ug/L							
cis-1,2-Dichloroethene	ND	0.50	ug/L							
trans-1,2-Dichloroethene	ND	0.50	ug/L							
1,3-Dichloropropene (total)	ND	0.50	ug/L							
1,2-Dichloropropane	ND	0.50	ug/L							
1,3-Dichloropropane	ND	0.50	ug/L							
2,2-Dichloropropane	ND	0.50	ug/L							
1,1-Dichloropropene	ND	0.50	ug/L							

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Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: Round 3 ASR Water Quality Baseline

Reported:
09/24/21 14:03

Volatile Organic Compounds by EPA Method 524.2 - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch AH14583 - VOAs in Water GCMS										
Blank (AH14583-BLK1)				Prepared & Analyzed: 08/26/21						
cis-1,3-Dichloropropene	ND	0.50	ug/L							
trans-1,3-Dichloropropene	ND	0.50	ug/L							
Ethylbenzene	ND	0.50	ug/L							
Hexachlorobutadiene	ND	0.50	ug/L							
Isopropylbenzene	ND	0.50	ug/L							
p-Isopropyltoluene	ND	0.50	ug/L							
Methyl ethyl ketone	ND	5.0	ug/L							
Methyl tert-butyl ether	ND	3.0	ug/L							
Methyl isobutyl ketone	ND	5.0	ug/L							
Methylene chloride	ND	0.50	ug/L							
Naphthalene	ND	0.50	ug/L							
n-Propylbenzene	ND	0.50	ug/L							
Styrene	ND	0.50	ug/L							
1,1,1,2-Tetrachloroethane	ND	0.50	ug/L							
1,1,2,2-Tetrachloroethane	ND	0.50	ug/L							
Tetrachloroethene	ND	0.50	ug/L							
Toluene	ND	0.50	ug/L							
1,2,3-Trichlorobenzene	ND	0.50	ug/L							
1,2,4-Trichlorobenzene	ND	0.50	ug/L							
1,1,1-Trichloroethane	ND	0.50	ug/L							
1,1,2-Trichloroethane	ND	0.50	ug/L							
Trichloroethene	ND	0.50	ug/L							
Trichlorofluoromethane	ND	5.0	ug/L							
Trichlorotrifluoroethane	ND	10	ug/L							
1,2,4-Trimethylbenzene	ND	0.50	ug/L							
1,3,5-Trimethylbenzene	ND	0.50	ug/L							
Vinyl chloride	ND	0.50	ug/L							
m,p-Xylene	ND	0.50	ug/L							
o-Xylene	ND	0.50	ug/L							
Xylenes (total)	ND	0.50	ug/L							
Trihalomethanes (total)	ND	0.50	ug/L							
Surrogate: Bromofluorobenzene	27.6		ug/L	25.0		110	70-130			
Surrogate: Dibromofluoromethane	24.1		ug/L	25.0		96.6	70-130			
Surrogate: Toluene-d8	26.5		ug/L	25.0		106	70-130			

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Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: Round 3 ASR Water Quality Baseline

Reported:
09/24/21 14:03

Volatile Organic Compounds by EPA Method 524.2 - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch AH14583 - VOAs in Water GCMS										
LCS (AH14583-BS1)				Prepared & Analyzed: 08/26/21						
Acetone	16.3	5.0	ug/L	20.0		81.4	70-130			
Acrylonitrile	4.31	5.0	ug/L	5.00		86.2	70-130			
Benzene	4.24	0.50	ug/L	5.00		84.8	70-130			
Bromobenzene	4.98	0.50	ug/L	5.00		99.6	70-130			
Bromochloromethane	4.71	0.50	ug/L	5.00		94.2	70-130			
Bromodichloromethane	4.33	1.0	ug/L	5.00		86.6	70-130			
Bromoform	4.67	1.0	ug/L	5.00		93.4	70-130			
Bromomethane	3.75	0.50	ug/L	5.00		75.0	70-130			
n-Butylbenzene	4.81	0.50	ug/L	5.00		96.2	70-130			
sec-Butylbenzene	4.77	0.50	ug/L	5.00		95.4	70-130			
tert-Butylbenzene	4.73	0.50	ug/L	5.00		94.6	70-130			
Carbon disulfide	3.77	0.50	ug/L	5.00		75.4	70-130			
Carbon tetrachloride	3.99	0.50	ug/L	5.00		79.8	70-130			
Chlorobenzene	4.53	0.50	ug/L	5.00		90.6	70-130			
Chloroethane	4.05	0.50	ug/L	5.00		81.0	70-130			
Chloroform	4.18	1.0	ug/L	5.00		83.6	70-130			
Chloromethane	5.00	0.50	ug/L	5.00		100	70-130			
2-Chlorotoluene	4.87	0.50	ug/L	5.00		97.4	70-130			
4-Chlorotoluene	4.75	0.50	ug/L	5.00		95.0	70-130			
Dibromochloromethane	4.53	1.0	ug/L	5.00		90.6	70-130			
Dibromomethane	4.41	0.50	ug/L	5.00		88.2	70-130			
1,2-Dichlorobenzene	4.33	0.50	ug/L	5.00		86.6	70-130			
1,3-Dichlorobenzene	4.89	0.50	ug/L	5.00		97.8	70-130			
1,4-Dichlorobenzene	4.30	0.50	ug/L	5.00		86.0	70-130			
Dichlorodifluoromethane	4.16	0.50	ug/L	5.00		83.2	70-130			
1,1-Dichloroethane	4.09	0.50	ug/L	5.00		81.8	70-130			
1,2-Dichloroethane	4.24	0.50	ug/L	5.00		84.8	70-130			
1,1-Dichloroethene	3.88	0.50	ug/L	5.00		77.6	70-130			
trans-1,2-Dichloroethene	4.13	0.50	ug/L	5.00		82.6	70-130			
cis-1,2-Dichloroethene	4.17	0.50	ug/L	5.00		83.4	70-130			
1,2-Dichloropropane	4.20	0.50	ug/L	5.00		84.0	70-130			
1,3-Dichloropropane	4.48	0.50	ug/L	5.00		89.6	70-130			
2,2-Dichloropropane	4.24	0.50	ug/L	5.00		84.8	70-130			
1,1-Dichloropropene	3.91	0.50	ug/L	5.00		78.2	70-130			
cis-1,3-Dichloropropene	3.89	0.50	ug/L	5.00		77.8	70-130			

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Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: Round 3 ASR Water Quality Baseline

Reported:
09/24/21 14:03

Volatile Organic Compounds by EPA Method 524.2 - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch AH14583 - VOAs in Water GCMS										
LCS (AH14583-BS1)				Prepared & Analyzed: 08/26/21						
trans-1,3-Dichloropropene	3.94	0.50	ug/L	5.00		78.8	70-130			
Ethylbenzene	4.36	0.50	ug/L	5.00		87.2	70-130			
Hexachlorobutadiene	4.52	0.50	ug/L	5.00		90.4	70-130			
Isopropylbenzene	4.86	0.50	ug/L	5.00		97.2	70-130			
p-Isopropyltoluene	4.83	0.50	ug/L	5.00		96.6	70-130			
Methyl ethyl ketone	8.86	5.0	ug/L	10.0		88.6	70-130			
Methyl tert-butyl ether	4.29	3.0	ug/L	5.00		85.8	70-130			
Methyl isobutyl ketone	8.65	5.0	ug/L	10.0		86.5	70-130			
Methylene chloride	3.62	0.50	ug/L	5.00		72.4	70-130			
Naphthalene	4.23	0.50	ug/L	5.00		84.6	70-130			
n-Propylbenzene	4.70	0.50	ug/L	5.00		94.0	70-130			
Styrene	4.57	0.50	ug/L	5.00		91.4	70-130			
1,1,1,2-Tetrachloroethane	3.68	0.50	ug/L	5.00		73.6	70-130			
1,1,2,2-Tetrachloroethane	4.31	0.50	ug/L	5.00		86.2	70-130			
Tetrachloroethene	4.63	0.50	ug/L	5.00		92.6	70-130			
Toluene	4.50	0.50	ug/L	5.00		90.0	70-130			
1,2,3-Trichlorobenzene	4.73	0.50	ug/L	5.00		94.6	70-130			
1,2,4-Trichlorobenzene	4.53	0.50	ug/L	5.00		90.6	70-130			
1,1,1-Trichloroethane	3.95	0.50	ug/L	5.00		79.0	70-130			
1,1,2-Trichloroethane	4.43	0.50	ug/L	5.00		88.6	70-130			
Trichloroethene	4.20	0.50	ug/L	5.00		84.0	70-130			
Trichlorofluoromethane	4.02	5.0	ug/L	5.00		80.4	70-130			
Trichlorotrifluoroethane	4.12	10	ug/L	5.00		82.4	70-130			
1,2,4-Trimethylbenzene	5.08	0.50	ug/L	5.00		102	70-130			
1,3,5-Trimethylbenzene	4.83	0.50	ug/L	5.00		96.6	70-130			
Vinyl chloride	5.56	0.50	ug/L	5.00		111	70-130			
m,p-Xylene	9.18	0.50	ug/L	10.0		91.8	70-130			
o-Xylene	4.74	0.50	ug/L	5.00		94.8	70-130			
Xylenes (total)	13.9	0.50	ug/L	15.0		92.8	70-130			
Surrogate: Bromofluorobenzene	28.4		ug/L	25.0		114	70-130			
Surrogate: Dibromofluoromethane	24.5		ug/L	25.0		98.1	70-130			
Surrogate: Toluene-d8	26.3		ug/L	25.0		105	70-130			

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Project: Round 3 ASR Water Quality Baseline
Project Number: Round 3 ASR Water Quality Baseline

Reported:
09/24/21 14:03

Volatile Organic Compounds by EPA Method 524.2 - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch AH14583 - VOAs in Water GCMS										
LCS Dup (AH14583-BSD1)				Prepared & Analyzed: 08/26/21						
Acetone	15.2	5.0	ug/L	20.0		76.0	70-130	6.92	30	
Acrylonitrile	4.32	5.0	ug/L	5.00		86.4	70-130	0.232	30	
Benzene	4.49	0.50	ug/L	5.00		89.8	70-130	5.73	30	
Bromobenzene	5.14	0.50	ug/L	5.00		103	70-130	3.16	30	
Bromochloromethane	4.71	0.50	ug/L	5.00		94.2	70-130	0.00	30	
Bromodichloromethane	4.67	1.0	ug/L	5.00		93.4	70-130	7.56	30	
Bromoform	4.71	1.0	ug/L	5.00		94.2	70-130	0.853	30	
Bromomethane	3.90	0.50	ug/L	5.00		78.0	70-130	3.92	30	
n-Butylbenzene	5.02	0.50	ug/L	5.00		100	70-130	4.27	30	
sec-Butylbenzene	4.92	0.50	ug/L	5.00		98.4	70-130	3.10	30	
tert-Butylbenzene	4.95	0.50	ug/L	5.00		99.0	70-130	4.55	30	
Carbon disulfide	3.95	0.50	ug/L	5.00		79.0	70-130	4.66	30	
Carbon tetrachloride	4.26	0.50	ug/L	5.00		85.2	70-130	6.55	30	
Chlorobenzene	4.72	0.50	ug/L	5.00		94.4	70-130	4.11	30	
Chloroethane	4.36	0.50	ug/L	5.00		87.2	70-130	7.37	30	
Chloroform	4.36	1.0	ug/L	5.00		87.2	70-130	4.22	30	
Chloromethane	4.95	0.50	ug/L	5.00		99.0	70-130	1.01	30	
2-Chlorotoluene	4.98	0.50	ug/L	5.00		99.6	70-130	2.23	30	
4-Chlorotoluene	4.90	0.50	ug/L	5.00		98.0	70-130	3.11	30	
Dibromochloromethane	4.53	1.0	ug/L	5.00		90.6	70-130	0.00	30	
Dibromomethane	4.54	0.50	ug/L	5.00		90.8	70-130	2.91	30	
1,2-Dichlorobenzene	4.46	0.50	ug/L	5.00		89.2	70-130	2.96	30	
1,3-Dichlorobenzene	4.87	0.50	ug/L	5.00		97.4	70-130	0.410	30	
1,4-Dichlorobenzene	4.38	0.50	ug/L	5.00		87.6	70-130	1.84	30	
Dichlorodifluoromethane	4.78	0.50	ug/L	5.00		95.6	70-130	13.9	30	
1,1-Dichloroethane	4.26	0.50	ug/L	5.00		85.2	70-130	4.07	30	
1,2-Dichloroethane	4.48	0.50	ug/L	5.00		89.6	70-130	5.50	30	
1,1-Dichloroethene	4.11	0.50	ug/L	5.00		82.2	70-130	5.76	30	
cis-1,2-Dichloroethene	4.31	0.50	ug/L	5.00		86.2	70-130	3.30	30	
trans-1,2-Dichloroethene	4.21	0.50	ug/L	5.00		84.2	70-130	1.92	30	
1,2-Dichloropropane	4.47	0.50	ug/L	5.00		89.4	70-130	6.23	30	
1,3-Dichloropropane	4.74	0.50	ug/L	5.00		94.8	70-130	5.64	30	
2,2-Dichloropropane	4.00	0.50	ug/L	5.00		80.0	70-130	5.83	30	
1,1-Dichloropropene	4.24	0.50	ug/L	5.00		84.8	70-130	8.10	30	
cis-1,3-Dichloropropene	3.97	0.50	ug/L	5.00		79.4	70-130	2.04	30	

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Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: Round 3 ASR Water Quality Baseline

Reported:
09/24/21 14:03

Volatile Organic Compounds by EPA Method 524.2 - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch AH14583 - VOAs in Water GCMS										
LCS Dup (AH14583-BSD1)				Prepared & Analyzed: 08/26/21						
trans-1,3-Dichloropropene	4.04	0.50	ug/L	5.00		80.8	70-130	2.51	30	
Ethylbenzene	4.66	0.50	ug/L	5.00		93.2	70-130	6.65	30	
Hexachlorobutadiene	4.85	0.50	ug/L	5.00		97.0	70-130	7.04	30	
Isopropylbenzene	5.12	0.50	ug/L	5.00		102	70-130	5.21	30	
p-Isopropyltoluene	4.91	0.50	ug/L	5.00		98.2	70-130	1.64	30	
Methyl ethyl ketone	8.91	5.0	ug/L	10.0		89.1	70-130	0.563	30	
Methyl isobutyl ketone	8.97	5.0	ug/L	10.0		89.7	70-130	3.63	30	
Methyl tert-butyl ether	4.47	3.0	ug/L	5.00		89.4	70-130	4.11	30	
Methylene chloride	3.81	0.50	ug/L	5.00		76.2	70-130	5.11	30	
Naphthalene	4.33	0.50	ug/L	5.00		86.6	70-130	2.34	30	
n-Propylbenzene	4.96	0.50	ug/L	5.00		99.2	70-130	5.38	30	
Styrene	4.85	0.50	ug/L	5.00		97.0	70-130	5.94	30	
1,1,1,2-Tetrachloroethane	3.76	0.50	ug/L	5.00		75.2	70-130	2.15	30	
1,1,2,2-Tetrachloroethane	4.30	0.50	ug/L	5.00		86.0	70-130	0.232	30	
Tetrachloroethene	5.06	0.50	ug/L	5.00		101	70-130	8.88	30	
Toluene	4.76	0.50	ug/L	5.00		95.2	70-130	5.62	30	
1,2,3-Trichlorobenzene	4.89	0.50	ug/L	5.00		97.8	70-130	3.33	30	
1,2,4-Trichlorobenzene	4.69	0.50	ug/L	5.00		93.8	70-130	3.47	30	
1,1,1-Trichloroethane	4.27	0.50	ug/L	5.00		85.4	70-130	7.79	30	
1,1,2-Trichloroethane	4.59	0.50	ug/L	5.00		91.8	70-130	3.55	30	
Trichloroethene	4.40	0.50	ug/L	5.00		88.0	70-130	4.65	30	
Trichlorofluoromethane	4.22	5.0	ug/L	5.00		84.4	70-130	4.85	30	
Trichlorotrifluoroethane	4.45	10	ug/L	5.00		89.0	70-130	7.70	30	
1,2,4-Trimethylbenzene	5.15	0.50	ug/L	5.00		103	70-130	1.37	30	
1,3,5-Trimethylbenzene	4.95	0.50	ug/L	5.00		99.0	70-130	2.45	30	
Vinyl chloride	5.38	0.50	ug/L	5.00		108	70-130	3.29	30	
m,p-Xylene	9.67	0.50	ug/L	10.0		96.7	70-130	5.20	30	
o-Xylene	4.99	0.50	ug/L	5.00		99.8	70-130	5.14	30	
Xylenes (total)	14.7	0.50	ug/L	15.0		97.7	70-130	5.18	30	
Surrogate: Bromofluorobenzene	28.1		ug/L	25.0		112	70-130			
Surrogate: Dibromofluoromethane	24.0		ug/L	25.0		95.9	70-130			
Surrogate: Toluene-d8	26.3		ug/L	25.0		105	70-130			

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Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: Round 3 ASR Water Quality Baseline

Reported:
09/24/21 14:03

Volatile Organic Compounds by EPA Method 524.2 - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch AH14583 - VOAs in Water GCMS										
Matrix Spike (AH14583-MS1)	Source: 21H2734-01			Prepared & Analyzed: 08/26/21				QM-05		
Acetone	16.7	5.0	ug/L	20.0	ND	83.5	70-130			
Acrylonitrile	4.54	5.0	ug/L	5.00	ND	90.8	70-130			
Benzene	5.52	0.50	ug/L	5.00	ND	110	70-130			
Bromobenzene	5.93	0.50	ug/L	5.00	ND	119	70-130			
Bromochloromethane	5.47	0.50	ug/L	5.00	ND	109	70-130			
Bromodichloromethane	4.94	1.0	ug/L	5.00	ND	98.8	70-130			
Bromoform	3.59	1.0	ug/L	5.00	ND	71.8	70-130			
Bromomethane	5.42	0.50	ug/L	5.00	ND	108	70-130			
n-Butylbenzene	6.70	0.50	ug/L	5.00	ND	134	70-130			
sec-Butylbenzene	6.89	0.50	ug/L	5.00	ND	138	70-130			
tert-Butylbenzene	6.70	0.50	ug/L	5.00	ND	134	70-130			
Carbon disulfide	5.54	0.50	ug/L	5.00	1.01	90.6	70-130			
Carbon tetrachloride	6.34	0.50	ug/L	5.00	ND	127	70-130			
Chlorobenzene	5.50	0.50	ug/L	5.00	ND	110	70-130			
Chloroethane	5.53	0.50	ug/L	5.00	ND	111	70-130			
Chloroform	5.28	1.0	ug/L	5.00	ND	106	70-130			
Chloromethane	6.01	0.50	ug/L	5.00	ND	120	70-130			
2-Chlorotoluene	6.23	0.50	ug/L	5.00	ND	125	70-130			
4-Chlorotoluene	6.02	0.50	ug/L	5.00	ND	120	70-130			
Dibromochloromethane	4.24	1.0	ug/L	5.00	ND	84.8	70-130			
Dibromomethane	5.56	0.50	ug/L	5.00	ND	111	70-130			
1,2-Dichlorobenzene	5.05	0.50	ug/L	5.00	ND	101	70-130			
1,3-Dichlorobenzene	5.79	0.50	ug/L	5.00	ND	116	70-130			
1,4-Dichlorobenzene	5.02	0.50	ug/L	5.00	ND	100	70-130			
Dichlorodifluoromethane	6.47	0.50	ug/L	5.00	ND	129	70-130			
1,1-Dichloroethane	5.35	0.50	ug/L	5.00	ND	107	70-130			
1,2-Dichloroethane	5.13	0.50	ug/L	5.00	ND	103	70-130			
1,1-Dichloroethene	6.16	0.50	ug/L	5.00	ND	123	70-130			
cis-1,2-Dichloroethene	5.30	0.50	ug/L	5.00	ND	106	70-130			
trans-1,2-Dichloroethene	5.64	0.50	ug/L	5.00	ND	113	70-130			
1,2-Dichloropropane	5.14	0.50	ug/L	5.00	ND	103	70-130			
1,3-Dichloropropane	5.08	0.50	ug/L	5.00	ND	102	70-130			
2,2-Dichloropropane	6.16	0.50	ug/L	5.00	ND	123	70-130			
1,1-Dichloropropene	6.25	0.50	ug/L	5.00	ND	125	70-130			
cis-1,3-Dichloropropene	4.06	0.50	ug/L	5.00	ND	81.2	70-130			

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Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: Round 3 ASR Water Quality Baseline

Reported:
09/24/21 14:03

Volatile Organic Compounds by EPA Method 524.2 - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch AH14583 - VOAs in Water GCMS										
Matrix Spike (AH14583-MS1)	Source: 21H2734-01			Prepared & Analyzed: 08/26/21				QM-05		
trans-1,3-Dichloropropene	4.28	0.50	ug/L	5.00	ND	85.6	70-130			
Ethylbenzene	5.91	0.50	ug/L	5.00	ND	118	70-130			
Hexachlorobutadiene	6.23	0.50	ug/L	5.00	ND	125	70-130			
Isopropylbenzene	6.83	0.50	ug/L	5.00	ND	137	70-130			
p-Isopropyltoluene	6.68	0.50	ug/L	5.00	ND	134	70-130			
Methyl ethyl ketone	11.0	5.0	ug/L	10.0	ND	110	70-130			
Methyl isobutyl ketone	10.5	5.0	ug/L	10.0	ND	105	70-130			
Methyl tert-butyl ether	4.50	3.0	ug/L	5.00	ND	90.0	70-130			
Methylene chloride	4.63	0.50	ug/L	5.00	ND	92.6	70-130			
Naphthalene	4.50	0.50	ug/L	5.00	ND	90.0	70-130			
n-Propylbenzene	6.74	0.50	ug/L	5.00	ND	135	70-130			
Styrene	5.78	0.50	ug/L	5.00	ND	116	70-130			
1,1,1,2-Tetrachloroethane	4.45	0.50	ug/L	5.00	ND	89.0	70-130			
1,1,2,2-Tetrachloroethane	4.93	0.50	ug/L	5.00	ND	98.6	70-130			
Tetrachloroethene	7.12	0.50	ug/L	5.00	ND	142	70-130			
Toluene	5.95	0.50	ug/L	5.00	ND	119	70-130			
1,2,3-Trichlorobenzene	5.35	0.50	ug/L	5.00	ND	107	70-130			
1,2,4-Trichlorobenzene	5.13	0.50	ug/L	5.00	ND	103	70-130			
1,1,1-Trichloroethane	6.34	0.50	ug/L	5.00	ND	127	70-130			
1,1,2-Trichloroethane	5.05	0.50	ug/L	5.00	ND	101	70-130			
Trichloroethene	5.87	0.50	ug/L	5.00	ND	117	70-130			
Trichlorofluoromethane	6.41	5.0	ug/L	5.00	ND	128	70-130			
Trichlorotrifluoroethane	9.55	10	ug/L	5.00	ND	158	70-130			
1,2,4-Trimethylbenzene	6.42	0.50	ug/L	5.00	ND	128	70-130			
1,3,5-Trimethylbenzene	6.33	0.50	ug/L	5.00	ND	127	70-130			
Vinyl chloride	7.11	0.50	ug/L	5.00	ND	142	70-130			
m,p-Xylene	12.3	0.50	ug/L	10.0	ND	123	70-130			
o-Xylene	5.97	0.50	ug/L	5.00	ND	119	70-130			
Xylenes (total)	18.3	0.50	ug/L	15.0	ND	122	70-130			
Surrogate: Bromofluorobenzene	28.1		ug/L	25.0		112	70-130			
Surrogate: Dibromofluoromethane	24.1		ug/L	25.0		96.4	70-130			
Surrogate: Toluene-d8	25.9		ug/L	25.0		103	70-130			

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Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: Round 3 ASR Water Quality Baseline

Reported:
09/24/21 14:03

Volatile Organic Compounds by EPA Method 524.2 - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch AH14583 - VOAs in Water GCMS										
Matrix Spike (AH14583-MS2)		Source: 21H2813-01			Prepared & Analyzed: 08/26/21					
Acetone	17.3	5.0	ug/L	20.0	ND	86.3	70-130			
Acrylonitrile	4.76	5.0	ug/L	5.00	ND	95.2	70-130			
Benzene	5.27	0.50	ug/L	5.00	ND	105	70-130			
Bromobenzene	5.85	0.50	ug/L	5.00	ND	117	70-130			
Bromochloromethane	5.12	0.50	ug/L	5.00	ND	102	70-130			
Bromodichloromethane	4.99	1.0	ug/L	5.00	ND	99.8	70-130			
Bromoform	4.22	1.0	ug/L	5.00	ND	84.4	70-130			
Bromomethane	5.03	0.50	ug/L	5.00	ND	101	70-130			
n-Butylbenzene	6.35	0.50	ug/L	5.00	ND	127	70-130			
sec-Butylbenzene	6.37	0.50	ug/L	5.00	ND	127	70-130			
tert-Butylbenzene	6.46	0.50	ug/L	5.00	ND	129	70-130			
Carbon disulfide	5.35	0.50	ug/L	5.00	ND	107	70-130			
Carbon tetrachloride	6.31	0.50	ug/L	5.00	ND	126	70-130			
Chlorobenzene	5.35	0.50	ug/L	5.00	ND	107	70-130			
Chloroethane	5.07	0.50	ug/L	5.00	ND	101	70-130			
Chloroform	5.10	1.0	ug/L	5.00	ND	102	70-130			
Chloromethane	5.76	0.50	ug/L	5.00	ND	115	70-130			
2-Chlorotoluene	5.86	0.50	ug/L	5.00	ND	117	70-130			
4-Chlorotoluene	5.68	0.50	ug/L	5.00	ND	114	70-130			
Dibromochloromethane	4.40	1.0	ug/L	5.00	ND	88.0	70-130			
Dibromomethane	4.96	0.50	ug/L	5.00	ND	99.2	70-130			
1,2-Dichlorobenzene	4.80	0.50	ug/L	5.00	ND	96.0	70-130			
1,3-Dichlorobenzene	5.59	0.50	ug/L	5.00	ND	112	70-130			
1,4-Dichlorobenzene	4.90	0.50	ug/L	5.00	ND	98.0	70-130			
Dichlorodifluoromethane	6.48	0.50	ug/L	5.00	ND	130	70-130			
1,1-Dichloroethane	5.17	0.50	ug/L	5.00	ND	103	70-130			
1,2-Dichloroethane	4.82	0.50	ug/L	5.00	ND	96.4	70-130			
1,1-Dichloroethene	5.78	0.50	ug/L	5.00	ND	116	70-130			
trans-1,2-Dichloroethene	5.38	0.50	ug/L	5.00	ND	108	70-130			
cis-1,2-Dichloroethene	5.13	0.50	ug/L	5.00	ND	103	70-130			
1,2-Dichloropropane	4.84	0.50	ug/L	5.00	ND	96.8	70-130			
1,3-Dichloropropane	5.03	0.50	ug/L	5.00	ND	101	70-130			
2,2-Dichloropropane	6.25	0.50	ug/L	5.00	ND	125	70-130			
1,1-Dichloropropene	6.02	0.50	ug/L	5.00	ND	120	70-130			
cis-1,3-Dichloropropene	4.16	0.50	ug/L	5.00	ND	83.2	70-130			

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Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: Round 3 ASR Water Quality Baseline

Reported:
09/24/21 14:03

Volatile Organic Compounds by EPA Method 524.2 - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch AH14583 - VOAs in Water GCMS										
Matrix Spike (AH14583-MS2)		Source: 21H2813-01			Prepared & Analyzed: 08/26/21					
trans-1,3-Dichloropropene	4.31	0.50	ug/L	5.00	ND	86.2	70-130			
Ethylbenzene	5.79	0.50	ug/L	5.00	ND	116	70-130			
Hexachlorobutadiene	6.07	0.50	ug/L	5.00	ND	121	70-130			
Isopropylbenzene	6.50	0.50	ug/L	5.00	ND	130	70-130			
p-Isopropyltoluene	6.40	0.50	ug/L	5.00	ND	128	70-130			
Methyl ethyl ketone	9.74	5.0	ug/L	10.0	ND	97.4	70-130			
Methyl isobutyl ketone	10.0	5.0	ug/L	10.0	ND	100	70-130			
Methyl tert-butyl ether	4.59	3.0	ug/L	5.00	ND	91.8	70-130			
Methylene chloride	4.32	0.50	ug/L	5.00	ND	86.4	70-130			
Naphthalene	4.52	0.50	ug/L	5.00	ND	90.4	70-130			
n-Propylbenzene	6.47	0.50	ug/L	5.00	ND	129	70-130			
Styrene	5.77	0.50	ug/L	5.00	ND	115	70-130			
1,1,1,2-Tetrachloroethane	4.19	0.50	ug/L	5.00	ND	83.8	70-130			
1,1,2,2-Tetrachloroethane	4.84	0.50	ug/L	5.00	ND	96.8	70-130			
Tetrachloroethene	6.42	0.50	ug/L	5.00	ND	128	70-130			
Toluene	5.69	0.50	ug/L	5.00	ND	114	70-130			
1,2,3-Trichlorobenzene	5.16	0.50	ug/L	5.00	ND	103	70-130			
1,2,4-Trichlorobenzene	5.06	0.50	ug/L	5.00	ND	101	70-130			
1,1,1-Trichloroethane	6.07	0.50	ug/L	5.00	ND	121	70-130			
1,1,2-Trichloroethane	4.94	0.50	ug/L	5.00	ND	98.8	70-130			
Trichloroethene	5.60	0.50	ug/L	5.00	ND	112	70-130			
Trichlorofluoromethane	6.49	5.0	ug/L	5.00	ND	130	70-130			
Trichlorotrifluoroethane	7.01	10	ug/L	5.00	ND	140	70-130			QM-05
1,2,4-Trimethylbenzene	6.26	0.50	ug/L	5.00	ND	125	70-130			
1,3,5-Trimethylbenzene	6.16	0.50	ug/L	5.00	ND	123	70-130			
Vinyl chloride	7.20	0.50	ug/L	5.00	ND	144	70-130			QM-05
m,p-Xylene	12.0	0.50	ug/L	10.0	ND	120	70-130			
o-Xylene	5.84	0.50	ug/L	5.00	ND	117	70-130			
Xylenes (total)	17.9	0.50	ug/L	15.0	ND	119	70-130			
Surrogate: Bromofluorobenzene	28.0		ug/L	25.0		112	70-130			
Surrogate: Dibromofluoromethane	23.9		ug/L	25.0		95.5	70-130			
Surrogate: Toluene-d8	25.4		ug/L	25.0		102	70-130			

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Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: Round 3 ASR Water Quality Baseline

Reported:
09/24/21 14:03

Notes and Definitions

- QM-05 The spike recovery was outside acceptance limits for the MS and/or MSD due to matrix interference. The LCS and/or LCSD were within acceptance limits showing that the laboratory is in control and the data is acceptable.
- QM-07 The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.
- R-01 The Reporting Limit for this analyte has been raised to account for matrix interference.
- ND Analyte NOT DETECTED at or above the reporting limit
- dry Sample results reported on a dry weight basis
- REC Recovery
- RPD Relative Percent Difference

September 15, 2021

Vista Work Order No. 2108221

Mr. David S. Pingatore
Alpha Analytical Laboratories, Inc
208 Mason Street
Ukiah, CA 95482

Dear Mr. Pingatore,

Enclosed are the results for the sample set received at Vista Analytical Laboratory on August 24, 2021 under your Project Name '21H2617'.

Vista Analytical Laboratory is committed to serving you effectively. If you require additional information, please contact me at 916-673-1520 or by email at jfox@vista-analytical.com.

Thank you for choosing Vista as part of your analytical support team.

Sincerely,



for

Jamie Fox
Laboratory Director



Vista Analytical Laboratory certifies that the report herein meets all the requirements set forth by NELAP for those applicable test methods. Results relate only to the samples as received by the laboratory. This report should not be reproduced except in full without the written approval of Vista.

Vista Work Order No. 2108221**Case Narrative****Sample Condition on Receipt:**

Two drinking water samples were received and stored securely in accordance with Vista standard operating procedures and EPA methodology. The samples were received in good condition and within the method temperature requirements.

Analytical Notes:**EPA Method 537.1**

The samples were extracted and analyzed for a selected list of PFAS using EPA Method 537.1.

Holding Times

The samples were extracted and analyzed within the method hold times.

Quality Control

The Initial Calibration and Continuing Calibration Verifications met the method acceptance criteria.

A Laboratory Fortified Blank (LFB) and Laboratory Reagent Blank (LRB) were extracted and analyzed with the preparation batch. No analytes were detected in the LRB above the method specified limits. The LFB recoveries were within the method acceptance criteria.

The surrogate recoveries for all QC and field samples were within the acceptance criteria.

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Sample Inventory Report



Vista Sample ID	Client Sample ID	Sampled	Received	Components/Containers
2108221-01	3121	18-Aug-21 08:38	24-Aug-21 11:19	Polypropylene, 250mL Polypropylene, 250mL
██████████	██████████	██████████	██████████	██████████ ██████████

ANALYTICAL RESULTS

Sample ID: LRB
EPA Method 537.1

Client Data					Laboratory Data				
Name:	Alpha Analytical Laboratories, Inc	Matrix:	Aqueous		Lab Sample:	B1H0212-BLK1	Column:	BEH C18	
Project:	21H2617								

Analyte	CAS Number	Conc. (ng/L)	MDL	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	ND	0.704	2.00		B1H0212	27-Aug-21	0.250 L	29-Aug-21 05:55	1
PFHxA	307-24-4	ND	0.961	2.00		B1H0212	27-Aug-21	0.250 L	29-Aug-21 05:55	1
HFPO-DA	13252-13-6	ND	0.847	2.00		B1H0212	27-Aug-21	0.250 L	29-Aug-21 05:55	1
PFHpA	375-85-9	ND	0.790	2.00		B1H0212	27-Aug-21	0.250 L	29-Aug-21 05:55	1
ADONA	919005-14-4	ND	0.762	2.00		B1H0212	27-Aug-21	0.250 L	29-Aug-21 05:55	1
PFHxS	355-46-4	ND	0.803	2.00		B1H0212	27-Aug-21	0.250 L	29-Aug-21 05:55	1
PFOA	335-67-1	ND	0.745	2.00		B1H0212	27-Aug-21	0.250 L	29-Aug-21 05:55	1
PFNA	375-95-1	ND	0.878	2.00		B1H0212	27-Aug-21	0.250 L	29-Aug-21 05:55	1
PFOS	1763-23-1	ND	1.31	2.00		B1H0212	27-Aug-21	0.250 L	29-Aug-21 05:55	1
9Cl-PF3ONS	756426-58-1	ND	0.866	2.00		B1H0212	27-Aug-21	0.250 L	29-Aug-21 05:55	1
PFDA	335-76-2	ND	0.629	2.00		B1H0212	27-Aug-21	0.250 L	29-Aug-21 05:55	1
MeFOSAA	2355-31-9	ND	0.483	2.00		B1H0212	27-Aug-21	0.250 L	29-Aug-21 05:55	1
EtFOSAA	2991-50-6	ND	0.902	2.00		B1H0212	27-Aug-21	0.250 L	29-Aug-21 05:55	1
PFUnA	2058-94-8	ND	0.682	2.00		B1H0212	27-Aug-21	0.250 L	29-Aug-21 05:55	1
PFDoA	307-55-1	ND	0.727	2.00		B1H0212	27-Aug-21	0.250 L	29-Aug-21 05:55	1
PFTTrDA	72629-94-8	ND	0.766	2.00		B1H0212	27-Aug-21	0.250 L	29-Aug-21 05:55	1
11Cl-PF3OUdS	763051-92-9	ND	1.18	2.00		B1H0212	27-Aug-21	0.250 L	29-Aug-21 05:55	1
PFTeDA	376-06-7	ND	0.781	2.00		B1H0212	27-Aug-21	0.250 L	29-Aug-21 05:55	1
Labeled Standards	Type	% Recovery	Limits		Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	107	70 - 130			B1H0212	27-Aug-21	0.250 L	29-Aug-21 05:55	1
13C2-PFDA	SURR	101	70 - 130			B1H0212	27-Aug-21	0.250 L	29-Aug-21 05:55	1
d5-EtFOSAA	SURR	88.6	70 - 130			B1H0212	27-Aug-21	0.250 L	29-Aug-21 05:55	1
13C3-HFPO-DA	SURR	100	70 - 130			B1H0212	27-Aug-21	0.250 L	29-Aug-21 05:55	1

MDL - Method Detection Limit

RL - Reporting limit

Results reported to MDL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: LFB
EPA Method 537.1

Client Data						Laboratory Data					
Name:	Alpha Analytical Laboratories, Inc		Matrix:	Aqueous		Lab Sample:	B1H0212-BS1		Column:	BEH C18	
Project:	21H2617										
Analyte	CAS Number	Amt Found (ng/L)	Spike Amt	% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	15.4	14.2	109	50 - 150		B1H0212	27-Aug-21	0.250 L	29-Aug-21 06:06	1
PFHxA	307-24-4	16.4	16.0	103	50 - 150		B1H0212	27-Aug-21	0.250 L	29-Aug-21 06:06	1
HFPO-DA	13252-13-6	16.7	16.0	104	50 - 150		B1H0212	27-Aug-21	0.250 L	29-Aug-21 06:06	1
PFHpA	375-85-9	17.5	16.0	109	50 - 150		B1H0212	27-Aug-21	0.250 L	29-Aug-21 06:06	1
ADONA	919005-14-4	15.1	15.1	99.6	50 - 150		B1H0212	27-Aug-21	0.250 L	29-Aug-21 06:06	1
PFHxS	355-46-4	15.2	14.6	105	50 - 150		B1H0212	27-Aug-21	0.250 L	29-Aug-21 06:06	1
PFOA	335-67-1	16.3	16.0	102	50 - 150		B1H0212	27-Aug-21	0.250 L	29-Aug-21 06:06	1
PFNA	375-95-1	15.1	16.0	94.5	50 - 150		B1H0212	27-Aug-21	0.250 L	29-Aug-21 06:06	1
PFOS	1763-23-1	15.3	14.8	103	50 - 150		B1H0212	27-Aug-21	0.250 L	29-Aug-21 06:06	1
9CI-PF3ONS	756426-58-1	14.6	14.9	98.3	50 - 150		B1H0212	27-Aug-21	0.250 L	29-Aug-21 06:06	1
PFDA	335-76-2	17.1	16.0	107	50 - 150		B1H0212	27-Aug-21	0.250 L	29-Aug-21 06:06	1
MeFOSAA	2355-31-9	16.8	16.0	105	50 - 150		B1H0212	27-Aug-21	0.250 L	29-Aug-21 06:06	1
EtFOSAA	2991-50-6	13.9	16.0	86.9	50 - 150		B1H0212	27-Aug-21	0.250 L	29-Aug-21 06:06	1
PFUnA	2058-94-8	15.4	16.0	96.4	50 - 150		B1H0212	27-Aug-21	0.250 L	29-Aug-21 06:06	1
PFDaA	307-55-1	15.4	16.0	96.2	50 - 150		B1H0212	27-Aug-21	0.250 L	29-Aug-21 06:06	1
PFTTrDA	72629-94-8	14.2	16.0	88.6	50 - 150		B1H0212	27-Aug-21	0.250 L	29-Aug-21 06:06	1
11CI-PF3OUdS	763051-92-9	15.2	15.0	101	50 - 150		B1H0212	27-Aug-21	0.250 L	29-Aug-21 06:06	1
PFTeDA	376-06-7	14.3	16.0	89.4	50 - 150		B1H0212	27-Aug-21	0.250 L	29-Aug-21 06:06	1
Labeled Standards		Type		% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA		SURR		105	70 - 130		B1H0212	27-Aug-21	0.250 L	29-Aug-21 06:06	1
13C2-PFDA		SURR		99.7	70 - 130		B1H0212	27-Aug-21	0.250 L	29-Aug-21 06:06	1
d5-EtFOSAA		SURR		87.5	70 - 130		B1H0212	27-Aug-21	0.250 L	29-Aug-21 06:06	1
13C3-HFPO-DA		SURR		94.9	70 - 130		B1H0212	27-Aug-21	0.250 L	29-Aug-21 06:06	1

Sample ID: 3121
EPA Method 537.1

Client Data					Laboratory Data					
Name:	Alpha Analytical Laboratories, Inc		Matrix:	Drinking Water	Lab Sample:	2108221-01		Column:	BEH C18	
Project:	21H2617		Date Collected:	18-Aug-21 08:38	Date Received:	24-Aug-21 11:19				
Location:	21H2617-01									
Analyte	CAS Number	Conc. (ng/L)	MDL	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	ND	0.703	2.00		B1H0212	27-Aug-21	0.250 L	29-Aug-21 09:58	1
PFHxA	307-24-4	ND	0.959	2.00		B1H0212	27-Aug-21	0.250 L	29-Aug-21 09:58	1
HFPO-DA	13252-13-6	ND	0.846	2.00		B1H0212	27-Aug-21	0.250 L	29-Aug-21 09:58	1
PFHpA	375-85-9	ND	0.789	2.00		B1H0212	27-Aug-21	0.250 L	29-Aug-21 09:58	1
ADONA	919005-14-4	ND	0.761	2.00		B1H0212	27-Aug-21	0.250 L	29-Aug-21 09:58	1
PFHxS	355-46-4	ND	0.802	2.00		B1H0212	27-Aug-21	0.250 L	29-Aug-21 09:58	1
PFOA	335-67-1	ND	0.744	2.00		B1H0212	27-Aug-21	0.250 L	29-Aug-21 09:58	1
PFNA	375-95-1	ND	0.877	2.00		B1H0212	27-Aug-21	0.250 L	29-Aug-21 09:58	1
PFOS	1763-23-1	ND	1.31	2.00		B1H0212	27-Aug-21	0.250 L	29-Aug-21 09:58	1
9Cl-PF3ONS	756426-58-1	ND	0.865	2.00		B1H0212	27-Aug-21	0.250 L	29-Aug-21 09:58	1
PFDA	335-76-2	ND	0.628	2.00		B1H0212	27-Aug-21	0.250 L	29-Aug-21 09:58	1
MeFOSAA	2355-31-9	ND	0.482	2.00		B1H0212	27-Aug-21	0.250 L	29-Aug-21 09:58	1
EtFOSAA	2991-50-6	ND	0.901	2.00		B1H0212	27-Aug-21	0.250 L	29-Aug-21 09:58	1
PFUnA	2058-94-8	ND	0.681	2.00		B1H0212	27-Aug-21	0.250 L	29-Aug-21 09:58	1
PFDoA	307-55-1	ND	0.726	2.00		B1H0212	27-Aug-21	0.250 L	29-Aug-21 09:58	1
PFTrDA	72629-94-8	ND	0.765	2.00		B1H0212	27-Aug-21	0.250 L	29-Aug-21 09:58	1
11Cl-PF3OUdS	763051-92-9	ND	1.18	2.00		B1H0212	27-Aug-21	0.250 L	29-Aug-21 09:58	1
PFTeDA	376-06-7	ND	0.780	2.00		B1H0212	27-Aug-21	0.250 L	29-Aug-21 09:58	1
Labeled Standards	Type	% Recovery	Limits		Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	107	70 - 130			B1H0212	27-Aug-21	0.250 L	29-Aug-21 09:58	1
13C2-PFDA	SURR	97.9	70 - 130			B1H0212	27-Aug-21	0.250 L	29-Aug-21 09:58	1
d5-EtFOSAA	SURR	85.8	70 - 130			B1H0212	27-Aug-21	0.250 L	29-Aug-21 09:58	1
13C3-HFPO-DA	SURR	97.2	70 - 130			B1H0212	27-Aug-21	0.250 L	29-Aug-21 09:58	1

MDL - Method Detection Limit

RL - Reporting limit

Results reported to MDL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

MDL - Method Detection Limit

RL - Reporting limit

Results reported to MDL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA **include both** linear and branched isomers. Only the linear isomer is reported for all other **analytes**.

B	This compound was also detected in the method blank
Conc.	Concentration
CRS	Cleanup Recovery Standard
D	Dilution
DL	Detection Limit
E	The associated compound concentration exceeded the calibration range of the instrument
H	Recovery and/or RPD was outside laboratory acceptance limits
I	Chemical Interference
IS	Internal Standard
J	The amount detected is below the Reporting Limit/LOQ
LOD	Limit of Detection
LOQ	Limit of Quantitation
M	Estimated Maximum Possible Concentration (CA Region 2 projects only)
MDL	Method Detection Limit
NA	Not applicable
ND	Not Detected
OPR	Ongoing Precision and Recovery sample
P	The reported concentration may include contribution from chlorinated diphenyl ether(s).
Q	The ion transition ratio is outside of the acceptance criteria.
RL	Reporting Limit
RL	For 537.1, the reported RLs are the MRLs.
TEQ	Toxic Equivalency, sum of the toxic equivalency factors (TEF) multiplied by the sample concentrations.
TEQMax	TEQ calculation that uses the detection limit as the concentration for non-detects
TEQMin	TEQ calculation that uses zero as the concentration for non-detects
TEQRisk	TEQ calculation that uses ½ the detection limit as the concentration for non-detects
U	Not Detected (specific projects only)
*	See Cover Letter

Unless otherwise noted, solid sample results are reported in dry weight. Tissue samples are reported in wet weight.

Vista Analytical Laboratory Certifications

Accrediting Authority	Certificate Number
Alaska Department of Environmental Conservation	17-013
Arkansas Department of Environmental Quality	21-023-0
California Department of Health – ELAP	2892
DoD ELAP - A2LA Accredited - ISO/IEC 17025:2005	3091.01
Florida Department of Health	E87777-26
Hawaii Department of Health	N/A
Louisiana Department of Environmental Quality	01977
Maine Department of Health	2020018
Massachusetts Department of Environmental Protection	M-CA413
Michigan Department of Environmental Quality	9932
Minnesota Department of Health	1980678
New Hampshire Environmental Accreditation Program	207720
New Jersey Department of Environmental Protection	CA003
New York Department of Health	11411
Ohio Environmental Protection Agency	87778
Oregon Laboratory Accreditation Program	4042-016
Pennsylvania Department of Environmental Protection	017
Texas Commission on Environmental Quality	T104704189-21-12
Vermont Department of Health	VT-4042
Virginia Department of General Services	10769
Washington Department of Ecology	C584
Wisconsin Department of Natural Resources	998036160

Current certificates and lists of licensed parameters are located in the Quality Assurance office and are available upon request.

NELAP Accredited Test Methods

MATRIX: Air	
Description of Test	Method
Determination of Polychlorinated p- Dioxins & Polychlorinated Dibenzofurans	EPA 23
Polychlorinated Dibenzodioxins in Ambient Air by GC/HRMS	EPA TO-9A

MATRIX: Biological Tissue	
Description of Test	Method
Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613B
Brominated Diphenyl Ethers by HRGC/HRMS	EPA 1614A
Chlorinated Biphenyl Congeners in Water, Soil, Sediment, and Tissue by GC/HRMS	EPA 1668A/C
Pesticides in Water, Soil, Sediment, Biosolids, and Tissue by HRGC/HRMS	EPA 1699
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537
Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans by GC/HRMS	EPA 8280A/B
Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by GC/HRMS	EPA 8290/8290A

MATRIX: Drinking Water	
Description of Test	Method
Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613/1613B
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537.1
Determination of Per- and Polyfluoroalkyl Substances in Drinking Water by Isotope Dilution Anion Exchange Solid Phase Extraction and Liquid Chromatography/Tandem Mass Spectrometry	EPA 533
Perfluorooctanesulfonate (PFOS) and Perfluorooctanoate (PFOA) - Method for Unfiltered Samples Using Solid Phase Extraction and Liquid Chromatography/Mass Spectrometry	ISO 25101 2009

MATRIX: Non-Potable Water	
Description of Test	Method
Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613B
Brominated Diphenyl Ethers by HRGC/HRMS	EPA 1614A
Chlorinated Biphenyl Congeners in Water, Soil, Sediment, and Tissue by GC/HRMS	EPA 1668A/C
Pesticides in Water, Soil, Sediment, Biosolids, and Tissue by HRGC/HRMS	EPA 1699
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537
Dioxin by GC/HRMS	EPA 613
Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans by GC/HRMS	EPA 8280A/B
Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by GC/HRMS	EPA 8290/8290A

MATRIX: Solids	
Description of Test	Method
Tetra-Octa Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613
Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613B
Brominated Diphenyl Ethers by HRGC/HRMS	EPA 1614A
Chlorinated Biphenyl Congeners in Water, Soil, Sediment, and Tissue by GC/HRMS	EPA 1668A/C
Pesticides in Water, Soil, Sediment, Biosolids, and Tissue by HRGC/HRMS	EPA 1699
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537
Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans by GC/HRMS	EPA 8280A/B
Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by GC/HRMS	EPA 8290/8290A

SUBCONTRACT ORDER
Alpha Analytical Laboratories, Inc.

21H2617

2106221 3.3°C

SENDING LABORATORY:

Alpha Analytical Laboratories, Inc.
208 Mason St.
Ukiah, CA 95482
Phone: (707)468-0401
Fax: (707)468-5267
Project Manager: David S. Pingatore

RECEIVING LABORATORY:

Vista Analytical
1104 Windfield Way
El Dorado Hills, CA 95762
Phone: (916) 673-1520
Fax: -
Terms: Net 30

Analysis	Due	Expires	Comments
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21H2617-01 3121 [Water] Sampled 08/18/21 08:38			
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537.1 Perfluorochemicals x 18 w/GenX	09/02/21 15:00	09/01/21 08:38	
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Containers Supplied:

500mL PP Poly (Trizma) (500mL PP Poly (Trizma) (

☐ Report to State

System Name: _____ Employed by: _____

User ID: _____ Sampler: _____

System Number: _____

+QC

Released By: 	Date: 8-19-21	Received By: 	Date: 8/19/21
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Released By: 13	Date: 8/19/21	Received By: 18-115	Date: 08/24/21 11/9
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Released By:	Date:	Received By:	Date:
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Released By:	Date:	Received By:	Date:
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Released By:	Date:	Received By:	Date:
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Sample Log-In Checklist

 Page # 1 of 1

 Vista Work Order #: 2108221

 TAT STD

Samples Arrival:	Date/Time		Initials:		Location: <u>WV-2</u>		
	<u>08/24/21 1119</u>		<u>[Signature]</u>		Shelf/Rack: <u>N/A</u>		
Delivered By:	FedEx	UPS	On Trac	GLS	DHL	Hand Delivered	Other
Preservation:	Ice		<u>Blue Ice</u>		Techni Ice	Dry Ice	None
Temp °C: <u>3.4</u> (uncorrected)	Probe used: Y <u>(N)</u>			Thermometer ID: <u>IR-3</u>			
Temp °C: <u>3.3</u> (corrected)							

	YES	NO	NA
Shipping Container(s) Intact?	<input checked="" type="checkbox"/>		
Shipping Custody Seals Intact?		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Airbill <u>—</u> Trk # <u>554352921</u>	<input checked="" type="checkbox"/>		
Shipping Documentation Present?	<input checked="" type="checkbox"/>		
Shipping Container	Vista	<u>Client</u>	Retain
		<u>Return</u>	Dispose
Chain of Custody / Sample Documentation Present?	<input checked="" type="checkbox"/>		
Chain of Custody / Sample Documentation Complete?	<input checked="" type="checkbox"/>		
Holding Time Acceptable?	<input checked="" type="checkbox"/>		

Logged In:	Date/Time		Initials:		Location: <u>P-13 WV-2</u>	
	<u>08/24/21 12:00</u>		<u>[Signature]</u>		Shelf/Rack: <u>A-4 B-4</u>	
COC Anomaly/Sample Acceptance Form completed?					<input type="checkbox"/>	<input checked="" type="checkbox"/>

Comments:

CoC/Label Reconciliation Report WO# 2108221

LabNumber	CoC Sample ID		SampleAlias	Sample Date/Time		Container	BaseMatrix	Sample Comments
2108221-01	A 3121	<input checked="" type="checkbox"/>	21H2617-01	18-Aug-21 08:38	<input checked="" type="checkbox"/>	Polypropylene, 250mL	Aqueous	
2108221-01	B 3121	<input checked="" type="checkbox"/>	21H2617-01	18-Aug-21 08:38	<input checked="" type="checkbox"/>	Polypropylene, 250mL	Aqueous	

Checkmarks indicate that information on the COC reconciled with the sample label.

Any discrepancies are noted in the following columns.

	Yes	No	NA
Sample Container Intact?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sample Custody Seals Intact?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Adequate Sample Volume?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Container Type Appropriate for Analysis(es)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Comments:

Preservation Documented: Na2S2O3 Trizma
AFC
14 NH4CH3CO2 None Other

Verified by/Date:

14 08/24/21

September 17, 2021

Alpha Analytical Laboratories, Inc.
 Attn: Leslie Quinn
 208 Mason St.
 Ukiah, CA 95482

Lab ID : SP 2111724
 Customer : 2-20626

Laboratory Report

Introduction: This report package contains total of 4 pages divided into 3 sections:

Case Narrative	(1 pages) : An overview of the work performed at FGL.
Sample Results	(2 pages) : Results for each sample submitted.
Quality Control	(1 page) : Supporting Quality Control (QC) results.

Case Narrative

This Case Narrative pertains to the following samples:

Sample Description	Date Sampled	Date Received	FGL Lab ID #	Matrix
21H2617-01	08/18/2021	08/24/2021	SP 2111724-001	W

Sampling and Receipt Information: All samples were received in acceptable condition and within temperature requirements, unless noted on the Condition Upon Receipt (CUR) form. All samples arrived at 19 °C. All samples were prepared and analyzed within the method specified hold time. All samples were checked for pH if acid or base preservation is required (except for VOAs). For details of sample receipt information, please see the attached Chain of Custody and Condition Upon Receipt Form.


Quality Control: All samples were prepared and analyzed according to the following tables:

Radio QC

900.0	09/15/2021:214382 All analysis quality controls are within established criteria
	08/27/2021:209898 All preparation quality controls are within established criteria (performed at FGL-SP ELAP# 1573)

Certification:: I certify that this data package is in compliance with ELAP standards, both technically and for completeness, except for any conditions listed above. Release of the data contained in this data package is authorized by the Laboratory Director or his designee, as verified by the following electronic signature.

KD:MKH

Reviewed and Approved By **Kelly A. Dunnahoo, B.S.**  Digitally signed by Kelly A. Dunnahoo, B.S.
 Title: Laboratory Director
 Date: 2021-09-17

September 17, 2021

Lab ID : SP 2111724-001
Customer ID : 2-20626

Alpha Analytical Laboratories, Inc.

Attn: Leslie Quinn
208 Mason St.
Ukiah, CA 95482

Sampled On : August 18, 2021-08:38
Sampled By : Not Available
Received On : August 24, 2021-10:15
Matrix : Water

Description : 21H2617-01
Project : 21H2617

Sample Result - Radio

Constituent	Result ± Error	MDA	Units	MCL/AL	Sample Preparation		Sample Analysis	
					Method	Date/ID	Method	Date/ID
Radio Chemistry								
Gross Alpha	3.20 ± 1.88	2.50	pCi/L	15/5	900.0	08/27/21-07:30 2P2109898	900.0	09/15/21-13:11 2A2114382
Gross Beta	2.38 ± 1.23	1.44	pCi/L	50	900.0	08/27/21-07:30 2P2109898	900.0	09/15/21-13:11 2A2114382

ND=Non-Detected. PQL=Practical Quantitation Limit. * PQL adjusted for dilution.

MDA = Minimum Detectable Activity (Calculated at the 95% confidence level) = Data utilized by DHS to determine matrix interference.
MCL / AL = Maximum Contamination Level / Action Level. Alpha's Action Level of 5 pCi/L is based on the Assigned Value (AV).
AV = Assigned Value(Gross Alpha Result + (0.84 x Error)). CCR Section 64442: Drinking Water Compliance Note: Do the following
If Gross Alpha's (AV) exceeds 5 pCi/L run Uranium. If Gross Alpha's (AV) minus Uranium exceeds 5 pCi/L run Radium 226.

Drinking Water Compliance:

Gross Alpha (AV) minus Uranium is less than or equal to 15 pCi/L
Uranium is less than or equal to 20 pCi/L
Radium 226 + Radium 228 is less than or equal to 5 pCi/L

Note: Samples are held for 3-6 months prior to disposal.

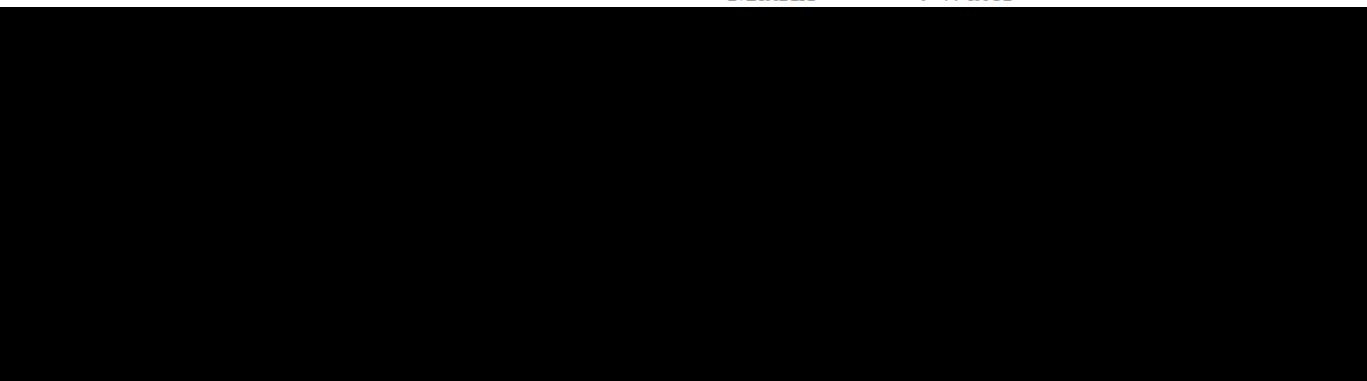
September 17, 2021

Lab ID : SP 2111724-002
Customer ID : 2-20626

Alpha Analytical Laboratories, Inc.

Attn: Leslie Quinn
208 Mason St.
Ukiah, CA 95482

Sampled On : August 18, 2021-12:00
Sampled By : Not Available
Received On : August 24, 2021-10:15
Matrix : Water



ND = Non Detected. PQS = Practical Quantitation Limit. PQS adjusted for dilution.

MDA = Minimum Detectable Activity (Calculated at the 95% confidence level) = Data utilized by DHS to determine matrix interference.
MCL / AL = Maximum Contamination Level / Action Level. Alpha's Action Level of 5 pCi/L is based on the Assigned Value (AV).
AV = Assigned Value (Gross Alpha Result + (0.84 x Error)). CCR Section 64442: Drinking Water Compliance Note: Do the following
If Gross Alpha's (AV) exceeds 5 pCi/L run Uranium. If Gross Alpha's (AV) minus Uranium exceeds 5 pCi/L run Radium 226.

Drinking Water Compliance:

Gross Alpha (AV) minus Uranium is less than or equal to 15 pCi/L
Uranium is less than or equal to 20 pCi/L
Radium 226 + Radium 228 is less than or equal to 5 pCi/L

Note: Samples are held for 3-6 months prior to disposal.

September 17, 2021
Alpha Analytical Laboratories, Inc.

Lab ID : SP 2111724
 Customer : 2-20626

Quality Control - Radio

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Radio Alpha	900.0	09/15/21:214382JCA	CCV CCB	cpm cpm	7347	41.9 % 0.1200	35-47 0.15	
Beta	900.0	09/15/21:214382JCA	CCV CCB	cpm cpm	7347	94.4 % 0.460	83-94 0.5	
Gross Alpha	900.0	08/27/21:209898jca (SP 2111724-001)	Blank LCS MS MSD MSRPD	pCi/L pCi/L pCi/L pCi/L pCi/L	 201.1 201.1 201.1 201.1	0.26 78.6 % 114 % 115 % 0.7%	3 75-125 60-140 60-140 ≤30	
Gross Beta	900.0	08/27/21:209898jca (SP 2111724-001)	Blank LCS MS MSD MSRPD	pCi/L pCi/L pCi/L pCi/L pCi/L	 35.25 35.25 35.25 201.1	0.63 110 % 93.6 % 90.2 % 3.4%	4 84-160 80-130 80-130 ≤30	
Definition								
CCV : Continuing Calibration Verification - Analyzed to verify the instrument calibration is within criteria.								
CCB : Continuing Calibration Blank - Analyzed to verify the instrument baseline is within criteria.								
Blank : Method Blank - Prepared to verify that the preparation process is not contributing contamination to the samples.								
LCS : Laboratory Control Standard/Sample - Prepared to verify that the preparation process is not affecting analyte recovery.								
MS : Matrix Spikes - A random sample is spiked with a known amount of analyte. The recoveries are an indication of how that sample matrix affects analyte recovery.								
MSD : Matrix Spike Duplicate of MS/MSD pair - A random sample duplicate is spiked with a known amount of analyte. The recoveries are an indication of how that sample matrix affects analyte recovery.								
MSRPD : MS/MSD Relative Percent Difference (RPD) - The MS relative percent difference is an indication of precision for the preparation and analysis.								
DQO : Data Quality Objective - This is the criteria against which the quality control data is compared.								

September 17, 2021

Alpha Analytical Laboratories, Inc.
Attn: Leslie Quinn
208 Mason St.
Ukiah, CA 95482

Subject: Subcontract Analysis for FGL Lab No. SP 2111724

Enclosed please find results for the following sample(s) which were received by FGL.

- Sub Contracted-Strontium 90

Please note that this analysis was performed by Pace Analytical (ELAP Certified Laboratory)

Thank you for using FGL Environmental.

Sincerely,

Tracy Proefrock  Digitally signed by Tracy Proefrock
Title: Customer Service Rep
Date: 2021-09-17

Enclosure

September 15, 2021

Cindy Aguirre
FGL Environmental, Inc.
853 Corporation St.
Santa Paula, CA 930603005

RE: Project: SP 2111724
Pace Project No.: 30437814

Dear Cindy Aguirre:

Enclosed are the analytical results for sample(s) received by the laboratory on August 26, 2021. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

- Pace Analytical Services - Greensburg

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Karen L. Smetanka
karen.smetanka@pacelabs.com
(724)850-5600
Project Manager

Enclosures



REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

CERTIFICATIONS

Project: SP 2111724

Pace Project No.: 30437814

Pace Analytical Services Pennsylvania

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601

ANAB DOD-ELAP Rad Accreditation #: L2417

Alabama Certification #: 41590

Arizona Certification #: AZ0734

Arkansas Certification

California Certification #: 04222CA

Colorado Certification #: PA01547

Connecticut Certification #: PH-0694

Delaware Certification

EPA Region 4 DW Rad

Florida/TNI Certification #: E87683

Georgia Certification #: C040

Florida: Cert E871149 SEKS WET

Guam Certification

Hawaii Certification

Idaho Certification

Illinois Certification

Indiana Certification

Iowa Certification #: 391

Kansas/TNI Certification #: E-10358

Kentucky Certification #: KY90133

KY WW Permit #: KY0098221

KY WW Permit #: KY0000221

Louisiana DHH/TNI Certification #: LA180012

Louisiana DEQ/TNI Certification #: 4086

Maine Certification #: 2017020

Maryland Certification #: 308

Massachusetts Certification #: M-PA1457

Michigan/PADEP Certification #: 9991

Missouri Certification #: 235

Montana Certification #: Cert0082

Nebraska Certification #: NE-OS-29-14

Nevada Certification #: PA014572018-1

New Hampshire/TNI Certification #: 297617

New Jersey/TNI Certification #: PA051

New Mexico Certification #: PA01457

New York/TNI Certification #: 10888

North Carolina Certification #: 42706

North Dakota Certification #: R-190

Ohio EPA Rad Approval: #41249

Oregon/TNI Certification #: PA200002-010

Pennsylvania/TNI Certification #: 65-00282

Puerto Rico Certification #: PA01457

Rhode Island Certification #: 65-00282

South Dakota Certification

Tennessee Certification #: 02867

Texas/TNI Certification #: T104704188-17-3

Utah/TNI Certification #: PA014572017-9

USDA Soil Permit #: P330-17-00091

Vermont Dept. of Health: ID# VT-0282

Virgin Island/PADEP Certification

Virginia/VELAP Certification #: 9526

Washington Certification #: C868

West Virginia DEP Certification #: 143

West Virginia DHHR Certification #: 9964C

Wisconsin Approve List for Rad

Wyoming Certification #: 8TMS-L

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: SP 2111724

Pace Project No.: 30437814

Lab ID	Sample ID	Matrix	Date Collected	Date Received
30437814001	21H2617-01	Water	08/18/21 08:38	08/26/21 10:30
30437814002	21H2617-02	Water	08/18/21 12:00	08/26/21 10:30

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: SP 2111724

Pace Project No.: 30437814

Lab ID	Sample ID	Method	Analysts	Analytes Reported
30437814001	21H2617-01	EPA 905.0	JJY	1
30437814002	21H2617-02	EPA 905.0	JJY	1

PASI-PA = Pace Analytical Services - Greensburg

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: SP 2111724

Pace Project No.: 30437814

Sample: 21H2617-01		Lab ID: 30437814001	Collected: 08/18/21 08:38	Received: 08/26/21 10:30	Matrix: Water		
PWS:		Site ID:	Sample Type:				
Parameters	Method	Act ± Unc (MDC) Carr Trac		Units	Analyzed	CAS No.	Qual
Pace Analytical Services - Greensburg							
Strontium-90	EPA 905.0	-0.183 ± 0.353 (0.700) C:101% T:NA		pCi/L	09/14/21 17:14	10098-97-2	

Sample: 21H2617-02		Lab ID: 30437814002	Collected: 08/18/21 12:00	Received: 08/26/21 10:30	Matrix: Water		
PWS:		Site ID:	Sample Type:				
Parameters	Method	Act ± Unc (MDC) Carr Trac		Units	Analyzed	CAS No.	Qual
Pace Analytical Services - Greensburg							
Strontium-90	EPA 905.0	-0.0380 ± 0.404 (0.784) C:98% T:NA		pCi/L	09/14/21 17:14	10098-97-2	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL - RADIOCHEMISTRY

Project: SP 2111724

Pace Project No.: 30437814

QC Batch: 462847

Analysis Method: EPA 905.0

QC Batch Method: EPA 905.0

Analysis Description: 905.0 Strontium 89/90

Laboratory: Pace Analytical Services - Greensburg

Associated Lab Samples: 30437814001, 30437814002

METHOD BLANK: 2234496

Matrix: Water

Associated Lab Samples: 30437814001, 30437814002

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Strontium-90	-0.0231 ± 0.0704 (0.139) C:94% T:NA	pCi/L	09/14/21 17:15	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: SP 2111724
Pace Project No.: 30437814

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Reported results are not rounded until the final step prior to reporting. Therefore, calculated parameters that are typically reported as "Total" may vary slightly from the sum of the reported component parameters.

Act - Activity

Unc - Uncertainty: For Safe Drinking Water Act (SDWA) analyses, the reported Unc. is the calculated Count Uncertainty (95% confidence interval) using a coverage factor of 1.96. For all other matrices (non-SDWA), the reported Unc. is the calculated Expanded Uncertainty (aka Combined Standard Uncertainty, CSU), reported at the 95% confidence interval using a coverage factor of 1.96.

Gamma Spec: The Unc. reported for all gamma-spectroscopy analyses (EPA 901.1), is the calculated Expanded Uncertainty (CSU) at the 95.4% confidence interval, using a coverage factor of 2.0.

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)


Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

REPORT OF LABORATORY ANALYSIS

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**Subcontract to
Pace Analytical**

Chain of Custody Information				Sample Information				Test Description(s)			
Lab Number: Client: Fruit Growers Laboratory Address: 853 Corporation St. Santa Paula, CA 93060-3005 Phone: Contact: Project: SP 2111724 Purchase Order: Sampler(s): Not Available Compositor Setup Date: _____ Time: _____				Method of Sampling: Composite (C) Grab (G) Type of Sample: Potable (P) Non-Potable (NP) Ag Waiver (AgW) Bacti Type: Other (O) System (SYS) Source (SR) Waste (W) Bacti Reason: Routine (ROUT) Repeat (RPT) Replace (RPL) Other (O) Special (SPL) Sub Contracted-Strontium 90 COC: 20200923JRH-1 32oz (P) HMB				NO# : 30437814 			
Relinquished	Date	Time	Relinquished	Date	Time	Relinquished	Date	Time	Relinquished	Date	Time
Received By: <i>GLS</i>	Date: 8/24/21	Time: 17:30	Received By: <i>Barnes</i>	Date: 8-26-21	Time: 10:30	Received By:	Date	Time	Received By:	Date	Time
Remarks «Report Note:» Do not send to State! QC											

Pittsburgh Lab Sample Condition Upon Receipt



Client Name: FGL

Project # _____

Courier: ☐ Fed Ex ☒ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace Other _____

Tracking #: 1Z 942 031013 6023097

Label <u>MR</u>
LIMS Login <u>WPE</u>

Custody Seal on Cooler/Box Present: ☐ yes ☒ no Seals intact: ☐ yes ☒ no

Thermometer Used _____

Type of Ice: Wet Blue None

Cooler Temperature _____ Observed Temp _____ °C Correction Factor: _____ °C Final Temp: _____ °C

Temp should be above freezing to 6°C

Comments:	Yes	No	N/A	pH paper Lot#	Date and Initials of person examining contents:
Chain of Custody Present:	-			1000011	MR 8-27-21
Chain of Custody Filled Out:	-				
Chain of Custody Relinquished:	-				
Sampler Name & Signature on COC:		-			
Sample Labels match COC:	-				
-Includes date/time/ID					
Matrix: <u>US</u>					
Samples Arrived within Hold Time:	-				
Short Hold Time Analysis (<72hr remaining):		-			
Rush Turn Around Time Requested:		-			
Sufficient Volume:	-				
Correct Containers Used:	-				
-Pace Containers Used:		-			
Containers Intact:	-				
Orthophosphate field filtered			-		
Hex Cr Aqueous sample field filtered			-		
Organic Samples checked for dechlorination:			-		
Filtered volume received for Dissolved tests			-		
All containers have been checked for preservation.	-				
exceptions: VOA, coliform, TOC, O&G, Phenolics, Radon, Non-aqueous matrix				PH42	
All containers meet method preservation requirements.	-			Initial when completed <u>MR</u>	Date/time of preservation
				Lot # of added preservative	
Headspace in VOA Vials (>6mm):			-		
Trip Blank Present:			-		
Trip Blank Custody Seals Present			-		
Rad Samples Screened < 0.5 mrem/hr	-			Initial when completed <u>MR</u>	Date: <u>8-27-21</u> Survey Meter SN: <u>1563</u>

Client Notification/ Resolution:

Person Contacted: _____ Date/Time: _____ Contacted By: _____

Comments/ Resolution: _____

☐ A check in this box indicates that additional information has been stored in ereports.

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

*PM review is documented electronically in LIMS. When the Project Manager closes the SRF Review schedule in LIMS. The review is in the Status section of the Workorder Edit Screen.

30437814



Pace Greensburg Lab -Sample Container Count

30437814

Client

FG

Site

SP 2111724

Profile Number

13358

Notes

Sample Line Item	Matrix	AG1H	AG1S	AG1T	AG2U	AG3S	AG3U	AG5U	AG5T	BG1U	BG2U	BP1N	BP1U	BP2S	BP2U	BP3C	BP3N	BP3S	BP3U	DG9S	GCUB	VG9H	VG9T	VG9U	VOAK	WG9U	WGKU	ZPLC
1	W1																											
2	W1											1																
3																												
4																												
5																												
6																												
7																												
8																												
9																												
10																												
11																												
12																												

Container Codes

Glass

GJN	1 Gallon Jug with HNO3	DG9S	40mL amber VOA vial H2SO4
AG5U	100mL amber glass unpreserved	VG9U	40mL clear VOA vial
AG5T	100mL amber glass Na Thiosulfate	VG9T	40mL clear VOA vial Na Thiosul
GJN	1 Gallon Jug	VG9H	40mL clear VOA vial HCl
AG1S	1L amber glass H2SO4	JGFU	4oz amber wide jar
AG1H	1L amber glass HCl	WGFU	4oz wide jar unpreserved
AG1T	1L amber glass Na Thiosulfate	BG2U	500mL clear glass unpreserved
BG1U	1L clear glass unpreserved	AG2U	500mL amber glass unpreserved
AG3S	250mL amber glass H2SO4	WGKU	8oz wide jar unpreserved
AG3U	250mL amber glass unpreserved		

Plastic / Misc.

GCUB	1 Gallon Cubitainer	EZ1	5g Encore
12GN	1/2 Gallon Cubitainer	VOAK	Kit for Volatile Solid
SP5T	120mL Coliform Na Thiosulfate	I	Wipe/Swab
BP1N	1L plastic HNO3	ZPLC	Ziploc Bag
BP1U	1L plastic unpreserved		
BP3S	250mL plastic H2SO4	WT	Water
BP3N	250mL plastic HNO3	SL	Solid
BP3U	250mL plastic unpreserved	OL	Non-aqueous liquid
BP3C	250mL plastic NAOH	WP	Wipe
BP2S	500mL plastic H2SO4		
BP2U	500mL plastic unpreserved		

Work Orders: 1H24035

Report Date: 9/15/2021

Project: 21H2617

Received Date: 8/24/2021

Turnaround Time: Normal

Phones: (925) 872-9637

Fax: (707) 468-5267

P.O. #:

Billing Code:

Attn: David Pingatore

Client: Alpha Analytical Laboratories - Ukiah CA
208 Mason St
Ukiah, CA 95482

Dear David Pingatore,

Enclosed are the results of analyses for samples received 8/24/21 with the Chain-of-Custody document. The samples were received in good condition, at 2.9 °C and on ice. All analyses met the method criteria except as noted in the case narrative or in the report with data qualifiers.

Sample Results

Sample: 21H2617-01

Sampled: 08/18/21 8:38 by Client

1H24035-01 (Water)

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
Method: EPA 525.2		Instr: GCMS16				
Batch ID: W110028		Preparation: EPA 525.2/SPE		Prepared: 09/01/21 09:56		Analyst: rmr
Alachlor	ND	0.10	ug/l	1	09/10/21	
Atrazine	ND	0.10	ug/l	1	09/10/21	A-01
Benzo (a) pyrene	ND	0.10	ug/l	1	09/10/21	
Bis(2-ethylhexyl)adipate	ND	5.0	ug/l	1	09/10/21	
Bis(2-ethylhexyl)phthalate	ND	3.0	ug/l	1	09/10/21	
Bromacil	ND	0.50	ug/l	1	09/10/21	
Butachlor	ND	0.10	ug/l	1	09/10/21	
Captan	ND	1.0	ug/l	1	09/10/21	
Chlorpropham	ND	0.10	ug/l	1	09/10/21	A-01
Cyanazine	ND	0.10	ug/l	1	09/10/21	
Diazinon	ND	0.10	ug/l	1	09/10/21	
Dimethoate	ND	0.20	ug/l	1	09/10/21	A-01
Diphenamid	ND	0.10	ug/l	1	09/10/21	
Disulfoton	ND	0.10	ug/l	1	09/10/21	
EPTC	ND	0.10	ug/l	1	09/10/21	A-01
Metolachlor	ND	0.10	ug/l	1	09/10/21	
Metribuzin	ND	0.10	ug/l	1	09/10/21	
Molinate	ND	0.10	ug/l	1	09/10/21	A-01
Prometon	ND	0.10	ug/l	1	09/10/21	
Prometryn	ND	0.10	ug/l	1	09/10/21	

Sample Results

(Continued)

Sample: 21H2617-01

Sampled: 08/18/21 8:38 by Client

1H24035-01 (Water)

(Continued)

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
Method: EPA 525.2		Instr: GCMS16				
Batch ID: W110028		Preparation: EPA 525.2/SPE		Prepared: 09/01/21 09:56		Analyst: rmr
Simazine	ND	0.10	ug/l	1	09/10/21	
Terbacil	ND	2.0	ug/l	1	09/10/21	
Thiobencarb	ND	0.10	ug/l	1	09/10/21	
Trithion	ND	0.10	ug/l	1	09/10/21	
<i>Surrogate(s)</i>						
1,3-Dimethyl-2-nitrobenzene	77%	70-130	Conc: 3.97		09/10/21	
Perylene-d12	100%	50-120	Conc: 5.12		09/10/21	
Triphenyl phosphate	270%	70-130	Conc: 13.9		09/10/21	S-11



Sample Results

Certificate of Analysis

FINAL REPORT

(Continued)

1H24035-02 (Water)

Quality Control Results

Semivolatile Organic Compounds by GC/MS

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch: W110028 - EPA 525.2/SPE										
Blank (W110028-BLK1)				Prepared: 09/01/21 Analyzed: 09/10/21						
Alachlor	ND	0.10	ug/l							
Atrazine	ND	0.10	ug/l							A-01
Benzo (a) pyrene	ND	0.10	ug/l							
Bis(2-ethylhexyl)adipate	ND	2.0	ug/l							
Bis(2-ethylhexyl)phthalate	ND	2.0	ug/l							
Bromacil	ND	0.50	ug/l							
Butachlor	ND	0.10	ug/l							
Captan	ND	1.0	ug/l							
Chlorpropham	ND	0.10	ug/l							A-01
Cyanazine	ND	0.10	ug/l							
Diazinon	ND	0.10	ug/l							
Dimethoate	ND	0.20	ug/l							A-01
Diphenamid	ND	0.10	ug/l							
Disulfoton	ND	0.10	ug/l							
EPTC	ND	0.10	ug/l							A-01
Metolachlor	ND	0.10	ug/l							
Metribuzin	ND	0.10	ug/l							
Molinate	ND	0.10	ug/l							A-01
Prometon	ND	0.10	ug/l							
Prometryn	ND	0.10	ug/l							
Propachlor	0.00		ug/l							
Simazine	ND	0.10	ug/l							
Terbacil	ND	2.0	ug/l							
Thiobencarb	ND	0.10	ug/l							
Trithion	ND	0.10	ug/l							
Surrogate(s)										
1,3-Dimethyl-2-nitrobenzene	3.60		ug/l	5.00		72	70-130			
Perylene-d12	4.86		ug/l	5.00		97	50-120			
Triphenyl phosphate	10.9		ug/l	5.00		217	70-130			S-11
LCS (W110028-B51)				Prepared: 09/01/21 Analyzed: 09/10/21						
Alachlor	5.98	0.10	ug/l	5.00		120	70-130			
Atrazine	10.4	0.10	ug/l	5.00		209	70-130			Q-08
Benzo (a) pyrene	5.40	0.10	ug/l	5.00		108	60-130			
Bis(2-ethylhexyl)adipate	8.09	2.0	ug/l	5.00		162	70-130			Q-08
Bis(2-ethylhexyl)phthalate	8.02	2.0	ug/l	5.00		160	70-130			Q-08
Bromacil	5.10	0.50	ug/l	5.00		102	70-130			
Butachlor	5.49	0.10	ug/l	5.00		110	70-130			
Captan	7.04	1.0	ug/l	5.00		141	70-130			Q-08
Chlorpropham	9.59	0.10	ug/l	5.00		192	70-130			Q-08
Cyanazine	6.05	0.10	ug/l	5.00		121	70-130			
Diazinon	3.65	0.10	ug/l	5.00		73	50-120			
Dimethoate	7.37	0.20	ug/l	5.00		147	50-120			Q-08
Diphenamid	7.11	0.10	ug/l	5.00		142	70-130			Q-08

Quality Control Results

(Continued)

Semivolatile Organic Compounds by GC/MS (Continued)

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch: W110028 - EPA 525.2/SPE (Continued)										
LCS (W110028-BS1)				Prepared: 09/01/21 Analyzed: 09/10/21						
Disulfoton	4.73	0.10	ug/l	5.00		95	50-120			
EPTC	5.44	0.10	ug/l	5.00		109	70-130			
Metolachlor	5.58	0.10	ug/l	5.00		112	60-130			
Metribuzin	4.20	0.10	ug/l	5.00		84	50-120			
Molinate	7.47	0.10	ug/l	5.00		149	70-130			Q-08
Prometon	1.00	0.10	ug/l	5.00		20	15-120			
Prometryn	4.26	0.10	ug/l	5.00		85	30-120			
Simazine	4.99	0.10	ug/l	5.00		100	60-130			
Terbacil	6.44	2.0	ug/l	5.00		129	70-130			
Thiobencarb	4.32	0.10	ug/l	5.00		86	70-130			
Trithion	4.82	0.10	ug/l	5.00		96	70-130			
Surrogate(s)										
1,3-Dimethyl-2-nitrobenzene	4.32		ug/l	5.00		86	70-130			
Perylene-d12	5.26		ug/l	5.00		105	50-120			
Triphenyl phosphate	7.68		ug/l	5.00		154	70-130			S-11
LCS Dup (W110028-BSD1)				Prepared: 09/01/21 Analyzed: 09/09/21						
Alachlor	6.15	0.10	ug/l	5.00		123	70-130	3	30	
Atrazine	7.62	0.10	ug/l	5.00		152	70-130	31	30	Q-08
Benzo (a) pyrene	5.45	0.10	ug/l	5.00		109	60-130	1	30	
Bis(2-ethylhexyl)adipate	7.03	2.0	ug/l	5.00		141	70-130	14	30	Q-08
Bis(2-ethylhexyl)phthalate	7.27	2.0	ug/l	5.00		145	70-130	10	30	Q-08
Bromacil	5.31	0.50	ug/l	5.00		106	70-130	4	30	
Butachlor	5.56	0.10	ug/l	5.00		111	70-130	1	30	
Captan	7.02	1.0	ug/l	5.00		140	70-130	0.2	30	Q-08
Chlorpropham	7.33	0.10	ug/l	5.00		147	70-130	27	30	Q-08
Cyanazine	5.56	0.10	ug/l	5.00		111	70-130	8	30	
Diazinon	4.18	0.10	ug/l	5.00		84	50-120	14	30	
Dimethoate	6.24	0.20	ug/l	5.00		125	50-120	17	30	Q-08
Diphenamid	6.53	0.10	ug/l	5.00		131	70-130	8	30	Q-08
Disulfoton	4.89	0.10	ug/l	5.00		98	50-120	3	30	
EPTC	5.64	0.10	ug/l	5.00		113	70-130	4	30	
Metolachlor	5.77	0.10	ug/l	5.00		115	60-130	3	30	
Metribuzin	4.75	0.10	ug/l	5.00		95	50-120	12	30	
Molinate	7.07	0.10	ug/l	5.00		141	70-130	6	30	Q-08
Prometon	1.33	0.10	ug/l	5.00		27	15-120	28	30	
Prometryn	4.65	0.10	ug/l	5.00		93	30-120	9	30	
Simazine	5.69	0.10	ug/l	5.00		114	60-130	13	30	
Terbacil	6.71	2.0	ug/l	5.00		134	70-130	4	30	Q-08
Thiobencarb	4.59	0.10	ug/l	5.00		92	70-130	6	30	
Trithion	4.82	0.10	ug/l	5.00		96	70-130	0.004	30	
Surrogate(s)										
1,3-Dimethyl-2-nitrobenzene	4.52		ug/l	5.00		90	70-130			
Perylene-d12	5.32		ug/l	5.00		106	50-120			

Quality Control Results

(Continued)

Semivolatile Organic Compounds by GC/MS (Continued)

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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Batch: W110028 - EPA 525.2/SPE (Continued)

LCS Dup (W110028-BSD1)

Prepared: 09/01/21 Analyzed: 09/09/21

Surrogate(s)										
Triphenyl phosphate	6.77		ug/l	5.00		135	70-130			S-11

Notes and Definitions

Item	Definition
A-01	Low recovery of associated IS. Analyte was judged ND based on standard below reporting limit.
Q-08	High bias in the QC sample does not affect sample result since analyte was not detected or below the reporting limit.
S-11	Surrogate recovery outside of control limits. The data was accepted based on valid recovery of the remaining surrogate.
S-GC	Surrogate recovery outside of control limits due to a possible matrix effect. The data was accepted based on valid recovery of the remaining surrogate.
%REC	Percent Recovery
Dil	Dilution
MRL	The minimum levels, concentrations, or quantities of a target variable (e.g., target analyte) that can be reported with a specified degree of confidence. The MRL is also known as Limit of Quantitation (LOQ)
ND	NOT DETECTED at or above the Method Reporting Limit (MRL). If Method Detection Limit (MDL) is reported, then ND means not detected at or above the MDL.
RPD	Relative Percent Difference

Any remaining sample(s) will be disposed of one month from the final report date unless other arrangements are made in advance.

All results are expressed on wet weight basis unless otherwise specified.

All samples collected by Weck Laboratories have been sampled in accordance to laboratory SOP Number MIS002.

Reviewed by:



Rahul R. Nair
Project Manager



DoD-ELAP ANAB #ADE-2882 • DoD-ISO ANAB # • ELAP-CA #1132 • EPA-UCMR #CA00211 • Guam-EPA #17-008R • HW-DOH #4047 • ISO17025 ANAB #L2457.01 • LACSD #10143 • NELAP-OR #4047 • NJ-DEP #CA015 • SCAQMD #93LA1006

This is a complete final report. The information in this report applies to the samples analyzed in accordance with the chain-of-custody document. Weck Laboratories certifies that the test results meet all requirements of TNI unless noted by qualifiers or written in the Case Narrative. This analytical report must be reproduced in its entirety.

Report to:		Invoice to (if different):		Project Info:		Analysis Request														TAT		Temp °C	
Company: Todd Groundwater		Contact:		Project Name: Round 3 ASR Water Quality Baseline																Standard 10-day 0		Ukiah 3.0	
Attn: Nicole Grimm		Email Address:		Project Number:																RUSH: 5-day 25% 0		Livermore	
Phone: 510-747-6920		Phone:		PO Number:																2-day 75% 0		Elk Grove	
Physical Address: 2490 Mariner Square Loop, Suite 215, Alameda CA 94501				Frequency: Add-ons / log separate																Other 0		Petaluma	
Email address: ngrimm@toddgroundwater.com																				days		Carlsbad	
Field Sampler - Printed Name and Signature: Nicole Grimm																				Poly size		Los Angeles	
Sample Identification		Sampled on: Time Date																		250mL x		Source Code	
3121		8:38 8/18/21																		500mL			
																				1L			
																				Half G			
																				bacti			
Relinquished by:		Received by:		Time		Date		Additional Requirements															
[Signature]		[Signature]		1605		8/18/21		0 CA DDW Write-On EDT State System No: _____															
[Signature]		[Signature]		1900		8/18/21		0 CA GeoTracker Facility Global ID No: _____															
[Signature]		[Signature]		2215		8/18/21		EDF Report Sampling Company Log Code: _____															

21H2617

Alpha Analytical Laboratories Ukiah to North Bay Chain of Custody

Client: **Todd Groundwater** Client Code: **DP_TODENG** Bid: **Round 3 ASR Water Quality**
Project: **Round 3 ASR Water Quality Baseline** Project Number: **Round 3 ASR Water Quality PO #:**

Date Due: 09/02/21 15:00 (10 day TAT)

Received By: James Bixler

Date Received: 08/18/21 22:15

Logged In By: Sean Foley

Date Logged: 08/19/21 08:32

Samples Received at: _____ deg C

All containers received and intact: YES NO

Analysis**Department****Expires****Comments****21H2617-01 3121 [Water] Sampled 08/18/21 08:38**NB Silica as SiO₂ ICP 200.7

NB Metals

02/14/22 08:38

21H2617-02 3123 [Water] Sampled 08/18/21 12:00NB Silica as SiO₂ ICP 200.7

NB Metals

02/14/22 12:00

Containers Supplied:250mL Poly HNO₃ (J)250mL Poly HNO₃ (J)

Relinquished By

Date

Time

Received By

Date

Time

Relinquished By

Date

Time

Received By

Date

Time



Alpha Analytical Laboratories, Inc. email: clientservices@alpha-labs.com
Corporate: 208 Mason Street | Ukiah, CA 95482 | T: 707-468-0401 | F: 707-468-5267 | ELAP# 1551

24 September 2021

Todd Groundwater
Attn: Nicole Grimm
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501
RE: Round 3 ASR Water Quality Baseline
Work Order: 21H2633

Enclosed are the results of analyses for samples received by the laboratory on 08/18/21 22:15. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Alisabeth J. Wilcox For David S. Pingatore
Project Manager



Alpha Analytical Laboratories, Inc. email: clientservices@alpha-labs.com
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Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: Round 3 ASR Water Quality Baseline

Reported:
09/24/21 16:57

Bay Area: 262 Rickenbacker Circle | Livermore, CA 94551 | T: 925-828-6226 | F: 925-828-6309 | ELAP# 2728
Central Valley: 9090 Union Park Way Suite 113 | Elk Grove, CA 95624 | T: 916-686-5190 | F: 916-686-5192 | ELAP# 2922
North Bay: 110 Liberty Street | Petaluma, CA 94952 | T: 707-769-3128 | F: 707-769-8093 | ELAP# 2303
San Diego: 2722 Loker Avenue West Suite A | Carlsbad, CA 92010 | T: 760-930-2555 | F: 760-930-2510 | ELAP# 3055

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
3121	21H2633-01	Water	08/18/21 09:10	08/18/21 22:15



Alpha Analytical Laboratories, Inc. email: clientservices@alpha-labs.com
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Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: Round 3 ASR Water Quality Baseline

Reported:
09/24/21 16:57

	Result	Reporting Limit	Dilution	Batch	Prepared	Analyzed	ELAP#	Method	Note
3121 (21H2633-01)									
		Sample Type: Water			Sampled: 08/18/21 09:10				
Metals (Dissolved) by EPA 200 Series Methods									
Mercury, dissolved	ND ug/L	0.20	1	AH13118	09/02/21 08:47	09/03/21 09:02	1551	EPA 245.1	FILT
Calcium, dissolved	54 mg/L	1.0	1	AH14872	09/01/21 13:35	09/03/21 17:04	1551	EPA 200.7	
Iron, dissolved	ND mg/L	0.10	1	AH14872	09/01/21 13:35	09/03/21 17:04	1551	EPA 200.7	
Magnesium, dissolved	61 mg/L	1.0	1	AH14872	09/01/21 13:35	09/03/21 17:04	1551	EPA 200.7	
Potassium, dissolved	3.2 mg/L	1.0	1	AH14872	09/01/21 13:35	09/03/21 17:04	1551	EPA 200.7	
Sodium, dissolved	180 mg/L	1.0	1	AH14872	09/01/21 13:35	09/03/21 17:04	1551	EPA 200.7	
Metals (Dissolved) by EPA Method 200.8 ICP/MS									
Aluminum, dissolved	ND ug/L	100	10	AH14197	08/24/21 17:10	08/27/21 14:03	1551	EPA 200.8	FILT R-01
Antimony, dissolved	ND ug/L	0.50	1	AH14197	08/24/21 17:10	08/26/21 02:03	1551	EPA 200.8	
Arsenic, dissolved	4.9 ug/L	0.50	1	AH14197	08/24/21 17:10	08/26/21 02:03	1551	EPA 200.8	
Barium, dissolved	41 ug/L	0.50	1	AH14197	08/24/21 17:10	08/26/21 02:03	1551	EPA 200.8	
Beryllium, dissolved	ND ug/L	0.10	1	AH14197	08/24/21 17:10	08/26/21 02:03	1551	EPA 200.8	
Boron, dissolved	1900 ug/L	500	10	AH14197	08/24/21 17:10	08/27/21 14:03	1551	EPA 200.8	
Cadmium, dissolved	ND ug/L	0.10	1	AH14197	08/24/21 17:10	08/26/21 02:03	1551	EPA 200.8	
Chromium, dissolved	12 ug/L	0.50	1	AH14197	08/24/21 17:10	08/26/21 02:03	1551	EPA 200.8	
Copper, dissolved	24 ug/L	0.50	1	AH14197	08/24/21 17:10	08/26/21 02:03	1551	EPA 200.8	
Lead, dissolved	0.30 ug/L	0.25	1	AH14197	08/24/21 17:10	08/26/21 02:03	1551	EPA 200.8	
Manganese, dissolved	ND ug/L	5.0	1	AH14197	08/24/21 17:10	08/26/21 02:03	1551	EPA 200.8	
Molybdenum, dissolved	5.4 ug/L	0.25	1	AH14197	08/24/21 17:10	08/26/21 02:03	1551	EPA 200.8	
Nickel, dissolved	1.2 ug/L	0.50	1	AH14197	08/24/21 17:10	08/26/21 02:03	1551	EPA 200.8	
Selenium, dissolved	5.4 ug/L	2.0	1	AH14197	08/24/21 17:10	08/26/21 02:03	1551	EPA 200.8	
Silver, dissolved	ND ug/L	1.0	10	AH14197	08/24/21 17:10	08/27/21 14:03	1551	EPA 200.8	
Thallium, dissolved	ND ug/L	0.10	1	AH14197	08/24/21 17:10	08/26/21 02:03	1551	EPA 200.8	
Vanadium, dissolved	6.5 ug/L	1.0	1	AH14197	08/24/21 17:10	08/26/21 02:03	1551	EPA 200.8	
Zinc, dissolved	13 ug/L	5.0	1	AH14197	08/24/21 17:10	08/26/21 02:03	1551	EPA 200.8	



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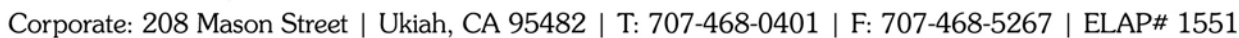
Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: Round 3 ASR Water Quality Baseline

Reported:
09/24/21 16:57

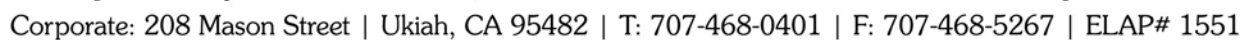
	Result	Reporting Limit	Dilution	Batch	Prepared	Analyzed	ELAP#	Method	Note
3121 (21H2633-01)									
Sample Type: Water				Sampled: 08/18/21 09:10					
Conventional Chemistry Parameters by APHA/EPA Methods									
Color	ND CU	5.0	1	AH14313	08/18/21 16:48	08/18/21 16:48	2728	SM2120B	
MBAS, calculated as LAS, mw 340	ND mg/L	0.050	1	AH14260	08/20/21 08:15	08/20/21 16:30	1551	SM5540C	
Perchlorate	ND ug/L	2.0	1	AH14310	08/20/21 08:00	08/20/21 19:05	2303	EPA 314.0	
Sulfide	ND mg/L	0.10	1	AH14407	08/24/21 06:00	08/24/21 06:00	1551	SM4500-S2 D	
Total Dissolved Solids	940 mg/L	10	1	AH14424	08/24/21 10:40	09/03/21 14:57	1551	SM2540C	
Turbidity	0.10 NTU	0.10	1	AH14314	08/18/21 16:57	08/18/21 16:57	2728	SM2130B	
Bicarbonate Alkalinity as CaCO3	310 mg/L	5.0	1	AH14703	08/30/21 08:00	08/30/21 12:21	1551	SM2320B	
Carbonate Alkalinity as CaCO3	ND mg/L	5.0	1	AH14703	08/30/21 08:00	08/30/21 12:21	1551	SM2320B	
Hydroxide Alkalinity as CaCO3	ND mg/L	5.0	1	AH14703	08/30/21 08:00	08/30/21 12:21	1551	SM2320B	
Total Alkalinity as CaCO3	310 mg/L	5.0	1	AH14703	08/30/21 08:00	08/30/21 12:21	1551	SM2320B	
Hardness, Total	384 mg/L	5	1	AH14872	09/01/21 13:35	09/03/21 17:04	1551	SM2340B	
Anions by EPA Method 300.0									
Chloride	130 mg/L	5.0	10	AH14195	08/19/21 15:30	08/19/21 15:30	1551	EPA 300.0	
Fluoride	0.32 mg/L	0.10	1	AH14195	08/19/21 14:23	08/19/21 14:23	1551	EPA 300.0	
Nitrate as N	3.7 mg/L	0.20	1	AH14195	08/19/21 14:23	08/19/21 14:23	1551	EPA 300.0	
Sulfate as SO4	220 mg/L	5.0	10	AH14195	08/19/21 15:30	08/19/21 15:30	1551	EPA 300.0	
Microbiological Parameters by APHA Standard Methods									
Total Coliforms	ND MPN/100mL	1.0	1	AH14327	08/18/21 16:35	08/19/21 16:35	2728	SM9223B	
E. Coli	ND MPN/100mL	1.0	1	AH14327	08/18/21 16:35	08/19/21 16:35	2728	SM9223B	
Volatile Organic Compounds by EPA Method 524.2									
Bromodichloromethane	ND ug/L	1.00	1	AH14496	08/25/21 15:00	08/25/21 23:29	1551	EPA 524.2	
Bromoform	ND ug/L	1.00	1	AH14496	08/25/21 15:00	08/25/21 23:29	1551	EPA 524.2	
Chloroform	ND ug/L	1.00	1	AH14496	08/25/21 15:00	08/25/21 23:29	1551	EPA 524.2	
Dibromochloromethane	ND ug/L	1.00	1	AH14496	08/25/21 15:00	08/25/21 23:29	1551	EPA 524.2	
Trihalomethanes (total)	ND ug/L	1.00	1	AH14496	08/25/21 15:00	08/25/21 23:29	1551	EPA 524.2	
Surrogate: Bromofluorobenzene	99.0 %	70-130		AH14496	08/25/21 15:00	08/25/21 23:29	1551	EPA 524.2	
Surrogate: Dibromofluoromethane	94.2 %	70-130		AH14496	08/25/21 15:00	08/25/21 23:29	1551	EPA 524.2	
Surrogate: Toluene-d8	96.6 %	70-130		AH14496	08/25/21 15:00	08/25/21 23:29	1551	EPA 524.2	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



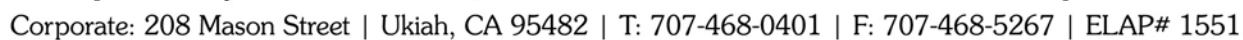
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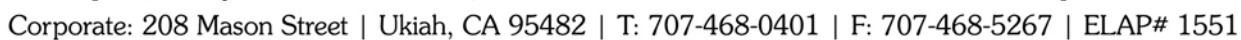
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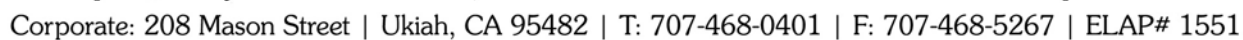
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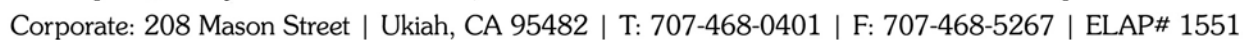
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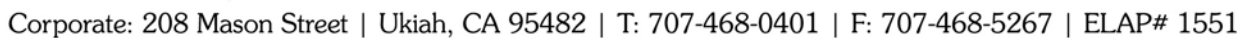
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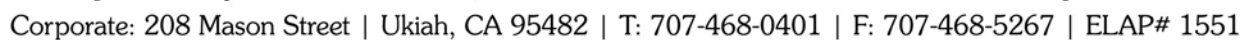
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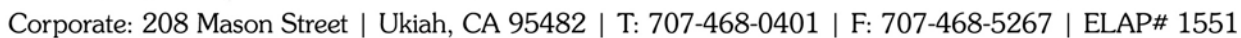
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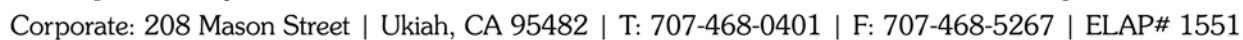
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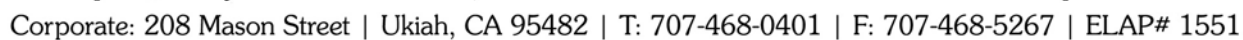
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Corporate: 208 Mason Street | Ukiah, CA 95482 | T: 707-468-0401 | F: 707-468-5267 | ELAP# 1551

Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: Round 3 ASR Water Quality Baseline

Reported:
09/24/21 16:57

Metals (Dissolved) by EPA 200 Series Methods - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch AH14872 - Metals Digest (D)										
Blank (AH14872-BLK1)				Prepared: 09/01/21 Analyzed: 09/03/21						
Calcium, dissolved	ND	10	mg/L							
Iron, dissolved	ND	0.10	mg/L							
Magnesium, dissolved	ND	10	mg/L							
Potassium, dissolved	ND	10	mg/L							
Sodium, dissolved	ND	10	mg/L							
LCS (AH14872-BS1)				Prepared: 09/01/21 Analyzed: 09/03/21						
Calcium, dissolved	8.37	10	mg/L	8.00		105	85-115			
Iron, dissolved	1.90	0.10	mg/L	2.00		95.1	85-115			
Magnesium, dissolved	8.66	10	mg/L	8.00		108	85-115			
Potassium, dissolved	8.06	10	mg/L	8.00		101	85-115			
Sodium, dissolved	8.12	10	mg/L	8.00		101	85-115			
Duplicate (AH14872-DUP1)				Source: 21H3452-01		Prepared: 09/01/21 Analyzed: 09/03/21				
Calcium, dissolved	48.0	10	mg/L		47.3			1.38	20	
Iron, dissolved	ND	0.10	mg/L		ND				20	
Magnesium, dissolved	28.7	10	mg/L		28.2			1.74	20	
Potassium, dissolved	4.07	10	mg/L		4.04			0.855	20	
Sodium, dissolved	23.1	10	mg/L		22.8			1.01	20	
Matrix Spike (AH14872-MS1)				Source: 21H3452-01		Prepared: 09/01/21 Analyzed: 09/03/21				
Calcium, dissolved	56.4	10	mg/L	8.00	47.3	114	70-130			
Iron, dissolved	1.91	0.10	mg/L	2.00	ND	95.5	70-130			
Magnesium, dissolved	37.9	10	mg/L	8.00	28.2	122	70-130			
Potassium, dissolved	12.6	10	mg/L	8.00	4.04	107	70-130			
Sodium, dissolved	30.6	10	mg/L	8.00	22.8	96.6	70-130			
Matrix Spike (AH14872-MS2)				Source: 21H3374-01		Prepared: 09/01/21 Analyzed: 09/03/21				
Calcium, dissolved	21.6	10	mg/L	8.00	12.9	108	70-130			
Iron, dissolved	1.95	0.10	mg/L	2.00	ND	97.3	70-130			
Magnesium, dissolved	17.3	10	mg/L	8.00	8.10	115	70-130			
Potassium, dissolved	9.84	10	mg/L	8.00	1.75	101	70-130			
Sodium, dissolved	27.1	10	mg/L	8.00	19.7	92.7	70-130			

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Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: Round 3 ASR Water Quality Baseline

Reported:
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Metals (Dissolved) by EPA 200 Series Methods - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
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Batch AH14872 - Metals Digest (D)

Matrix Spike Dup (AH14872-MSD1)

Source: 21H3452-01

Prepared: 09/01/21 Analyzed: 09/03/21

Calcium, dissolved	56.6	1.0	mg/L	8.00	47.3	117	70-130	0.409	20	
Iron, dissolved	1.87	0.10	mg/L	2.00	ND	93.6	70-130	1.95	20	
Magnesium, dissolved	37.4	1.0	mg/L	8.00	28.2	115	70-130	1.46	20	
Potassium, dissolved	12.4	1.0	mg/L	8.00	4.04	105	70-130	1.10	20	
Sodium, dissolved	30.8	1.0	mg/L	8.00	22.8	99.2	70-130	0.666	20	

Batch AI13118 - EPA 245.1 Hg Water

Blank (AI13118-BLK1)

Prepared: 09/02/21 Analyzed: 09/03/21

Mercury, dissolved	ND	0.20	ug/L							
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LCS (AI13118-BS1)

Prepared: 09/02/21 Analyzed: 09/03/21

Mercury, dissolved	2.56	0.20	ug/L	2.50		102	85-115			
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Duplicate (AI13118-DUP1)

Source: 21H2633-02

Prepared: 09/02/21 Analyzed: 09/03/21

Mercury, dissolved	ND	0.20	ug/L		ND				20	
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Matrix Spike (AI13118-MS1)

Source: 21H2633-02

Prepared: 09/02/21 Analyzed: 09/03/21

Mercury, dissolved	2.52	0.20	ug/L	2.50	ND	101	70-130			
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Matrix Spike Dup (AI13118-MSD1)

Source: 21H2633-02

Prepared: 09/02/21 Analyzed: 09/03/21

Mercury, dissolved	2.51	0.20	ug/L	2.50	ND	100	70-130	0.437	20	
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Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: Round 3 ASR Water Quality Baseline

Reported:
09/24/21 16:57

Metals (Dissolved) by EPA Method 200.8 ICP/MS - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Flag
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Batch AH14197 - EPA 200.8 (D)

Blank (AH14197-BLK1)

Prepared: 08/24/21 Analyzed: 08/27/21

Aluminum, dissolved	ND	10	ug/L						
Antimony, dissolved	ND	0.50	ug/L						
Arsenic, dissolved	ND	0.50	ug/L						
Barium, dissolved	ND	0.50	ug/L						
Beryllium, dissolved	ND	0.10	ug/L						
Boron, dissolved	ND	50	ug/L						
Cadmium, dissolved	ND	0.10	ug/L						
Chromium, dissolved	ND	0.50	ug/L						
Copper, dissolved	0.591	0.50	ug/L						
Lead, dissolved	ND	0.25	ug/L						
Manganese, dissolved	ND	5.0	ug/L						
Molybdenum, dissolved	ND	0.25	ug/L						
Nickel, dissolved	ND	0.50	ug/L						
Selenium, dissolved	ND	2.0	ug/L						
Silver, dissolved	ND	0.10	ug/L						
Thallium, dissolved	ND	0.10	ug/L						
Vanadium, dissolved	ND	1.0	ug/L						
Zinc, dissolved	ND	5.0	ug/L						

LCS (AH14197-BS1)

Prepared: 08/24/21 Analyzed: 08/27/21

Aluminum, dissolved	554	10	ug/L	520	107	85-115
Antimony, dissolved	20.8	0.50	ug/L	20.0	104	85-115
Arsenic, dissolved	21.1	0.50	ug/L	20.0	105	85-115
Barium, dissolved	20.3	0.50	ug/L	20.0	102	85-115
Beryllium, dissolved	20.7	0.10	ug/L	20.0	104	85-115
Boron, dissolved	106	50	ug/L	100	106	85-115
Cadmium, dissolved	20.3	0.10	ug/L	20.0	101	85-115
Chromium, dissolved	20.3	0.50	ug/L	20.0	101	85-115
Copper, dissolved	22.3	0.50	ug/L	20.0	112	85-115
Lead, dissolved	20.5	0.25	ug/L	20.0	103	85-115
Manganese, dissolved	20.5	5.0	ug/L	20.0	102	85-115
Molybdenum, dissolved	21.3	0.25	ug/L	20.0	106	85-115
Nickel, dissolved	20.1	0.50	ug/L	20.0	100	85-115
Selenium, dissolved	21.6	2.0	ug/L	20.0	108	85-115
Silver, dissolved	18.0	0.10	ug/L	20.0	90.1	85-115

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Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: Round 3 ASR Water Quality Baseline

Reported:
09/24/21 16:57

Metals (Dissolved) by EPA Method 200.8 ICP/MS - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch AH14197 - EPA 200.8 (D)										
LCS (AH14197-BS1)				Prepared: 08/24/21 Analyzed: 08/26/21						
Thallium, dissolved	20.4	0.10	ug/L	20.0		102	85-115			
Vanadium, dissolved	20.6	1.0	ug/L	20.0		103	85-115			
Zinc, dissolved	103	5.0	ug/L	100		103	85-115			
Duplicate (AH14197-DUP1)				Source: 21H2633-01 Prepared: 08/24/21 Analyzed: 08/27/21						
Aluminum, dissolved	ND	100	ug/L		ND				20	
Antimony, dissolved	ND	0.50	ug/L		ND				20	
Arsenic, dissolved	5.05	0.50	ug/L		4.88			3.43	20	
Barium, dissolved	41.3	0.50	ug/L		40.5			2.00	20	
Beryllium, dissolved	ND	0.10	ug/L		ND				20	
Boron, dissolved	1930	50	ug/L		1910			0.965	20	
Cadmium, dissolved	ND	0.10	ug/L		ND				20	
Chromium, dissolved	11.6	0.50	ug/L		11.5			1.13	20	
Copper, dissolved	24.4	0.50	ug/L		24.2			0.967	20	
Lead, dissolved	0.340	0.25	ug/L		0.296			14.0	20	
Manganese, dissolved	ND	5.0	ug/L		ND				20	
Molybdenum, dissolved	5.45	0.25	ug/L		5.36			1.49	20	
Nickel, dissolved	1.19	0.50	ug/L		1.20			0.848	20	
Selenium, dissolved	5.75	2.0	ug/L		5.43			5.61	20	
Silver, dissolved	ND	0.10	ug/L		0.218			200	20	
Thallium, dissolved	ND	0.10	ug/L		ND				20	
Vanadium, dissolved	6.40	1.0	ug/L		6.47			1.08	20	
Zinc, dissolved	13.8	5.0	ug/L		13.4			2.85	20	
MRL Check (AH14197-MRL1)				Prepared: 08/24/21 Analyzed: 08/27/21						
Aluminum, dissolved	12.2	10	ug/L	8.00		153	0-200			
Silver, dissolved	0.0833	0.10	ug/L	0.0800		104	0-200			
Thallium, dissolved	0.0721	0.10	ug/L	0.0800		90.1	0-200			
Vanadium, dissolved	0.878	1.0	ug/L	0.800		110	0-200			

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Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: Round 3 ASR Water Quality Baseline

Reported:
09/24/21 16:57

Metals (Dissolved) by EPA Method 200.8 ICP/MS - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch AH14197 - EPA 200.8 (D)										
Matrix Spike (AH14197-MS1)		Source: 21H2633-05		Prepared: 08/24/21		Analyzed: 08/27/21				
Aluminum, dissolved	616	10	ug/L	520	ND	117	70-130			QM-01
Antimony, dissolved	19.8	0.50	ug/L	20.0	ND	99.1	70-130			
Arsenic, dissolved	27.4	0.50	ug/L	20.0	7.71	98.7	70-130			
Barium, dissolved	82.4	0.50	ug/L	20.0	65.2	86.1	70-130			
Beryllium, dissolved	18.3	0.10	ug/L	20.0	ND	91.4	70-130			
Boron, dissolved	2380	50	ug/L	100	2470	NR	70-130			QM-4X
Cadmium, dissolved	18.5	0.10	ug/L	20.0	ND	92.6	70-130			
Chromium, dissolved	19.5	0.50	ug/L	20.0	ND	97.3	70-130			
Copper, dissolved	23.0	0.50	ug/L	20.0	3.01	100	70-130			
Lead, dissolved	16.2	0.25	ug/L	20.0	ND	80.8	70-130			
Manganese, dissolved	441	5.0	ug/L	20.0	429	63.4	70-130			QM-01
Molybdenum, dissolved	29.8	0.25	ug/L	20.0	8.61	106	70-130			
Nickel, dissolved	24.8	0.50	ug/L	20.0	7.15	88.4	70-130			
Selenium, dissolved	19.6	2.0	ug/L	20.0	ND	90.8	70-130			
Silver, dissolved	17.2	0.10	ug/L	20.0	ND	86.1	70-130			QM-01
Thallium, dissolved	16.0	0.10	ug/L	20.0	ND	80.2	70-130			
Vanadium, dissolved	24.9	1.0	ug/L	20.0	5.33	97.9	70-130			
Zinc, dissolved	98.0	5.0	ug/L	100	7.93	90.0	70-130			
Matrix Spike Dup (AH14197-MSD1)		Source: 21H2633-05		Prepared: 08/24/21		Analyzed: 08/27/21				
Aluminum, dissolved	621	10	ug/L	520	ND	118	70-130	0.734	20	QM-01
Antimony, dissolved	19.7	0.50	ug/L	20.0	ND	98.3	70-130	0.783	20	
Arsenic, dissolved	27.3	0.50	ug/L	20.0	7.71	98.0	70-130	0.533	20	
Barium, dissolved	82.5	0.50	ug/L	20.0	65.2	86.3	70-130	0.0474	20	
Beryllium, dissolved	18.3	0.10	ug/L	20.0	ND	91.7	70-130	0.349	20	
Boron, dissolved	2330	50	ug/L	100	2470	NR	70-130	2.06	20	QM-4X
Cadmium, dissolved	18.7	0.10	ug/L	20.0	ND	93.3	70-130	0.746	20	
Chromium, dissolved	19.8	0.50	ug/L	20.0	ND	99.0	70-130	1.72	20	
Copper, dissolved	23.1	0.50	ug/L	20.0	3.01	100	70-130	0.257	20	
Lead, dissolved	15.9	0.25	ug/L	20.0	ND	79.6	70-130	1.41	20	
Manganese, dissolved	448	5.0	ug/L	20.0	429	99.2	70-130	1.61	20	
Molybdenum, dissolved	29.8	0.25	ug/L	20.0	8.61	106	70-130	0.125	20	
Nickel, dissolved	25.3	0.50	ug/L	20.0	7.15	90.7	70-130	1.81	20	
Selenium, dissolved	19.8	2.0	ug/L	20.0	ND	91.7	70-130	0.900	20	
Silver, dissolved	17.6	0.10	ug/L	20.0	ND	88.1	70-130	2.40	20	QM-01

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Todd Groundwater
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Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: Round 3 ASR Water Quality Baseline

Reported:
09/24/21 16:57

Metals (Dissolved) by EPA Method 200.8 ICP/MS - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
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Batch AH14197 - EPA 200.8 (D)

Matrix Spike Dup (AH14197-MSD1)

Source: 21H2633-05

Prepared: 08/24/21 Analyzed: 08/26/21

Thallium, dissolved	15.6	0.10	ug/L	20.0	ND	78.2	70-130	2.57	20	
Vanadium, dissolved	25.3	1.0	ug/L	20.0	5.33	99.8	70-130	1.46	20	
Zinc, dissolved	98.6	5.0	ug/L	100	7.93	90.7	70-130	0.676	20	



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Project: Round 3 ASR Water Quality Baseline
Project Number: Round 3 ASR Water Quality Baseline

Reported:
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Conventional Chemistry Parameters by APHA/EPA Methods - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch AH14260 - General Preparation										
Blank (AH14260-BLK1)				Prepared & Analyzed: 08/20/21						
MBAS, calculated as LAS, mw 340	ND	0.050	mg/L							
LCS (AH14260-BS1)				Prepared & Analyzed: 08/20/21						
MBAS, calculated as LAS, mw 340	0.201	0.050	mg/L	0.200		101	80-120			
Matrix Spike (AH14260-MS1)				Source: 21H2633-01		Prepared & Analyzed: 08/20/21				
MBAS, calculated as LAS, mw 340	0.188	0.050	mg/L	0.200	ND	94.0	80-120			
Matrix Spike Dup (AH14260-MSD1)				Source: 21H2633-01		Prepared & Analyzed: 08/20/21				
MBAS, calculated as LAS, mw 340	0.201	0.050	mg/L	0.200	ND	101	80-120	6.84	20	
Batch AH14310 - NB General Prep										
Blank (AH14310-BLK1)				Prepared & Analyzed: 08/20/21						
Perchlorate	ND	2.0	ug/L							
LCS (AH14310-BS1)				Prepared & Analyzed: 08/20/21						
Perchlorate	9.58	2.0	ug/L	10.0		95.8	85-115			
Duplicate (AH14310-DUP1)				Source: 21H2468-01		Prepared & Analyzed: 08/20/21				
Perchlorate	ND	2.0	ug/L		ND				15	
Matrix Spike (AH14310-MS1)				Source: 21H2414-13		Prepared & Analyzed: 08/20/21				
Perchlorate	9.36	2.0	ug/L	10.0	ND	93.6	70-130			
Matrix Spike Dup (AH14310-MSD1)				Source: 21H2414-13		Prepared & Analyzed: 08/20/21				
Perchlorate	9.72	2.0	ug/L	10.0	ND	97.2	70-130	3.77	15	



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2490 Mariner Square Loop, Suite 215	Project: Round 3 ASR Water Quality Baseline	09/24/21 16:57
Alameda, CA 94501	Project Number: Round 3 ASR Water Quality Baseline	

Conventional Chemistry Parameters by APHA/EPA Methods - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch AH14314 - General Prep (BAL)										
Duplicate (AH14314-DUP1)		Source: 21H2633-03		Prepared & Analyzed: 08/18/21						
Turbidity	ND	0 10	NTU		ND				15	
Batch AH14407 - General Preparation										
Blank (AH14407-BLK1)		Prepared & Analyzed: 08/24/21								
Sulfide	ND	0 10	mg/L							
LCS (AH14407-BS1)		Prepared & Analyzed: 08/24/21								
Sulfide	0 230	0 10	mg/L	0 222		104	85-115			
Duplicate (AH14407-DUP1)		Source: 21H2633-01		Prepared & Analyzed: 08/24/21						
Sulfide	ND	0 10	mg/L		ND				15	
Matrix Spike (AH14407-MS1)		Source: 21H2633-01		Prepared & Analyzed: 08/24/21						
Sulfide	0 0910	0 10	mg/L	0 222	ND	41 0	80-120			QM-05
Matrix Spike Dup (AH14407-MSD1)		Source: 21H2633-01		Prepared & Analyzed: 08/24/21						
Sulfide	0 0900	0 10	mg/L	0 222	ND	40 5	80-120	1 10	15	QM-05
Batch AH14424 - General Preparation										
Blank (AH14424-BLK1)		Prepared: 08/24/21 Analyzed: 09/03/21								
Total Dissolved Solids	ND	10	mg/L							
Duplicate (AH14424-DUP1)		Source: 21H2326-01		Prepared: 08/24/21 Analyzed: 09/03/21						
Total Dissolved Solids	188	10	mg/L		172			8 89	15	



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2490 Mariner Square Loop, Suite 215	Project: Round 3 ASR Water Quality Baseline	09/24/21 16:57
Alameda, CA 94501	Project Number: Round 3 ASR Water Quality Baseline	

Conventional Chemistry Parameters by APHA/EPA Methods - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
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Batch AH14424 - General Preparation

Duplicate (AH14424-DUP2)	Source: 21H2326-02			Prepared: 08/24/21	Analyzed: 09/03/21
Total Dissolved Solids	156	10	mg/L	154	1 29 15

Batch AH14703 - General Preparation

Blank (AH14703-BLK1)			Prepared & Analyzed: 08/30/21
Total Alkalinity as CaCO3	ND	5.0	mg/L
Carbonate Alkalinity as CaCO3	ND	5.0	mg/L
Hydroxide Alkalinity as CaCO3	ND	5.0	mg/L
Bicarbonate Alkalinity as CaCO3	ND	5.0	mg/L

LCS (AH14703-BS1)				Prepared & Analyzed: 08/30/21		
Total Alkalinity as CaCO3	90.0	5.0	mg/L	80.0	112	70-130

Duplicate (AH14703-DUP1)	Source: 21H2633-01			Prepared & Analyzed: 08/30/21		
Total Alkalinity as CaCO3	310	5.0	mg/L	310	0.00	20
Carbonate Alkalinity as CaCO3	ND	5.0	mg/L	ND		20
Hydroxide Alkalinity as CaCO3	ND	5.0	mg/L	ND		20
Bicarbonate Alkalinity as CaCO3	310	5.0	mg/L	310	0.00	20

Batch AH14872 - Metals Digest (D)

Blank (AH14872-BLK1)			Prepared: 09/01/21 Analyzed: 09/03/21	
Hardness, Total	ND	5	mg/L	

Duplicate (AH14872-DUP1)		Source: 21H3452-01		Prepared: 09/01/21		Analyzed: 09/03/21	
Hardness, Total	238	5	mg/L	234	1	56	20



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Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: Round 3 ASR Water Quality Baseline

Reported:
09/24/21 16:57

Anions by EPA Method 300.0 - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch AH14195 - EPA 300.0										
Blank (AH14195-BLK1)				Prepared & Analyzed: 08/19/21						
Nitrate as N	ND	0.20	mg/L							
Fluoride	ND	0.10	mg/L							
Sulfate as SO ₄	ND	0.50	mg/L							
Chloride	ND	0.50	mg/L							
LCS (AH14195-BS1)				Prepared & Analyzed: 08/19/21						
Nitrate as N	5.37	0.20	mg/L	5.56		96.7	90-110			
Fluoride	5.59	0.10	mg/L	5.56		101	90-110			
Chloride	10.9	0.50	mg/L	11.1		97.8	90-110			
Sulfate as SO ₄	22.2	0.50	mg/L	22.2		100	90-110			
Duplicate (AH14195-DUP1)				Source: 21H2530-02 Prepared & Analyzed: 08/19/21						
Sulfate as SO ₄	7.91	0.50	mg/L		7.92			0.0379	20	
Chloride	2.04	0.50	mg/L		2.04			0.0490	20	
Nitrate as N	0.277	0.20	mg/L		0.277			0.244	20	
Fluoride	0.163	0.10	mg/L		0.163			0.00	20	
Matrix Spike (AH14195-MS1)				Source: 21H2530-02 Prepared & Analyzed: 08/19/21						
Fluoride	5.01	1.0	mg/L	5.56	ND	90.2	80-120			
Nitrate as N	5.57	2.0	mg/L	5.56	ND	100	80-120			
Chloride	11.7	5.0	mg/L	11.1	ND	87.2	80-120			
Sulfate as SO ₄	26.4	5.0	mg/L	22.2	7.92	83.3	80-120			
Matrix Spike (AH14195-MS2)				Source: 21H2682-01 Prepared & Analyzed: 08/19/21						
Fluoride	4.71	1.0	mg/L	5.56	ND	84.8	80-120			
Nitrate as N	8.55	2.0	mg/L	5.56	3.70	87.3	80-120			
Sulfate as SO ₄	31.1	5.0	mg/L	22.2	12.9	82.2	80-120			
Chloride	17.1	5.0	mg/L	11.1	7.80	83.8	80-120			

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Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: Round 3 ASR Water Quality Baseline

Reported:
09/24/21 16:57

Anions by EPA Method 300.0 - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
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Batch AH14195 - EPA 300.0

Matrix Spike Dup (AH14195-MSD1)

Source: 21H2530-02

Prepared & Analyzed: 08/19/21

Sulfate as SO ₄	26.6	5.0	mg/L	22.2	7.92	84.2	80-120	0.796	20	
Fluoride	5.06	1.0	mg/L	5.56	ND	91.0	80-120	0.883	20	
Nitrate as N	5.61	2.0	mg/L	5.56	ND	101	80-120	0.717	20	
Chloride	11.8	5.0	mg/L	11.1	ND	88.0	80-120	0.755	20	



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Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: Round 3 ASR Water Quality Baseline

Reported:
09/24/21 16:57

Volatile Organic Compounds by EPA Method 524.2 - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch AH14496 - VOAs in Water GCMS										
Blank (AH14496-BLK1)				Prepared & Analyzed: 08/25/21						
Bromodichloromethane	ND	1 00	ug/L							
Bromoform	ND	1 00	ug/L							
Chloroform	ND	1 00	ug/L							
Dibromochloromethane	ND	1 00	ug/L							
Trihalomethanes (total)	ND	1 00	ug/L							
Surrogate: Bromofluorobenzene	25.4		ug/L	25.0		102	70-130			
Surrogate: Dibromofluoromethane	24.6		ug/L	25.0		98.5	70-130			
Surrogate: Toluene-d8	24.8		ug/L	25.0		99.1	70-130			
LCS (AH14496-BS1)				Prepared & Analyzed: 08/25/21						
Bromodichloromethane	4 57	1 00	ug/L	5 00		91 4	70-130			
Bromoform	4 31	1 00	ug/L	5 00		86 2	70-130			
Chloroform	5 19	1 00	ug/L	5 00		104	70-130			
Dibromochloromethane	4 45	1 00	ug/L	5 00		89 0	70-130			
Surrogate: Bromofluorobenzene	27.8		ug/L	25.0		111	70-130			
Surrogate: Dibromofluoromethane	23.5		ug/L	25.0		94.2	70-130			
Surrogate: Toluene-d8	24.8		ug/L	25.0		99.2	70-130			
LCS Dup (AH14496-BS1)				Prepared & Analyzed: 08/25/21						
Bromodichloromethane	4 59	1 00	ug/L	5 00		91 8	70-130	0 437	30	
Bromoform	4 11	1 00	ug/L	5 00		82 2	70-130	4 75	30	
Chloroform	5 14	1 00	ug/L	5 00		103	70-130	0 968	30	
Dibromochloromethane	4 58	1 00	ug/L	5 00		91 6	70-130	2 88	30	
Surrogate: Bromofluorobenzene	28.1		ug/L	25.0		113	70-130			
Surrogate: Dibromofluoromethane	22.4		ug/L	25.0		89.5	70-130			
Surrogate: Toluene-d8	24.9		ug/L	25.0		99.6	70-130			
Matrix Spike (AH14496-MS1)				Source: 21H2469-02	Prepared: 08/25/21	Analyzed: 08/26/21				
Bromodichloromethane	20 5	1 00	ug/L	5 00	14 0	130	70-130			
Bromoform	4 73	1 00	ug/L	5 00	ND	94 6	70-130			
Chloroform	79 8	1 00	ug/L	5 00	67 2	253	70-130			QM-05
Dibromochloromethane	8 71	1 00	ug/L	5 00	3 65	101	70-130			
Surrogate: Bromofluorobenzene	28.3		ug/L	25.0		113	70-130			
Surrogate: Dibromofluoromethane	23.0		ug/L	25.0		91.8	70-130			

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Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: Round 3 ASR Water Quality Baseline

Reported:
09/24/21 16:57

Volatile Organic Compounds by EPA Method 524.2 - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Flag
Batch AH14496 - VOAs in Water GCMS									
Matrix Spike (AH14496-MS1)		Source: 21H2469-02		Prepared: 08/25/21		Analyzed: 08/26/21			
Surrogate: Toluene-d8	24.4		ug/L	25.0		97.6	70-130		
Matrix Spike (AH14496-MS2)		Source: 21H2611-01		Prepared: 08/25/21		Analyzed: 08/26/21			
Bromodichloromethane	6.50	1.00	ug/L	5.00	1.77	94.6	70-130		
Bromoform	4.42	1.00	ug/L	5.00	ND	88.4	70-130		
Chloroform	60.2	1.00	ug/L	5.00	50.7	190	70-130		QM-05
Dibromochloromethane	4.27	1.00	ug/L	5.00	ND	85.4	70-130		
Surrogate: Bromofluorobenzene	27.8		ug/L	25.0		111	70-130		
Surrogate: Dibromofluoromethane	21.4		ug/L	25.0		85.8	70-130		
Surrogate: Toluene-d8	23.7		ug/L	25.0		94.7	70-130		



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2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: Round 3 ASR Water Quality Baseline

Reported:
09/24/21 16:57

Haloacetic Acids by EPA Method 552.2 - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch AH14766 - EPA 552.2										
Blank (AH14766-BLK1)				Prepared: 08/31/21 Analyzed: 09/01/21						
Monobromoacetic Acid	ND	1.0	ug/L							
Monochloroacetic Acid	ND	2.0	ug/L							
Dibromoacetic Acid	ND	1.0	ug/L							
Dichloroacetic Acid	ND	1.0	ug/L							
Trichloroacetic Acid	ND	1.0	ug/L							
Total Haloacetic Acids (HAA5)	ND	1.0	ug/L							
Surrogate: 2,3-Dibromopropionic Acid	8.28		ug/L	9.85		84.1	70-130			
Surrogate: 2-Bromopropionic Acid	10.9		ug/L	10.0		109	70-130			
LCS (AH14766-BS1)				Prepared: 08/31/21 Analyzed: 09/01/21						
Monobromoacetic Acid	28.6	1.0	ug/L	25.0		114	70-130			
Monochloroacetic Acid	28.6	2.0	ug/L	25.0		114	70-130			
Dibromoacetic Acid	24.9	1.0	ug/L	25.0		99.7	70-130			
Dichloroacetic Acid	28.5	1.0	ug/L	25.0		114	70-130			
Trichloroacetic Acid	24.5	1.0	ug/L	25.0		98.0	70-130			
Surrogate: 2,3-Dibromopropionic Acid	9.70		ug/L	9.85		98.5	70-130			
Surrogate: 2-Bromopropionic Acid	12.6		ug/L	10.0		126	70-130			
Matrix Spike (AH14766-MS1)				Source: 21H2633-01 Prepared: 08/31/21 Analyzed: 09/02/21						
Monobromoacetic Acid	31.8	1.0	ug/L	25.0	ND	127	70-130			
Monochloroacetic Acid	30.4	2.0	ug/L	25.0	ND	121	70-130			
Dibromoacetic Acid	28.2	1.0	ug/L	25.0	ND	113	70-130			
Dichloroacetic Acid	31.0	1.0	ug/L	25.0	ND	124	70-130			
Trichloroacetic Acid	27.6	1.0	ug/L	25.0	ND	110	70-130			
Surrogate: 2,3-Dibromopropionic Acid	11.8		ug/L	9.85		120	70-130			
Surrogate: 2-Bromopropionic Acid	14.3		ug/L	10.0		143	70-130			S-GC
Matrix Spike (AH14766-MS2)				Source: 21H2738-01 Prepared: 08/31/21 Analyzed: 09/02/21						
Monobromoacetic Acid	25.7	1.0	ug/L	25.0	ND	103	70-130			
Monochloroacetic Acid	51.4	2.0	ug/L	25.0	ND	205	70-130			QM-07
Dibromoacetic Acid	23.8	1.0	ug/L	25.0	ND	95.0	70-130			
Dichloroacetic Acid	26.3	1.0	ug/L	25.0	ND	105	70-130			
Trichloroacetic Acid	24.2	1.0	ug/L	25.0	ND	96.7	70-130			
Surrogate: 2,3-Dibromopropionic Acid	10.5		ug/L	9.85		107	70-130			

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Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: Round 3 ASR Water Quality Baseline

Reported:
09/24/21 16:57

Haloacetic Acids by EPA Method 552.2 - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
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Batch AH14766 - EPA 552.2

Matrix Spike (AH14766-MS2)

Source: 21H2738-01

Prepared: 08/31/21 Analyzed: 09/02/21

Surrogate: 2-Bromopropionic Acid

11.5

ug/L

10.0

115

70-130



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Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: Round 3 ASR Water Quality Baseline

Reported:
09/24/21 16:57

Notes and Definitions

FILT	The sample was filtered in the lab prior to analysis
QM-01	The spike recovery for this QC sample is outside of established control limits possibly due to a sample matrix interference.
QM-05	The spike recovery was outside acceptance limits for the MS and/or MSD due to matrix interference. The LCS and/or LCSD were within acceptance limits showing that the laboratory is in control and the data is acceptable.
QM-07	The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.
QM-4X	The spike recovery was outside of QC acceptance limits for the MS and/or MSD due to analyte concentration at 4 times or greater the spike concentration. The QC batch was accepted based on LCS and/or LCSD recoveries within the acceptance limits.
R-01	The Reporting Limit for this analyte has been raised to account for matrix interference.
S-GC	Surrogate recovery outside of control limits. The data was accepted based on valid recovery of the remaining surrogates.
ND	Analyte NOT DETECTED at or above the reporting limit
dry	Sample results reported on a dry weight basis
REC	Recovery
RPD	Relative Percent Difference

[illegible]

21H2633

Alpha Analytical Laboratories Ukiah to North Bay Chain of Custody

Client: **Todd Groundwater** Client Code: **DP_TODENG** Bid: **Round 3 ASR Water Quality**
Project: **Round 3 ASR Water Quality Baseline** Project Number: **Round 3 ASR Water Quality PO #:**

Date Due: 09/02/21 15:00 (10 day TAT)

Received By: James Bixler

Date Received: 08/18/21 22:15

Logged In By: Sean Foley

Date Logged: 08/19/21 10:02

Samples Received at: _____ deg C

All containers received and intact: YES NO

Analysis	Department	Expires	Comments
21H2633-01 3121 [Water] Sampled 08/18/21 09:10			Lab Filter
NB Perchlorate EPA 314.0	NB Wet Chem	09/15/21 23:59	
21H2633-02 12-5-23A20 [Water] Sampled 08/18/21 09:55			Lab Filter
NB Perchlorate EPA 314.0	NB Wet Chem	09/15/21 23:59	
21H2633-03 3357 [Water] Sampled 08/18/21 10:30			Lab Filter
NB Perchlorate EPA 314.0	NB Wet Chem	09/15/21 23:59	
21H2633-04 3123 [Water] Sampled 08/18/21 11:50			Lab Filter
NB Perchlorate EPA 314.0	NB Wet Chem	09/15/21 23:59	
21H2633-05 3127 [Water] Sampled 08/18/21 12:25			Lab Filter
NB Perchlorate EPA 314.0	NB Wet Chem	09/15/21 23:59	
21H2633-06 Hollister #2 [Water] Sampled 08/18/21 13:15			Lab Filter
NB Perchlorate EPA 314.0	NB Wet Chem	09/15/21 23:59	

Containers Supplied:

250mL Poly Unpres (C)

250mL Poly Unpres (C)

250mL Poly Unpres (C)

250mL Poly Unpres (C)

250mL Poly Unpres (C)

250mL Poly Unpres (C)

Relinquished By

Date

Time

Received By

Date

Time

Relinquished By

Date

Time

Received By

Date

Time



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24 September 2021

Todd Groundwater

Attn: Nicole Grimm

2490 Mariner Square Loop, Suite 215

Alameda, CA 94501

RE: Round 3 ASR Water Quality Baseline

Work Order: 21H2617

Enclosed are the results of analyses for samples received by the laboratory on 08/18/21 22:15. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Jeanette L. Poplin For David S. Pingatore
Project Manager



Alpha Analytical Laboratories, Inc. email: clientservices@alpha-labs.com
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Todd Groundwater 2490 Mariner Square Loop, Suite 215 Alameda, CA 94501	Project Manager: Nicole Grimm Project: Round 3 ASR Water Quality Baseline Project Number: Round 3 ASR Water Quality Baseline	Reported: 09/24/21 14:03
--	--	-----------------------------

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Central Valley: 9090 Union Park Way Suite 113 | Elk Grove, CA 95624 | T: 916-686-5190 | F: 916-686-5192 | ELAP# 2922
North Bay: 110 Liberty Street | Petaluma, CA 94952 | T: 707-769-3128 | F: 707-769-8093 | ELAP# 2303
San Diego: 2722 Loker Avenue West Suite A | Carlsbad, CA 92010 | T: 760-930-2555 | F: 760-930-2510 | ELAP# 3055

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
3123	21H2617-02	Water	08/18/21 12:00	08/18/21 22:15

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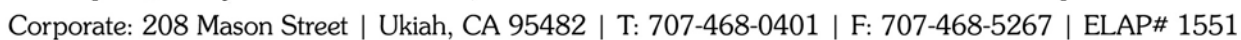
Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: Round 3 ASR Water Quality Baseline

Reported:
09/24/21 14:03

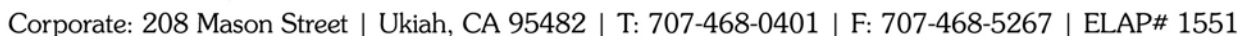
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Reported:
09/24/21 14:03

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Reported:
09/24/21 14:03

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Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: Round 3 ASR Water Quality Baseline

Reported:
09/24/21 14:03

	Result	Reporting Limit	Dilution	Batch	Prepared	Analyzed	ELAP#	Method	Note
3123 (21H2617-02)		Sample Type: Water			Sampled: 08/18/21 12:00				
Volatile Organic Compounds by EPA Method 524.2 (cont'd)									
1,3-Dichlorobenzene	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 16:05	1551	EPA 524.2	
1,4-Dichlorobenzene	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 16:05	1551	EPA 524.2	
Dichlorodifluoromethane	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 16:05	1551	EPA 524.2	
1,1-Dichloroethane	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 16:05	1551	EPA 524.2	
1,2-Dichloroethane	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 16:05	1551	EPA 524.2	
1,1-Dichloroethene	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 16:05	1551	EPA 524.2	
cis-1,2-Dichloroethene	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 16:05	1551	EPA 524.2	
trans-1,2-Dichloroethene	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 16:05	1551	EPA 524.2	
1,3-Dichloropropene (total)	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 16:05	1551	EPA 524.2	
1,2-Dichloropropane	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 16:05	1551	EPA 524.2	
1,3-Dichloropropane	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 16:05	1551	EPA 524.2	
2,2-Dichloropropane	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 16:05	1551	EPA 524.2	
1,1-Dichloropropene	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 16:05	1551	EPA 524.2	
cis-1,3-Dichloropropene	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 16:05	1551	EPA 524.2	
trans-1,3-Dichloropropene	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 16:05	1551	EPA 524.2	
Ethylbenzene	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 16:05	1551	EPA 524.2	
Hexachlorobutadiene	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 16:05	1551	EPA 524.2	
Isopropylbenzene	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 16:05	1551	EPA 524.2	
p-Isopropyltoluene	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 16:05	1551	EPA 524.2	
Methyl ethyl ketone	ND ug/L	5.0	1	AH14583	08/26/21 12:00	08/26/21 16:05	1551	EPA 524.2	
Methyl isobutyl ketone	ND ug/L	5.0	1	AH14583	08/26/21 12:00	08/26/21 16:05	1551	EPA 524.2	
Methyl tert-butyl ether	ND ug/L	3.0	1	AH14583	08/26/21 12:00	08/26/21 16:05	1551	EPA 524.2	
Methylene chloride	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 16:05	1551	EPA 524.2	
Naphthalene	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 16:05	1551	EPA 524.2	
n-Propylbenzene	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 16:05	1551	EPA 524.2	
Styrene	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 16:05	1551	EPA 524.2	
1,1,1,2-Tetrachloroethane	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 16:05	1551	EPA 524.2	
1,1,2,2-Tetrachloroethane	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 16:05	1551	EPA 524.2	
Tetrachloroethene	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 16:05	1551	EPA 524.2	
Toluene	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 16:05	1551	EPA 524.2	
1,2,3-Trichlorobenzene	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 16:05	1551	EPA 524.2	
1,2,4-Trichlorobenzene	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 16:05	1551	EPA 524.2	
1,1,1-Trichloroethane	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 16:05	1551	EPA 524.2	
1,1,2-Trichloroethane	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 16:05	1551	EPA 524.2	
Trichloroethene	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 16:05	1551	EPA 524.2	
Trichlorofluoromethane	ND ug/L	5.0	1	AH14583	08/26/21 12:00	08/26/21 16:05	1551	EPA 524.2	
Trichlorotrifluoroethane	ND ug/L	10	1	AH14583	08/26/21 12:00	08/26/21 16:05	1551	EPA 524.2	
1,2,4-Trimethylbenzene	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 16:05	1551	EPA 524.2	
1,3,5-Trimethylbenzene	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 16:05	1551	EPA 524.2	
Vinyl chloride	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 16:05	1551	EPA 524.2	

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Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: Round 3 ASR Water Quality Baseline

Reported:
09/24/21 14:03

	Result	Reporting Limit	Dilution	Batch	Prepared	Analyzed	ELAP#	Method	Note
3123 (21H2617-02)									
		Sample Type: Water			Sampled: 08/18/21 12:00				
Volatile Organic Compounds by EPA Method 524.2 (cont'd)									
m,p-Xylene	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 16:05	1551	EPA 524.2	
o-Xylene	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 16:05	1551	EPA 524.2	
Xylenes (total)	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 16:05	1551	EPA 524.2	
Trihalomethanes (total)	ND ug/L	0.50	1	AH14583	08/26/21 12:00	08/26/21 16:05	1551	EPA 524.2	
Surrogate: Bromofluorobenzene	112 %	70-130		AH14583	08/26/21 12:00	08/26/21 16:05	1551	EPA 524.2	
Surrogate: Dibromofluoromethane	94.5 %	70-130		AH14583	08/26/21 12:00	08/26/21 16:05	1551	EPA 524.2	
Surrogate: Toluene-d8	100 %	70-130		AH14583	08/26/21 12:00	08/26/21 16:05	1551	EPA 524.2	



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Reported:
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Metals by EPA 200 Series Methods - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch AH14395 - General Prep										
Blank (AH14395-BLK1)				Prepared & Analyzed: 08/23/21						
Chromium, hexavalent	ND	1.0	ug/L							
LCS (AH14395-BS1)				Prepared & Analyzed: 08/23/21						
Chromium, hexavalent	9.27	1.0	ug/L	10.0		92.7	90-110			
Duplicate (AH14395-DUP1)				Source: 21H2604-01		Prepared & Analyzed: 08/23/21				
Chromium, hexavalent	1.96	1.0	ug/L		2.00			2.07	20	
Matrix Spike (AH14395-MS1)				Source: 21H2604-01		Prepared & Analyzed: 08/23/21				
Chromium, hexavalent	10.9	1.0	ug/L	10.0	2.00	88.6	90-110			QM-07
Matrix Spike Dup (AH14395-MSD1)				Source: 21H2604-01		Prepared & Analyzed: 08/23/21				
Chromium, hexavalent	10.8	1.0	ug/L	10.0	2.00	87.7	90-110	0.804	20	QM-07
Batch AH14695 - Metals Digest										
Blank (AH14695-BLK1)				Prepared: 08/31/21 Analyzed: 09/03/21						
Calcium	ND	1.0	mg/L							
Magnesium	ND	1.0	mg/L							
LCS (AH14695-BS1)				Prepared: 08/31/21 Analyzed: 09/03/21						
Calcium	8.45	1.0	mg/L	8.00		106	85-115			
Magnesium	8.88	1.0	mg/L	8.00		111	85-115			
Duplicate (AH14695-DUP1)				Source: 21H2640-04		Prepared: 08/31/21 Analyzed: 09/03/21				
Calcium	5.03	1.0	mg/L		5.06			0.681	20	
Magnesium	1.08	1.0	mg/L		1.09			0.428	20	



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Metals by EPA 200 Series Methods - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch AH14695 - Metals Digest										
Matrix Spike (AH14695-MS1)		Source: 21H2640-04		Prepared: 08/31/21		Analyzed: 09/03/21				
Calcium	13.5	1.0	mg/L	8.00	5.06	106	70-130			
Magnesium	9.94	1.0	mg/L	8.00	1.09	111	70-130			
Matrix Spike (AH14695-MS2)		Source: 21H2675-03		Prepared: 08/31/21		Analyzed: 09/03/21				
Calcium	14.9	1.0	mg/L	8.00	5.89	112	70-130			
Magnesium	11.6	1.0	mg/L	8.00	2.41	115	70-130			
Matrix Spike Dup (AH14695-MSD1)		Source: 21H2640-04		Prepared: 08/31/21		Analyzed: 09/03/21				
Calcium	13.8	1.0	mg/L	8.00	5.06	109	70-130	1.84	20	
Magnesium	9.83	1.0	mg/L	8.00	1.09	109	70-130	1.10	20	
Batch AI13078 - NB EPA 200 series										
Blank (AI13078-BLK1)				Prepared: 09/01/21		Analyzed: 09/03/21				
Silica (SiO2)	ND	1.0	mg/L							
LCS (AI13078-BS1)				Prepared: 09/01/21		Analyzed: 09/03/21				
Silica (SiO2)	5.13	1.0	mg/L	5.35		95.9	0-200			
LCS Dup (AI13078-BSD1)				Prepared: 09/01/21		Analyzed: 09/03/21				
Silica (SiO2)	5.03	1.0	mg/L	5.35		94.0	0-200	1.90	200	
Matrix Spike (AI13078-MS1)		Source: 21H2817-01		Prepared: 09/01/21		Analyzed: 09/03/21				
Silica (SiO2)	67.2	1.0	mg/L	5.35	73.9	NR	0-200			QM-07



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Reported:
09/24/21 14:03

Metals by EPA Method 200.8 ICP/MS - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch AH14675 - EPA 200.8										
Blank (AH14675-BLK1)				Prepared: 08/27/21 Analyzed: 08/30/21						
Cobalt	ND	0.10	ug/L							
Uranium	ND	1.0	pCi/l							
LCS (AH14675-BS1)				Prepared: 08/27/21 Analyzed: 08/30/21						
Cobalt	21.4	0.10	ug/L	20.0		107	85-115			
Uranium	13.3	1.0	pCi/l	13.4		99.1	85-115			
Duplicate (AH14675-DUP1)				Source: 21H2261-01		Prepared: 08/27/21 Analyzed: 08/30/21				
Cobalt	ND	0.40	ug/L		ND			16.9	20	R-01
Uranium	ND	1.0	pCi/l		ND				20	
Matrix Spike (AH14675-MS1)				Source: 21H2261-01		Prepared: 08/27/21 Analyzed: 08/30/21				
Cobalt	21.0	0.40	ug/L	20.0	ND	104	70-130			
Uranium	13.3	1.0	pCi/l	13.4	ND	99.3	70-130			
Matrix Spike (AH14675-MS2)				Source: 21H2668-02		Prepared: 08/27/21 Analyzed: 08/30/21				
Cobalt	20.6	0.40	ug/L	20.0	ND	103	70-130			
Uranium	12.9	1.0	pCi/l	13.4	ND	96.1	70-130			
Matrix Spike Dup (AH14675-MSD1)				Source: 21H2261-01		Prepared: 08/27/21 Analyzed: 08/30/21				
Cobalt	20.4	0.40	ug/L	20.0	ND	101	70-130	2.94	20	
Uranium	13.0	1.0	pCi/l	13.4	ND	97.4	70-130	1.94	20	



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Project Number: Round 3 ASR Water Quality Baseline

Reported:
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Conventional Chemistry Parameters by APHA/EPA Methods - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch AH14594 - General Prep										
Blank (AH14594-BLK1)				Prepared & Analyzed: 08/31/21						
Total Organic Carbon	ND	1.00	mg/L							
LCS (AH14594-BS1)				Prepared & Analyzed: 08/31/21						
Total Organic Carbon	9.27	1.00	mg/L	10.0		92.7	85-115			
LCS Dup (AH14594-BSD1)				Prepared & Analyzed: 08/31/21						
Total Organic Carbon	9.28	1.00	mg/L	10.0		92.8	85-115	0.141	20	
Duplicate (AH14594-DUP1)				Source: 21H2428-02		Prepared & Analyzed: 08/31/21				
Total Organic Carbon	ND	1.00	mg/L		ND			0.838	20	
Matrix Spike (AH14594-MS1)				Source: 21H2428-02		Prepared & Analyzed: 08/31/21				
Total Organic Carbon	10.1	1.00	mg/L	10.0	ND	92.0	70-130			
Matrix Spike Dup (AH14594-MSD1)				Source: 21H2428-02		Prepared & Analyzed: 08/31/21				
Total Organic Carbon	10.2	1.00	mg/L	10.0	ND	93.5	70-130	1.44	20	
Batch AH14650 - General Prep										
Blank (AH14650-BLK1)				Prepared & Analyzed: 08/27/21						
Phosphorus, total	ND	0.040	mg/L							
LCS (AH14650-BS1)				Prepared & Analyzed: 08/27/21						
Phosphorus, total	0.195	0.040	mg/L	0.200		97.5	85-115			
Duplicate (AH14650-DUP1)				Source: 21H2326-01		Prepared & Analyzed: 08/27/21				
Phosphorus, total	ND	0.040	mg/L		ND			2.67	20	

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Todd Groundwater	Project Manager: Nicole Grimm	Reported:
2490 Mariner Square Loop, Suite 215	Project: Round 3 ASR Water Quality Baseline	09/24/21 14:03
Alameda, CA 94501	Project Number: Round 3 ASR Water Quality Baseline	

Conventional Chemistry Parameters by APHA/EPA Methods - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch AH14650 - General Prep										
Matrix Spike (AH14650-MS1)		Source: 21H2326-01		Prepared & Analyzed: 08/27/21						
Phosphorus, total	0.234	0.040	mg/L	0.200	ND	98.0	70-130			
Matrix Spike (AH14650-MS2)		Source: 21H2617-01		Prepared & Analyzed: 08/27/21						
Phosphorus, total	0.268	0.040	mg/L	0.200	0.0790	94.5	70-130			
Matrix Spike Dup (AH14650-MSD1)		Source: 21H2326-01		Prepared & Analyzed: 08/27/21						
Phosphorus, total	0.232	0.040	mg/L	0.200	ND	97.0	70-130	0.858	20	
Batch AH14695 - Metals Digest										
Blank (AH14695-BLK1)		Prepared: 08/31/21 Analyzed: 09/03/21								
Hardness, Total	ND	5	mg/L							
Batch AI13121 - General Preparation										
LCS (AI13121-BS1)		Prepared & Analyzed: 09/07/21								
Ammonia as NH3	6.17	0.50	mg/L	6.10		101	90-110			
LCS Dup (AI13121-BSD1)		Prepared & Analyzed: 09/07/21								
Ammonia as NH3	5.75	0.50	mg/L	6.10		94.2	90-110	7.13	20	
Matrix Spike (AI13121-MS1)		Source: 21H3372-01		Prepared & Analyzed: 09/07/21						
Ammonia as NH3	11.5	0.50	mg/L	12.2	ND	94.2	85-115			
Matrix Spike Dup (AI13121-MSD1)		Source: 21H3372-01		Prepared & Analyzed: 09/07/21						
Ammonia as NH3	11.7	0.50	mg/L	12.2	ND	96.0	85-115	1.84	20	



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Reported:
09/24/21 14:03

Volatile Organic Compounds by EPA Method 524.2 - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch AH14583 - VOAs in Water GCMS										
Blank (AH14583-BLK1)				Prepared & Analyzed: 08/26/21						
Acetone	ND	5.0	ug/L							
Acrylonitrile	ND	5.0	ug/L							
Benzene	ND	0.50	ug/L							
Bromobenzene	ND	0.50	ug/L							
Bromochloromethane	ND	0.50	ug/L							
Bromodichloromethane	ND	1.0	ug/L							
Bromoform	ND	1.0	ug/L							
Bromomethane	ND	0.50	ug/L							
n-Butylbenzene	ND	0.50	ug/L							
sec-Butylbenzene	ND	0.50	ug/L							
tert-Butylbenzene	ND	0.50	ug/L							
Carbon disulfide	ND	0.50	ug/L							
Carbon tetrachloride	ND	0.50	ug/L							
Chlorobenzene	ND	0.50	ug/L							
Chloroethane	ND	0.50	ug/L							
Chloroform	ND	1.0	ug/L							
Chloromethane	ND	0.50	ug/L							
2-Chlorotoluene	ND	0.50	ug/L							
4-Chlorotoluene	ND	0.50	ug/L							
Dibromochloromethane	ND	1.0	ug/L							
Dibromomethane	ND	0.50	ug/L							
1,2-Dichlorobenzene	ND	0.50	ug/L							
1,3-Dichlorobenzene	ND	0.50	ug/L							
1,4-Dichlorobenzene	ND	0.50	ug/L							
Dichlorodifluoromethane	ND	0.50	ug/L							
1,1-Dichloroethane	ND	0.50	ug/L							
1,2-Dichloroethane	ND	0.50	ug/L							
1,1-Dichloroethene	ND	0.50	ug/L							
cis-1,2-Dichloroethene	ND	0.50	ug/L							
trans-1,2-Dichloroethene	ND	0.50	ug/L							
1,3-Dichloropropene (total)	ND	0.50	ug/L							
1,2-Dichloropropane	ND	0.50	ug/L							
1,3-Dichloropropane	ND	0.50	ug/L							
2,2-Dichloropropane	ND	0.50	ug/L							
1,1-Dichloropropene	ND	0.50	ug/L							

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Volatile Organic Compounds by EPA Method 524.2 - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch AH14583 - VOAs in Water GCMS										
Blank (AH14583-BLK1)				Prepared & Analyzed: 08/26/21						
cis-1,3-Dichloropropene	ND	0.50	ug/L							
trans-1,3-Dichloropropene	ND	0.50	ug/L							
Ethylbenzene	ND	0.50	ug/L							
Hexachlorobutadiene	ND	0.50	ug/L							
Isopropylbenzene	ND	0.50	ug/L							
p-Isopropyltoluene	ND	0.50	ug/L							
Methyl ethyl ketone	ND	5.0	ug/L							
Methyl tert-butyl ether	ND	3.0	ug/L							
Methyl isobutyl ketone	ND	5.0	ug/L							
Methylene chloride	ND	0.50	ug/L							
Naphthalene	ND	0.50	ug/L							
n-Propylbenzene	ND	0.50	ug/L							
Styrene	ND	0.50	ug/L							
1,1,1,2-Tetrachloroethane	ND	0.50	ug/L							
1,1,2,2-Tetrachloroethane	ND	0.50	ug/L							
Tetrachloroethene	ND	0.50	ug/L							
Toluene	ND	0.50	ug/L							
1,2,3-Trichlorobenzene	ND	0.50	ug/L							
1,2,4-Trichlorobenzene	ND	0.50	ug/L							
1,1,1-Trichloroethane	ND	0.50	ug/L							
1,1,2-Trichloroethane	ND	0.50	ug/L							
Trichloroethene	ND	0.50	ug/L							
Trichlorofluoromethane	ND	5.0	ug/L							
Trichlorotrifluoroethane	ND	10	ug/L							
1,2,4-Trimethylbenzene	ND	0.50	ug/L							
1,3,5-Trimethylbenzene	ND	0.50	ug/L							
Vinyl chloride	ND	0.50	ug/L							
m,p-Xylene	ND	0.50	ug/L							
o-Xylene	ND	0.50	ug/L							
Xylenes (total)	ND	0.50	ug/L							
Trihalomethanes (total)	ND	0.50	ug/L							
Surrogate: Bromofluorobenzene	27.6		ug/L	25.0		110	70-130			
Surrogate: Dibromofluoromethane	24.1		ug/L	25.0		96.6	70-130			
Surrogate: Toluene-d8	26.5		ug/L	25.0		106	70-130			

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Volatile Organic Compounds by EPA Method 524.2 - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch AH14583 - VOAs in Water GCMS										
LCS (AH14583-BS1)				Prepared & Analyzed: 08/26/21						
Acetone	16.3	5.0	ug/L	20.0		81.4	70-130			
Acrylonitrile	4.31	5.0	ug/L	5.00		86.2	70-130			
Benzene	4.24	0.50	ug/L	5.00		84.8	70-130			
Bromobenzene	4.98	0.50	ug/L	5.00		99.6	70-130			
Bromochloromethane	4.71	0.50	ug/L	5.00		94.2	70-130			
Bromodichloromethane	4.33	1.0	ug/L	5.00		86.6	70-130			
Bromoform	4.67	1.0	ug/L	5.00		93.4	70-130			
Bromomethane	3.75	0.50	ug/L	5.00		75.0	70-130			
n-Butylbenzene	4.81	0.50	ug/L	5.00		96.2	70-130			
sec-Butylbenzene	4.77	0.50	ug/L	5.00		95.4	70-130			
tert-Butylbenzene	4.73	0.50	ug/L	5.00		94.6	70-130			
Carbon disulfide	3.77	0.50	ug/L	5.00		75.4	70-130			
Carbon tetrachloride	3.99	0.50	ug/L	5.00		79.8	70-130			
Chlorobenzene	4.53	0.50	ug/L	5.00		90.6	70-130			
Chloroethane	4.05	0.50	ug/L	5.00		81.0	70-130			
Chloroform	4.18	1.0	ug/L	5.00		83.6	70-130			
Chloromethane	5.00	0.50	ug/L	5.00		100	70-130			
2-Chlorotoluene	4.87	0.50	ug/L	5.00		97.4	70-130			
4-Chlorotoluene	4.75	0.50	ug/L	5.00		95.0	70-130			
Dibromochloromethane	4.53	1.0	ug/L	5.00		90.6	70-130			
Dibromomethane	4.41	0.50	ug/L	5.00		88.2	70-130			
1,2-Dichlorobenzene	4.33	0.50	ug/L	5.00		86.6	70-130			
1,3-Dichlorobenzene	4.89	0.50	ug/L	5.00		97.8	70-130			
1,4-Dichlorobenzene	4.30	0.50	ug/L	5.00		86.0	70-130			
Dichlorodifluoromethane	4.16	0.50	ug/L	5.00		83.2	70-130			
1,1-Dichloroethane	4.09	0.50	ug/L	5.00		81.8	70-130			
1,2-Dichloroethane	4.24	0.50	ug/L	5.00		84.8	70-130			
1,1-Dichloroethene	3.88	0.50	ug/L	5.00		77.6	70-130			
trans-1,2-Dichloroethene	4.13	0.50	ug/L	5.00		82.6	70-130			
cis-1,2-Dichloroethene	4.17	0.50	ug/L	5.00		83.4	70-130			
1,2-Dichloropropane	4.20	0.50	ug/L	5.00		84.0	70-130			
1,3-Dichloropropane	4.48	0.50	ug/L	5.00		89.6	70-130			
2,2-Dichloropropane	4.24	0.50	ug/L	5.00		84.8	70-130			
1,1-Dichloropropene	3.91	0.50	ug/L	5.00		78.2	70-130			
cis-1,3-Dichloropropene	3.89	0.50	ug/L	5.00		77.8	70-130			

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Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: Round 3 ASR Water Quality Baseline

Reported:
09/24/21 14:03

Volatile Organic Compounds by EPA Method 524.2 - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch AH14583 - VOAs in Water GCMS										
LCS (AH14583-BS1)				Prepared & Analyzed: 08/26/21						
trans-1,3-Dichloropropene	3.94	0.50	ug/L	5.00		78.8	70-130			
Ethylbenzene	4.36	0.50	ug/L	5.00		87.2	70-130			
Hexachlorobutadiene	4.52	0.50	ug/L	5.00		90.4	70-130			
Isopropylbenzene	4.86	0.50	ug/L	5.00		97.2	70-130			
p-Isopropyltoluene	4.83	0.50	ug/L	5.00		96.6	70-130			
Methyl ethyl ketone	8.86	5.0	ug/L	10.0		88.6	70-130			
Methyl tert-butyl ether	4.29	3.0	ug/L	5.00		85.8	70-130			
Methyl isobutyl ketone	8.65	5.0	ug/L	10.0		86.5	70-130			
Methylene chloride	3.62	0.50	ug/L	5.00		72.4	70-130			
Naphthalene	4.23	0.50	ug/L	5.00		84.6	70-130			
n-Propylbenzene	4.70	0.50	ug/L	5.00		94.0	70-130			
Styrene	4.57	0.50	ug/L	5.00		91.4	70-130			
1,1,1,2-Tetrachloroethane	3.68	0.50	ug/L	5.00		73.6	70-130			
1,1,2,2-Tetrachloroethane	4.31	0.50	ug/L	5.00		86.2	70-130			
Tetrachloroethene	4.63	0.50	ug/L	5.00		92.6	70-130			
Toluene	4.50	0.50	ug/L	5.00		90.0	70-130			
1,2,3-Trichlorobenzene	4.73	0.50	ug/L	5.00		94.6	70-130			
1,2,4-Trichlorobenzene	4.53	0.50	ug/L	5.00		90.6	70-130			
1,1,1-Trichloroethane	3.95	0.50	ug/L	5.00		79.0	70-130			
1,1,2-Trichloroethane	4.43	0.50	ug/L	5.00		88.6	70-130			
Trichloroethene	4.20	0.50	ug/L	5.00		84.0	70-130			
Trichlorofluoromethane	4.02	5.0	ug/L	5.00		80.4	70-130			
Trichlorotrifluoroethane	4.12	10	ug/L	5.00		82.4	70-130			
1,2,4-Trimethylbenzene	5.08	0.50	ug/L	5.00		102	70-130			
1,3,5-Trimethylbenzene	4.83	0.50	ug/L	5.00		96.6	70-130			
Vinyl chloride	5.56	0.50	ug/L	5.00		111	70-130			
m,p-Xylene	9.18	0.50	ug/L	10.0		91.8	70-130			
o-Xylene	4.74	0.50	ug/L	5.00		94.8	70-130			
Xylenes (total)	13.9	0.50	ug/L	15.0		92.8	70-130			
Surrogate: Bromofluorobenzene	28.4		ug/L	25.0		114	70-130			
Surrogate: Dibromofluoromethane	24.5		ug/L	25.0		98.1	70-130			
Surrogate: Toluene-d8	26.3		ug/L	25.0		105	70-130			

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Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: Round 3 ASR Water Quality Baseline

Reported:
09/24/21 14:03

Volatile Organic Compounds by EPA Method 524.2 - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch AH14583 - VOAs in Water GCMS										
LCS Dup (AH14583-BS01)				Prepared & Analyzed: 08/26/21						
Acetone	15.2	5.0	ug/L	20.0		76.0	70-130	6.92	30	
Acrylonitrile	4.32	5.0	ug/L	5.00		86.4	70-130	0.232	30	
Benzene	4.49	0.50	ug/L	5.00		89.8	70-130	5.73	30	
Bromobenzene	5.14	0.50	ug/L	5.00		103	70-130	3.16	30	
Bromochloromethane	4.71	0.50	ug/L	5.00		94.2	70-130	0.00	30	
Bromodichloromethane	4.67	1.0	ug/L	5.00		93.4	70-130	7.56	30	
Bromoform	4.71	1.0	ug/L	5.00		94.2	70-130	0.853	30	
Bromomethane	3.90	0.50	ug/L	5.00		78.0	70-130	3.92	30	
n-Butylbenzene	5.02	0.50	ug/L	5.00		100	70-130	4.27	30	
sec-Butylbenzene	4.92	0.50	ug/L	5.00		98.4	70-130	3.10	30	
tert-Butylbenzene	4.95	0.50	ug/L	5.00		99.0	70-130	4.55	30	
Carbon disulfide	3.95	0.50	ug/L	5.00		79.0	70-130	4.66	30	
Carbon tetrachloride	4.26	0.50	ug/L	5.00		85.2	70-130	6.55	30	
Chlorobenzene	4.72	0.50	ug/L	5.00		94.4	70-130	4.11	30	
Chloroethane	4.36	0.50	ug/L	5.00		87.2	70-130	7.37	30	
Chloroform	4.36	1.0	ug/L	5.00		87.2	70-130	4.22	30	
Chloromethane	4.95	0.50	ug/L	5.00		99.0	70-130	1.01	30	
2-Chlorotoluene	4.98	0.50	ug/L	5.00		99.6	70-130	2.23	30	
4-Chlorotoluene	4.90	0.50	ug/L	5.00		98.0	70-130	3.11	30	
Dibromochloromethane	4.53	1.0	ug/L	5.00		90.6	70-130	0.00	30	
Dibromomethane	4.54	0.50	ug/L	5.00		90.8	70-130	2.91	30	
1,2-Dichlorobenzene	4.46	0.50	ug/L	5.00		89.2	70-130	2.96	30	
1,3-Dichlorobenzene	4.87	0.50	ug/L	5.00		97.4	70-130	0.410	30	
1,4-Dichlorobenzene	4.38	0.50	ug/L	5.00		87.6	70-130	1.84	30	
Dichlorodifluoromethane	4.78	0.50	ug/L	5.00		95.6	70-130	13.9	30	
1,1-Dichloroethane	4.26	0.50	ug/L	5.00		85.2	70-130	4.07	30	
1,2-Dichloroethane	4.48	0.50	ug/L	5.00		89.6	70-130	5.50	30	
1,1-Dichloroethene	4.11	0.50	ug/L	5.00		82.2	70-130	5.76	30	
cis-1,2-Dichloroethene	4.31	0.50	ug/L	5.00		86.2	70-130	3.30	30	
trans-1,2-Dichloroethene	4.21	0.50	ug/L	5.00		84.2	70-130	1.92	30	
1,2-Dichloropropane	4.47	0.50	ug/L	5.00		89.4	70-130	6.23	30	
1,3-Dichloropropane	4.74	0.50	ug/L	5.00		94.8	70-130	5.64	30	
2,2-Dichloropropane	4.00	0.50	ug/L	5.00		80.0	70-130	5.83	30	
1,1-Dichloropropene	4.24	0.50	ug/L	5.00		84.8	70-130	8.10	30	
cis-1,3-Dichloropropene	3.97	0.50	ug/L	5.00		79.4	70-130	2.04	30	

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Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: Round 3 ASR Water Quality Baseline

Reported:
09/24/21 14:03

Volatile Organic Compounds by EPA Method 524.2 - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch AH14583 - VOAs in Water GCMS										
LCS Dup (AH14583-BSD1)				Prepared & Analyzed: 08/26/21						
trans-1,3-Dichloropropene	4.04	0.50	ug/L	5.00		80.8	70-130	2.51	30	
Ethylbenzene	4.66	0.50	ug/L	5.00		93.2	70-130	6.65	30	
Hexachlorobutadiene	4.85	0.50	ug/L	5.00		97.0	70-130	7.04	30	
Isopropylbenzene	5.12	0.50	ug/L	5.00		102	70-130	5.21	30	
p-Isopropyltoluene	4.91	0.50	ug/L	5.00		98.2	70-130	1.64	30	
Methyl ethyl ketone	8.91	5.0	ug/L	10.0		89.1	70-130	0.563	30	
Methyl isobutyl ketone	8.97	5.0	ug/L	10.0		89.7	70-130	3.63	30	
Methyl tert-butyl ether	4.47	3.0	ug/L	5.00		89.4	70-130	4.11	30	
Methylene chloride	3.81	0.50	ug/L	5.00		76.2	70-130	5.11	30	
Naphthalene	4.33	0.50	ug/L	5.00		86.6	70-130	2.34	30	
n-Propylbenzene	4.96	0.50	ug/L	5.00		99.2	70-130	5.38	30	
Styrene	4.85	0.50	ug/L	5.00		97.0	70-130	5.94	30	
1,1,1,2-Tetrachloroethane	3.76	0.50	ug/L	5.00		75.2	70-130	2.15	30	
1,1,2,2-Tetrachloroethane	4.30	0.50	ug/L	5.00		86.0	70-130	0.232	30	
Tetrachloroethene	5.06	0.50	ug/L	5.00		101	70-130	8.88	30	
Toluene	4.76	0.50	ug/L	5.00		95.2	70-130	5.62	30	
1,2,3-Trichlorobenzene	4.89	0.50	ug/L	5.00		97.8	70-130	3.33	30	
1,2,4-Trichlorobenzene	4.69	0.50	ug/L	5.00		93.8	70-130	3.47	30	
1,1,1-Trichloroethane	4.27	0.50	ug/L	5.00		85.4	70-130	7.79	30	
1,1,2-Trichloroethane	4.59	0.50	ug/L	5.00		91.8	70-130	3.55	30	
Trichloroethene	4.40	0.50	ug/L	5.00		88.0	70-130	4.65	30	
Trichlorofluoromethane	4.22	5.0	ug/L	5.00		84.4	70-130	4.85	30	
Trichlorotrifluoroethane	4.45	10	ug/L	5.00		89.0	70-130	7.70	30	
1,2,4-Trimethylbenzene	5.15	0.50	ug/L	5.00		103	70-130	1.37	30	
1,3,5-Trimethylbenzene	4.95	0.50	ug/L	5.00		99.0	70-130	2.45	30	
Vinyl chloride	5.38	0.50	ug/L	5.00		108	70-130	3.29	30	
m,p-Xylene	9.67	0.50	ug/L	10.0		96.7	70-130	5.20	30	
o-Xylene	4.99	0.50	ug/L	5.00		99.8	70-130	5.14	30	
Xylenes (total)	14.7	0.50	ug/L	15.0		97.7	70-130	5.18	30	
Surrogate: Bromofluorobenzene	28.1		ug/L	25.0		112	70-130			
Surrogate: Dibromofluoromethane	24.0		ug/L	25.0		95.9	70-130			
Surrogate: Toluene-d8	26.3		ug/L	25.0		105	70-130			

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Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: Round 3 ASR Water Quality Baseline

Reported:
09/24/21 14:03

Volatile Organic Compounds by EPA Method 524.2 - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch AH14583 - VOAs in Water GCMS										
Matrix Spike (AH14583-MS1)		Source: 21H2734-01		Prepared & Analyzed: 08/26/21						QM-05
Acetone	16.7	5.0	ug/L	20.0	ND	83.5	70-130			
Acrylonitrile	4.54	5.0	ug/L	5.00	ND	90.8	70-130			
Benzene	5.52	0.50	ug/L	5.00	ND	110	70-130			
Bromobenzene	5.93	0.50	ug/L	5.00	ND	119	70-130			
Bromochloromethane	5.47	0.50	ug/L	5.00	ND	109	70-130			
Bromodichloromethane	4.94	1.0	ug/L	5.00	ND	98.8	70-130			
Bromoform	3.59	1.0	ug/L	5.00	ND	71.8	70-130			
Bromomethane	5.42	0.50	ug/L	5.00	ND	108	70-130			
n-Butylbenzene	6.70	0.50	ug/L	5.00	ND	134	70-130			
sec-Butylbenzene	6.89	0.50	ug/L	5.00	ND	138	70-130			
tert-Butylbenzene	6.70	0.50	ug/L	5.00	ND	134	70-130			
Carbon disulfide	5.54	0.50	ug/L	5.00	1.01	90.6	70-130			
Carbon tetrachloride	6.34	0.50	ug/L	5.00	ND	127	70-130			
Chlorobenzene	5.50	0.50	ug/L	5.00	ND	110	70-130			
Chloroethane	5.53	0.50	ug/L	5.00	ND	111	70-130			
Chloroform	5.28	1.0	ug/L	5.00	ND	106	70-130			
Chloromethane	6.01	0.50	ug/L	5.00	ND	120	70-130			
2-Chlorotoluene	6.23	0.50	ug/L	5.00	ND	125	70-130			
4-Chlorotoluene	6.02	0.50	ug/L	5.00	ND	120	70-130			
Dibromochloromethane	4.24	1.0	ug/L	5.00	ND	84.8	70-130			
Dibromomethane	5.56	0.50	ug/L	5.00	ND	111	70-130			
1,2-Dichlorobenzene	5.05	0.50	ug/L	5.00	ND	101	70-130			
1,3-Dichlorobenzene	5.79	0.50	ug/L	5.00	ND	116	70-130			
1,4-Dichlorobenzene	5.02	0.50	ug/L	5.00	ND	100	70-130			
Dichlorodifluoromethane	6.47	0.50	ug/L	5.00	ND	129	70-130			
1,1-Dichloroethane	5.35	0.50	ug/L	5.00	ND	107	70-130			
1,2-Dichloroethane	5.13	0.50	ug/L	5.00	ND	103	70-130			
1,1-Dichloroethene	6.16	0.50	ug/L	5.00	ND	123	70-130			
cis-1,2-Dichloroethene	5.30	0.50	ug/L	5.00	ND	106	70-130			
trans-1,2-Dichloroethene	5.64	0.50	ug/L	5.00	ND	113	70-130			
1,2-Dichloropropane	5.14	0.50	ug/L	5.00	ND	103	70-130			
1,3-Dichloropropane	5.08	0.50	ug/L	5.00	ND	102	70-130			
2,2-Dichloropropane	6.16	0.50	ug/L	5.00	ND	123	70-130			
1,1-Dichloropropene	6.25	0.50	ug/L	5.00	ND	125	70-130			
cis-1,3-Dichloropropene	4.06	0.50	ug/L	5.00	ND	81.2	70-130			

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Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: Round 3 ASR Water Quality Baseline

Reported:
09/24/21 14:03

Volatile Organic Compounds by EPA Method 524.2 - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch AH14583 - VOAs in Water GCMS										
Matrix Spike (AH14583-MS1)	Source: 21H2734-01			Prepared & Analyzed: 08/26/21				QM-05		
trans-1,3-Dichloropropene	4.28	0.50	ug/L	5.00	ND	85.6	70-130			
Ethylbenzene	5.91	0.50	ug/L	5.00	ND	118	70-130			
Hexachlorobutadiene	6.23	0.50	ug/L	5.00	ND	125	70-130			
Isopropylbenzene	6.83	0.50	ug/L	5.00	ND	137	70-130			
p-Isopropyltoluene	6.68	0.50	ug/L	5.00	ND	134	70-130			
Methyl ethyl ketone	11.0	5.0	ug/L	10.0	ND	110	70-130			
Methyl isobutyl ketone	10.5	5.0	ug/L	10.0	ND	105	70-130			
Methyl tert-butyl ether	4.50	3.0	ug/L	5.00	ND	90.0	70-130			
Methylene chloride	4.63	0.50	ug/L	5.00	ND	92.6	70-130			
Naphthalene	4.50	0.50	ug/L	5.00	ND	90.0	70-130			
n-Propylbenzene	6.74	0.50	ug/L	5.00	ND	135	70-130			
Styrene	5.78	0.50	ug/L	5.00	ND	116	70-130			
1,1,1,2-Tetrachloroethane	4.45	0.50	ug/L	5.00	ND	89.0	70-130			
1,1,2,2-Tetrachloroethane	4.93	0.50	ug/L	5.00	ND	98.6	70-130			
Tetrachloroethene	7.12	0.50	ug/L	5.00	ND	142	70-130			
Toluene	5.95	0.50	ug/L	5.00	ND	119	70-130			
1,2,3-Trichlorobenzene	5.35	0.50	ug/L	5.00	ND	107	70-130			
1,2,4-Trichlorobenzene	5.13	0.50	ug/L	5.00	ND	103	70-130			
1,1,1-Trichloroethane	6.34	0.50	ug/L	5.00	ND	127	70-130			
1,1,2-Trichloroethane	5.05	0.50	ug/L	5.00	ND	101	70-130			
Trichloroethene	5.87	0.50	ug/L	5.00	ND	117	70-130			
Trichlorofluoromethane	6.41	5.0	ug/L	5.00	ND	128	70-130			
Trichlorotrifluoroethane	9.55	10	ug/L	5.00	ND	158	70-130			
1,2,4-Trimethylbenzene	6.42	0.50	ug/L	5.00	ND	128	70-130			
1,3,5-Trimethylbenzene	6.33	0.50	ug/L	5.00	ND	127	70-130			
Vinyl chloride	7.11	0.50	ug/L	5.00	ND	142	70-130			
m,p-Xylene	12.3	0.50	ug/L	10.0	ND	123	70-130			
o-Xylene	5.97	0.50	ug/L	5.00	ND	119	70-130			
Xylenes (total)	18.3	0.50	ug/L	15.0	ND	122	70-130			
Surrogate: Bromofluorobenzene	28.1		ug/L	25.0		112	70-130			
Surrogate: Dibromofluoromethane	24.1		ug/L	25.0		96.4	70-130			
Surrogate: Toluene-d8	25.9		ug/L	25.0		103	70-130			

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Corporate: 208 Mason Street | Ukiah, CA 95482 | T: 707-468-0401 | F: 707-468-5267 | ELAP# 1551

Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: Round 3 ASR Water Quality Baseline

Reported:
09/24/21 14:03

Volatile Organic Compounds by EPA Method 524.2 - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch AH14583 - VOAs in Water GCMS										
Matrix Spike (AH14583-MS2)		Source: 21H2813-01			Prepared & Analyzed: 08/26/21					
Acetone	17.3	5.0	ug/L	20.0	ND	86.3	70-130			
Acrylonitrile	4.76	5.0	ug/L	5.00	ND	95.2	70-130			
Benzene	5.27	0.50	ug/L	5.00	ND	105	70-130			
Bromobenzene	5.85	0.50	ug/L	5.00	ND	117	70-130			
Bromochloromethane	5.12	0.50	ug/L	5.00	ND	102	70-130			
Bromodichloromethane	4.99	1.0	ug/L	5.00	ND	99.8	70-130			
Bromoform	4.22	1.0	ug/L	5.00	ND	84.4	70-130			
Bromomethane	5.03	0.50	ug/L	5.00	ND	101	70-130			
n-Butylbenzene	6.35	0.50	ug/L	5.00	ND	127	70-130			
sec-Butylbenzene	6.37	0.50	ug/L	5.00	ND	127	70-130			
tert-Butylbenzene	6.46	0.50	ug/L	5.00	ND	129	70-130			
Carbon disulfide	5.35	0.50	ug/L	5.00	ND	107	70-130			
Carbon tetrachloride	6.31	0.50	ug/L	5.00	ND	126	70-130			
Chlorobenzene	5.35	0.50	ug/L	5.00	ND	107	70-130			
Chloroethane	5.07	0.50	ug/L	5.00	ND	101	70-130			
Chloroform	5.10	1.0	ug/L	5.00	ND	102	70-130			
Chloromethane	5.76	0.50	ug/L	5.00	ND	115	70-130			
2-Chlorotoluene	5.86	0.50	ug/L	5.00	ND	117	70-130			
4-Chlorotoluene	5.68	0.50	ug/L	5.00	ND	114	70-130			
Dibromochloromethane	4.40	1.0	ug/L	5.00	ND	88.0	70-130			
Dibromomethane	4.96	0.50	ug/L	5.00	ND	99.2	70-130			
1,2-Dichlorobenzene	4.80	0.50	ug/L	5.00	ND	96.0	70-130			
1,3-Dichlorobenzene	5.59	0.50	ug/L	5.00	ND	112	70-130			
1,4-Dichlorobenzene	4.90	0.50	ug/L	5.00	ND	98.0	70-130			
Dichlorodifluoromethane	6.48	0.50	ug/L	5.00	ND	130	70-130			
1,1-Dichloroethane	5.17	0.50	ug/L	5.00	ND	103	70-130			
1,2-Dichloroethane	4.82	0.50	ug/L	5.00	ND	96.4	70-130			
1,1-Dichloroethene	5.78	0.50	ug/L	5.00	ND	116	70-130			
trans-1,2-Dichloroethene	5.38	0.50	ug/L	5.00	ND	108	70-130			
cis-1,2-Dichloroethene	5.13	0.50	ug/L	5.00	ND	103	70-130			
1,2-Dichloropropane	4.84	0.50	ug/L	5.00	ND	96.8	70-130			
1,3-Dichloropropane	5.03	0.50	ug/L	5.00	ND	101	70-130			
2,2-Dichloropropane	6.25	0.50	ug/L	5.00	ND	125	70-130			
1,1-Dichloropropene	6.02	0.50	ug/L	5.00	ND	120	70-130			
cis-1,3-Dichloropropene	4.16	0.50	ug/L	5.00	ND	83.2	70-130			

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Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: Round 3 ASR Water Quality Baseline

Reported:
09/24/21 14:03

Volatile Organic Compounds by EPA Method 524.2 - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch AH14583 - VOAs in Water GCMS										
Matrix Spike (AH14583-MS2)		Source: 21H2813-01			Prepared & Analyzed: 08/26/21					
trans-1,3-Dichloropropene	4.31	0.50	ug/L	5.00	ND	86.2	70-130			
Ethylbenzene	5.79	0.50	ug/L	5.00	ND	116	70-130			
Hexachlorobutadiene	6.07	0.50	ug/L	5.00	ND	121	70-130			
Isopropylbenzene	6.50	0.50	ug/L	5.00	ND	130	70-130			
p-Isopropyltoluene	6.40	0.50	ug/L	5.00	ND	128	70-130			
Methyl ethyl ketone	9.74	5.0	ug/L	10.0	ND	97.4	70-130			
Methyl isobutyl ketone	10.0	5.0	ug/L	10.0	ND	100	70-130			
Methyl tert-butyl ether	4.59	3.0	ug/L	5.00	ND	91.8	70-130			
Methylene chloride	4.32	0.50	ug/L	5.00	ND	86.4	70-130			
Naphthalene	4.52	0.50	ug/L	5.00	ND	90.4	70-130			
n-Propylbenzene	6.47	0.50	ug/L	5.00	ND	129	70-130			
Styrene	5.77	0.50	ug/L	5.00	ND	115	70-130			
1,1,1,2-Tetrachloroethane	4.19	0.50	ug/L	5.00	ND	83.8	70-130			
1,1,2,2-Tetrachloroethane	4.84	0.50	ug/L	5.00	ND	96.8	70-130			
Tetrachloroethene	6.42	0.50	ug/L	5.00	ND	128	70-130			
Toluene	5.69	0.50	ug/L	5.00	ND	114	70-130			
1,2,3-Trichlorobenzene	5.16	0.50	ug/L	5.00	ND	103	70-130			
1,2,4-Trichlorobenzene	5.06	0.50	ug/L	5.00	ND	101	70-130			
1,1,1-Trichloroethane	6.07	0.50	ug/L	5.00	ND	121	70-130			
1,1,2-Trichloroethane	4.94	0.50	ug/L	5.00	ND	98.8	70-130			
Trichloroethene	5.60	0.50	ug/L	5.00	ND	112	70-130			
Trichlorofluoromethane	6.49	5.0	ug/L	5.00	ND	130	70-130			
Trichlorotrifluoroethane	7.01	10	ug/L	5.00	ND	140	70-130			QM-05
1,2,4-Trimethylbenzene	6.26	0.50	ug/L	5.00	ND	125	70-130			
1,3,5-Trimethylbenzene	6.16	0.50	ug/L	5.00	ND	123	70-130			
Vinyl chloride	7.20	0.50	ug/L	5.00	ND	144	70-130			QM-05
m,p-Xylene	12.0	0.50	ug/L	10.0	ND	120	70-130			
o-Xylene	5.84	0.50	ug/L	5.00	ND	117	70-130			
Xylenes (total)	17.9	0.50	ug/L	15.0	ND	119	70-130			
Surrogate: Bromofluorobenzene	28.0		ug/L	25.0		112	70-130			
Surrogate: Dibromofluoromethane	23.9		ug/L	25.0		95.5	70-130			
Surrogate: Toluene-d8	25.4		ug/L	25.0		102	70-130			

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Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: Round 3 ASR Water Quality Baseline

Reported:
09/24/21 14:03

Notes and Definitions

- QM-05 The spike recovery was outside acceptance limits for the MS and/or MSD due to matrix interference. The LCS and/or LCSD were within acceptance limits showing that the laboratory is in control and the data is acceptable.
- QM-07 The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.
- R-01 The Reporting Limit for this analyte has been raised to account for matrix interference.
- ND Analyte NOT DETECTED at or above the reporting limit
- dry Sample results reported on a dry weight basis
- REC Recovery
- RPD Relative Percent Difference

September 15, 2021

Vista Work Order No. 2108221

Mr. David S. Pingatore
Alpha Analytical Laboratories, Inc
208 Mason Street
Ukiah, CA 95482

Dear Mr. Pingatore,

Enclosed are the results for the sample set received at Vista Analytical Laboratory on August 24, 2021 under your Project Name '21H2617'.

Vista Analytical Laboratory is committed to serving you effectively. If you require additional information, please contact me at 916-673-1520 or by email at jfox@vista-analytical.com.

Thank you for choosing Vista as part of your analytical support team.

Sincerely,



for

Jamie Fox
Laboratory Director



Vista Analytical Laboratory certifies that the report herein meets all the requirements set forth by NELAP for those applicable test methods. Results relate only to the samples as received by the laboratory. This report should not be reproduced except in full without the written approval of Vista.

Vista Work Order No. 2108221**Case Narrative****Sample Condition on Receipt:**

Two drinking water samples were received and stored securely in accordance with Vista standard operating procedures and EPA methodology. The samples were received in good condition and within the method temperature requirements.

Analytical Notes:**EPA Method 537.1**

The samples were extracted and analyzed for a selected list of PFAS using EPA Method 537.1.

Holding Times

The samples were extracted and analyzed within the method hold times.

Quality Control

The Initial Calibration and Continuing Calibration Verifications met the method acceptance criteria.

A Laboratory Fortified Blank (LFB) and Laboratory Reagent Blank (LRB) were extracted and analyzed with the preparation batch. No analytes were detected in the LRB above the method specified limits. The LFB recoveries were within the method acceptance criteria.

The surrogate recoveries for all QC and field samples were within the acceptance criteria.

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Sample Inventory Report



Vista Sample ID	Client Sample ID	Sampled	Received	Components/Containers
██████████	██████████	██████████	██████████	████████████████████
2108221-02	3123	18-Aug-21 12:00	24-Aug-21 11:19	Polypropylene, 250mL Polypropylene, 250mL Polypropylene, 250mL

ANALYTICAL RESULTS

Sample ID: LRB
EPA Method 537.1

Client Data					Laboratory Data				
Name:	Alpha Analytical Laboratories, Inc	Matrix:	Aqueous		Lab Sample:	B1H0212-BLK1	Column:	BEH C18	
Project:	21H2617								

Analyte	CAS Number	Conc. (ng/L)	MDL	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	ND	0.704	2.00		B1H0212	27-Aug-21	0.250 L	29-Aug-21 05:55	1
PFHxA	307-24-4	ND	0.961	2.00		B1H0212	27-Aug-21	0.250 L	29-Aug-21 05:55	1
HFPO-DA	13252-13-6	ND	0.847	2.00		B1H0212	27-Aug-21	0.250 L	29-Aug-21 05:55	1
PFHpA	375-85-9	ND	0.790	2.00		B1H0212	27-Aug-21	0.250 L	29-Aug-21 05:55	1
ADONA	919005-14-4	ND	0.762	2.00		B1H0212	27-Aug-21	0.250 L	29-Aug-21 05:55	1
PFHxS	355-46-4	ND	0.803	2.00		B1H0212	27-Aug-21	0.250 L	29-Aug-21 05:55	1
PFOA	335-67-1	ND	0.745	2.00		B1H0212	27-Aug-21	0.250 L	29-Aug-21 05:55	1
PFNA	375-95-1	ND	0.878	2.00		B1H0212	27-Aug-21	0.250 L	29-Aug-21 05:55	1
PFOS	1763-23-1	ND	1.31	2.00		B1H0212	27-Aug-21	0.250 L	29-Aug-21 05:55	1
9CI-PF3ONS	756426-58-1	ND	0.866	2.00		B1H0212	27-Aug-21	0.250 L	29-Aug-21 05:55	1
PFDA	335-76-2	ND	0.629	2.00		B1H0212	27-Aug-21	0.250 L	29-Aug-21 05:55	1
MeFOSAA	2355-31-9	ND	0.483	2.00		B1H0212	27-Aug-21	0.250 L	29-Aug-21 05:55	1
EtFOSAA	2991-50-6	ND	0.902	2.00		B1H0212	27-Aug-21	0.250 L	29-Aug-21 05:55	1
PFUnA	2058-94-8	ND	0.682	2.00		B1H0212	27-Aug-21	0.250 L	29-Aug-21 05:55	1
PFDaA	307-55-1	ND	0.727	2.00		B1H0212	27-Aug-21	0.250 L	29-Aug-21 05:55	1
PFTTrDA	72629-94-8	ND	0.766	2.00		B1H0212	27-Aug-21	0.250 L	29-Aug-21 05:55	1
11CI-PF3OUdS	763051-92-9	ND	1.18	2.00		B1H0212	27-Aug-21	0.250 L	29-Aug-21 05:55	1
PFTeDA	376-06-7	ND	0.781	2.00		B1H0212	27-Aug-21	0.250 L	29-Aug-21 05:55	1
Labeled Standards	Type	% Recovery	Limits		Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	107	70 - 130			B1H0212	27-Aug-21	0.250 L	29-Aug-21 05:55	1
13C2-PFDA	SURR	101	70 - 130			B1H0212	27-Aug-21	0.250 L	29-Aug-21 05:55	1
d5-EtFOSAA	SURR	88.6	70 - 130			B1H0212	27-Aug-21	0.250 L	29-Aug-21 05:55	1
13C3-HFPO-DA	SURR	100	70 - 130			B1H0212	27-Aug-21	0.250 L	29-Aug-21 05:55	1

MDL - Method Detection Limit

RL - Reporting limit

Results reported to MDL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: LFB
EPA Method 537.1

Client Data						Laboratory Data					
Name:	Alpha Analytical Laboratories, Inc		Matrix:	Aqueous		Lab Sample:	B1H0212-BS1		Column:	BEH C18	
Project:	21H2617										
Analyte	CAS Number	Amt Found (ng/L)	Spike Amt	% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	15.4	14.2	109	50 - 150		B1H0212	27-Aug-21	0.250 L	29-Aug-21 06:06	1
PFHxA	307-24-4	16.4	16.0	103	50 - 150		B1H0212	27-Aug-21	0.250 L	29-Aug-21 06:06	1
HFPO-DA	13252-13-6	16.7	16.0	104	50 - 150		B1H0212	27-Aug-21	0.250 L	29-Aug-21 06:06	1
PFHpA	375-85-9	17.5	16.0	109	50 - 150		B1H0212	27-Aug-21	0.250 L	29-Aug-21 06:06	1
ADONA	919005-14-4	15.1	15.1	99.6	50 - 150		B1H0212	27-Aug-21	0.250 L	29-Aug-21 06:06	1
PFHxS	355-46-4	15.2	14.6	105	50 - 150		B1H0212	27-Aug-21	0.250 L	29-Aug-21 06:06	1
PFOA	335-67-1	16.3	16.0	102	50 - 150		B1H0212	27-Aug-21	0.250 L	29-Aug-21 06:06	1
PFNA	375-95-1	15.1	16.0	94.5	50 - 150		B1H0212	27-Aug-21	0.250 L	29-Aug-21 06:06	1
PFOS	1763-23-1	15.3	14.8	103	50 - 150		B1H0212	27-Aug-21	0.250 L	29-Aug-21 06:06	1
9CI-PF3ONS	756426-58-1	14.6	14.9	98.3	50 - 150		B1H0212	27-Aug-21	0.250 L	29-Aug-21 06:06	1
PFDA	335-76-2	17.1	16.0	107	50 - 150		B1H0212	27-Aug-21	0.250 L	29-Aug-21 06:06	1
MeFOSAA	2355-31-9	16.8	16.0	105	50 - 150		B1H0212	27-Aug-21	0.250 L	29-Aug-21 06:06	1
EtFOSAA	2991-50-6	13.9	16.0	86.9	50 - 150		B1H0212	27-Aug-21	0.250 L	29-Aug-21 06:06	1
PFUnA	2058-94-8	15.4	16.0	96.4	50 - 150		B1H0212	27-Aug-21	0.250 L	29-Aug-21 06:06	1
PFDaA	307-55-1	15.4	16.0	96.2	50 - 150		B1H0212	27-Aug-21	0.250 L	29-Aug-21 06:06	1
PFTTrDA	72629-94-8	14.2	16.0	88.6	50 - 150		B1H0212	27-Aug-21	0.250 L	29-Aug-21 06:06	1
11CI-PF3OUdS	763051-92-9	15.2	15.0	101	50 - 150		B1H0212	27-Aug-21	0.250 L	29-Aug-21 06:06	1
PFTeDA	376-06-7	14.3	16.0	89.4	50 - 150		B1H0212	27-Aug-21	0.250 L	29-Aug-21 06:06	1
Labeled Standards		Type		% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA		SURR		105	70 - 130		B1H0212	27-Aug-21	0.250 L	29-Aug-21 06:06	1
13C2-PFDA		SURR		99.7	70 - 130		B1H0212	27-Aug-21	0.250 L	29-Aug-21 06:06	1
d5-EtFOSAA		SURR		87.5	70 - 130		B1H0212	27-Aug-21	0.250 L	29-Aug-21 06:06	1
13C3-HFPO-DA		SURR		94.9	70 - 130		B1H0212	27-Aug-21	0.250 L	29-Aug-21 06:06	1

[Redacted Table Content]			
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MDL - Method Detection Limit

RL - Reporting limit

Results reported to MDL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA **include both** linear and branched isomers. Only the linear isomer is reported for all other **analytes**.

Sample ID: 3123
EPA Method 537.1

Client Data					Laboratory Data					
Name:	Alpha Analytical Laboratories, Inc		Matrix:	Drinking Water	Lab Sample:	2108221-02		Column:	BEH C18	
Project:	21H2617		Date Collected:	18-Aug-21 12:00	Date Received:	24-Aug-21 11:19				
Location:	21H2617-02									
Analyte	CAS Number	Conc. (ng/L)	MDL	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	ND	0.725	2.06		B1H0212	27-Aug-21	0.243 L	29-Aug-21 10:10	1
PFHxA	307-24-4	ND	0.990	2.06		B1H0212	27-Aug-21	0.243 L	29-Aug-21 10:10	1
HFPO-DA	13252-13-6	ND	0.873	2.06		B1H0212	27-Aug-21	0.243 L	29-Aug-21 10:10	1
PFHpA	375-85-9	ND	0.814	2.06		B1H0212	27-Aug-21	0.243 L	29-Aug-21 10:10	1
ADONA	919005-14-4	ND	0.785	2.06		B1H0212	27-Aug-21	0.243 L	29-Aug-21 10:10	1
PFHxS	355-46-4	ND	0.827	2.06		B1H0212	27-Aug-21	0.243 L	29-Aug-21 10:10	1
PFOA	335-67-1	ND	0.767	2.06		B1H0212	27-Aug-21	0.243 L	29-Aug-21 10:10	1
PFNA	375-95-1	ND	0.904	2.06		B1H0212	27-Aug-21	0.243 L	29-Aug-21 10:10	1
PFOS	1763-23-1	ND	1.35	2.06		B1H0212	27-Aug-21	0.243 L	29-Aug-21 10:10	1
9Cl-PF3ONS	756426-58-1	ND	0.892	2.06		B1H0212	27-Aug-21	0.243 L	29-Aug-21 10:10	1
PFDA	335-76-2	ND	0.648	2.06		B1H0212	27-Aug-21	0.243 L	29-Aug-21 10:10	1
MeFOSAA	2355-31-9	ND	0.498	2.06		B1H0212	27-Aug-21	0.243 L	29-Aug-21 10:10	1
EtFOSAA	2991-50-6	ND	0.929	2.06		B1H0212	27-Aug-21	0.243 L	29-Aug-21 10:10	1
PFUnA	2058-94-8	ND	0.703	2.06		B1H0212	27-Aug-21	0.243 L	29-Aug-21 10:10	1
PFDoA	307-55-1	ND	0.749	2.06		B1H0212	27-Aug-21	0.243 L	29-Aug-21 10:10	1
PFTrDA	72629-94-8	ND	0.789	2.06		B1H0212	27-Aug-21	0.243 L	29-Aug-21 10:10	1
11Cl-PF3OUdS	763051-92-9	ND	1.22	2.06		B1H0212	27-Aug-21	0.243 L	29-Aug-21 10:10	1
PFTeDA	376-06-7	ND	0.805	2.06		B1H0212	27-Aug-21	0.243 L	29-Aug-21 10:10	1
Labeled Standards	Type	% Recovery	Limits		Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	106	70 - 130			B1H0212	27-Aug-21	0.243 L	29-Aug-21 10:10	1
13C2-PFDA	SURR	97.2	70 - 130			B1H0212	27-Aug-21	0.243 L	29-Aug-21 10:10	1
d5-EtFOSAA	SURR	90.1	70 - 130			B1H0212	27-Aug-21	0.243 L	29-Aug-21 10:10	1
13C3-HFPO-DA	SURR	98.4	70 - 130			B1H0212	27-Aug-21	0.243 L	29-Aug-21 10:10	1

MDL - Method Detection Limit

RL - Reporting limit

Results reported to MDL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

B	This compound was also detected in the method blank
Conc.	Concentration
CRS	Cleanup Recovery Standard
D	Dilution
DL	Detection Limit
E	The associated compound concentration exceeded the calibration range of the instrument
H	Recovery and/or RPD was outside laboratory acceptance limits
I	Chemical Interference
IS	Internal Standard
J	The amount detected is below the Reporting Limit/LOQ
LOD	Limit of Detection
LOQ	Limit of Quantitation
M	Estimated Maximum Possible Concentration (CA Region 2 projects only)
MDL	Method Detection Limit
NA	Not applicable
ND	Not Detected
OPR	Ongoing Precision and Recovery sample
P	The reported concentration may include contribution from chlorinated diphenyl ether(s).
Q	The ion transition ratio is outside of the acceptance criteria.
RL	Reporting Limit
RL	For 537.1, the reported RLs are the MRLs.
TEQ	Toxic Equivalency, sum of the toxic equivalency factors (TEF) multiplied by the sample concentrations.
TEQMax	TEQ calculation that uses the detection limit as the concentration for non-detects
TEQMin	TEQ calculation that uses zero as the concentration for non-detects
TEQRisk	TEQ calculation that uses ½ the detection limit as the concentration for non-detects
U	Not Detected (specific projects only)
*	See Cover Letter

Unless otherwise noted, solid sample results are reported in dry weight. Tissue samples are reported in wet weight.

Vista Analytical Laboratory Certifications

Accrediting Authority	Certificate Number
Alaska Department of Environmental Conservation	17-013
Arkansas Department of Environmental Quality	21-023-0
California Department of Health – ELAP	2892
DoD ELAP - A2LA Accredited - ISO/IEC 17025:2005	3091.01
Florida Department of Health	E87777-26
Hawaii Department of Health	N/A
Louisiana Department of Environmental Quality	01977
Maine Department of Health	2020018
Massachusetts Department of Environmental Protection	M-CA413
Michigan Department of Environmental Quality	9932
Minnesota Department of Health	1980678
New Hampshire Environmental Accreditation Program	207720
New Jersey Department of Environmental Protection	CA003
New York Department of Health	11411
Ohio Environmental Protection Agency	87778
Oregon Laboratory Accreditation Program	4042-016
Pennsylvania Department of Environmental Protection	017
Texas Commission on Environmental Quality	T104704189-21-12
Vermont Department of Health	VT-4042
Virginia Department of General Services	10769
Washington Department of Ecology	C584
Wisconsin Department of Natural Resources	998036160

Current certificates and lists of licensed parameters are located in the Quality Assurance office and are available upon request.

NELAP Accredited Test Methods

MATRIX: Air	
Description of Test	Method
Determination of Polychlorinated p- Dioxins & Polychlorinated Dibenzofurans	EPA 23
Polychlorinated Dibenzodioxins in Ambient Air by GC/HRMS	EPA TO-9A

MATRIX: Biological Tissue	
Description of Test	Method
Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613B
Brominated Diphenyl Ethers by HRGC/HRMS	EPA 1614A
Chlorinated Biphenyl Congeners in Water, Soil, Sediment, and Tissue by GC/HRMS	EPA 1668A/C
Pesticides in Water, Soil, Sediment, Biosolids, and Tissue by HRGC/HRMS	EPA 1699
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537
Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans by GC/HRMS	EPA 8280A/B
Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by GC/HRMS	EPA 8290/8290A

MATRIX: Drinking Water	
Description of Test	Method
Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613/1613B
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537.1
Determination of Per- and Polyfluoroalkyl Substances in Drinking Water by Isotope Dilution Anion Exchange Solid Phase Extraction and Liquid Chromatography/Tandem Mass Spectrometry	EPA 533
Perfluorooctanesulfonate (PFOS) and Perfluorooctanoate (PFOA) - Method for Unfiltered Samples Using Solid Phase Extraction and Liquid Chromatography/Mass Spectrometry	ISO 25101 2009

MATRIX: Non-Potable Water	
Description of Test	Method
Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613B
Brominated Diphenyl Ethers by HRGC/HRMS	EPA 1614A
Chlorinated Biphenyl Congeners in Water, Soil, Sediment, and Tissue by GC/HRMS	EPA 1668A/C
Pesticides in Water, Soil, Sediment, Biosolids, and Tissue by HRGC/HRMS	EPA 1699
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537
Dioxin by GC/HRMS	EPA 613
Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans by GC/HRMS	EPA 8280A/B
Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by GC/HRMS	EPA 8290/8290A

MATRIX: Solids	
Description of Test	Method
Tetra-Octa Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613
Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613B
Brominated Diphenyl Ethers by HRGC/HRMS	EPA 1614A
Chlorinated Biphenyl Congeners in Water, Soil, Sediment, and Tissue by GC/HRMS	EPA 1668A/C
Pesticides in Water, Soil, Sediment, Biosolids, and Tissue by HRGC/HRMS	EPA 1699
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537
Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans by GC/HRMS	EPA 8280A/B
Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by GC/HRMS	EPA 8290/8290A

SUBCONTRACT ORDER
Alpha Analytical Laboratories, Inc.

21H2617

2106221 3.3°C

SENDING LABORATORY:

Alpha Analytical Laboratories, Inc.
208 Mason St.
Ukiah, CA 95482
Phone: (707)468-0401
Fax: (707)468-5267
Project Manager: David S. Pingatore

RECEIVING LABORATORY:

Vista Analytical
1104 Windfield Way
El Dorado Hills, CA 95762
Phone: (916) 673-1520
Fax: -
Terms: Net 30

Analysis	Due	Expires	Comments
----------	-----	---------	----------

Containers Supplied:

500mL PP Poly (Trizma) (500mL PP Poly (Trizma) (

21H2617-02 3123 [Water] Sampled 08/18/21 12:00

537.1 Perfluorochemicals x 18 w/GenX

09/02/21 15:00

09/01/21 12:00

Containers Supplied:

500mL PP Poly (Trizma) (500mL PP Poly (Trizma) (

☐ Report to State

System Name: _____

Employed by: _____

User ID: _____

Sampler: _____

System Number: _____

+QC

Released By

Date

Received By

Date

Released By

Date

Received By

Date

Released By

Date

Received By

Date

Released By

Date

Received By

Date

Released By

Date

Received By

Date

Sample Log-In Checklist

 Page # 1 of 1

 Vista Work Order #: 2108221

 TAT STD

Samples Arrival:	Date/Time		Initials:		Location: <u>WV-2</u>		
	<u>08/24/21 1119</u>		<u>[Signature]</u>		Shelf/Rack: <u>N/A</u>		
Delivered By:	FedEx	UPS	On Trac	GLS	DHL	Hand Delivered	Other
Preservation:	Ice		<u>Blue Ice</u>		Techni Ice	Dry Ice	None
Temp °C: <u>3.4</u> (uncorrected)	Probe used: Y <u>(N)</u>			Thermometer ID: <u>IR-3</u>			
Temp °C: <u>3.3</u> (corrected)							

	YES	NO	NA
Shipping Container(s) Intact?	<input checked="" type="checkbox"/>		
Shipping Custody Seals Intact?		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Airbill <u>—</u> Trk # <u>554352921</u>	<input checked="" type="checkbox"/>		
Shipping Documentation Present?	<input checked="" type="checkbox"/>		
Shipping Container	Vista	<u>Client</u>	Retain
		<u>Return</u>	Dispose
Chain of Custody / Sample Documentation Present?	<input checked="" type="checkbox"/>		
Chain of Custody / Sample Documentation Complete?	<input checked="" type="checkbox"/>		
Holding Time Acceptable?	<input checked="" type="checkbox"/>		

Logged In:	Date/Time		Initials:		Location: <u>P-13 WV-2</u>	
	<u>08/24/21 12:00</u>		<u>[Signature]</u>		Shelf/Rack: <u>A-4 B-4</u>	
COC Anomaly/Sample Acceptance Form completed?					<input type="checkbox"/>	<input checked="" type="checkbox"/>

Comments:

CoC/Label Reconciliation Report WO# 2108221

LabNumber	CoC Sample ID	SampleAlias	Sample Date/Time	Container	BaseMatrix	Sample Comments
2108221-02	A 3123	21H2617-02	18-Aug-21 12:00	Polypropylene, 250mL	Aqueous	
2108221-02	B 3123	21H2617-02	18-Aug-21 12:00	Polypropylene, 250mL	Aqueous	

Checkmarks indicate that information on the COC reconciled with the sample label.

Any discrepancies are noted in the following columns.

	Yes	No	NA	Comments:
Sample Container Intact?	✓			
Sample Custody Seals Intact?		✓	✓	
Adequate Sample Volume?	✓			
Container Type Appropriate for Analysis(es)	✓			

Preservation Documented: Na₂S₂O₃ Trizma NH₄CH₃CO₂ None Other

Verified by/Date:

08/24/21

September 17, 2021

Alpha Analytical Laboratories, Inc.
 Attn: Leslie Quinn
 208 Mason St.
 Ukiah, CA 95482

Lab ID : SP 2111724
 Customer : 2-20626

Laboratory Report

Introduction: This report package contains total of 4 pages divided into 3 sections:

Case Narrative	(1 pages) : An overview of the work performed at FGL.
Sample Results	(2 pages) : Results for each sample submitted.
Quality Control	(1 page) : Supporting Quality Control (QC) results.

Case Narrative

This Case Narrative pertains to the following samples:

Sample Description	Date Sampled	Date Received	FGL Lab ID #	Matrix
21H2617-02	08/18/2021	08/24/2021	SP 2111724-002	W

Sampling and Receipt Information: All samples were received in acceptable condition and within temperature requirements, unless noted on the Condition Upon Receipt (CUR) form. All samples arrived at 19 °C. All samples were prepared and analyzed within the method specified hold time. All samples were checked for pH if acid or base preservation is required (except for VOAs). For details of sample receipt information, please see the attached Chain of Custody and Condition Upon Receipt Form.

Quality Control: All samples were prepared and analyzed according to the following tables:

Radio QC

900.0	09/15/2021:214382 All analysis quality controls are within established criteria
	08/27/2021:209898 All preparation quality controls are within established criteria (performed at FGL-SP ELAP# 1573)

Certification:: I certify that this data package is in compliance with ELAP standards, both technically and for completeness, except for any conditions listed above. Release of the data contained in this data package is authorized by the Laboratory Director or his designee, as verified by the following electronic signature.

KD:MKH

Reviewed and
Approved By

Kelly A. Dunnahoo, B.S.



Digitally signed by Kelly A. Dunnahoo, B.S.
 Title: Laboratory Director
 Date: 2021-09-17

September 17, 2021

Alpha Analytical Laboratories, Inc.

Attn: Leslie Quinn

208 Mason St.

Ukiah, CA 95482

Lab ID : SP 2111724-001

Customer ID : 2-20626

Sampled On : August 18, 2021-08:38

Sampled By : Not Available

Received On : August 24, 2021-10:15

Matrix : Water

Project : 21H2617

Sample Result - Radio

ND=Non-Detected. PQL=Practical Quantitation Limit. * PQL adjusted for dilution.

MDA = Minimum Detectable Activity (Calculated at the 95% confidence level) = Data utilized by DHS to determine matrix interference.

MCL / AL = Maximum Contamination Level / Action Level. Alpha's Action Level of 5 pCi/L is based on the Assigned Value (AV).

AV = Assigned Value(Gross Alpha Result + (0.84 x Error)). CCR Section 64442: Drinking Water Compliance Note: Do the following

If Gross Alpha's (AV) exceeds 5 pCi/L run Uranium. If Gross Alpha's (AV) minus Uranium exceeds 5 pCi/L run Radium 226.

Drinking Water Compliance:

Gross Alpha (AV) minus Uranium is less than or equal to 15 pCi/L

Uranium is less than or equal to 20 pCi/L

Radium 226 + Radium 228 is less than or equal to 5 pCi/L

Note: Samples are held for 3-6 months prior to disposal.

September 17, 2021

Lab ID : SP 2111724-002
Customer ID : 2-20626

Alpha Analytical Laboratories, Inc.

Attn: Leslie Quinn
208 Mason St.
Ukiah, CA 95482

Sampled On : August 18, 2021-12:00
Sampled By : Not Available
Received On : August 24, 2021-10:15
Matrix : Water

Description : 21H2617-02
Project : 21H2617

Sample Result - Radio

Constituent	Result ± Error	MDA	Units	MCL/AL	Sample Preparation		Sample Analysis	
					Method	Date/ID	Method	Date/ID
Radio Chemistry								
Gross Alpha	2.10 ± 1.81	2.59	pCi/L	15/5	900.0	08/27/21-07:30 2P2109898	900.0	09/15/21-13:11 2A2114382
Gross Beta	1.97 ± 1.17	1.44	pCi/L	50	900.0	08/27/21-07:30 2P2109898	900.0	09/15/21-13:11 2A2114382

ND=Non-Detected. PQL=Practical Quantitation Limit. * PQL adjusted for dilution.

MDA = Minimum Detectable Activity (Calculated at the 95% confidence level) = Data utilized by DHS to determine matrix interference.
MCL / AL = Maximum Contamination Level / Action Level. Alpha's Action Level of 5 pCi/L is based on the Assigned Value (AV).
AV = Assigned Value(Gross Alpha Result + (0.84 x Error)). CCR Section 64442: Drinking Water Compliance Note: Do the following
If Gross Alpha's (AV) exceeds 5 pCi/L run Uranium. If Gross Alpha's (AV) minus Uranium exceeds 5 pCi/L run Radium 226.

Drinking Water Compliance:

Gross Alpha (AV) minus Uranium is less than or equal to 15 pCi/L
Uranium is less than or equal to 20 pCi/L
Radium 226 + Radium 228 is less than or equal to 5 pCi/L

Note: Samples are held for 3-6 months prior to disposal.

September 17, 2021
Alpha Analytical Laboratories, Inc.

Lab ID : SP 2111724
 Customer : 2-20626

Quality Control - Radio

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Radio Alpha	900.0	09/15/21:214382JCA	CCV CCB	cpm cpm	7347	41.9 % 0.1200	35-47 0.15	
Beta	900.0	09/15/21:214382JCA	CCV CCB	cpm cpm	7347	94.4 % 0.460	83-94 0.5	
Gross Alpha	900.0	08/27/21:209898jca (SP 2111724-001)	Blank LCS MS MSD MSRPD	pCi/L pCi/L pCi/L pCi/L pCi/L	 201.1 201.1 201.1 201.1	0.26 78.6 % 114 % 115 % 0.7%	3 75-125 60-140 60-140 ≤30	
Gross Beta	900.0	08/27/21:209898jca (SP 2111724-001)	Blank LCS MS MSD MSRPD	pCi/L pCi/L pCi/L pCi/L pCi/L	 35.25 35.25 35.25 201.1	0.63 110 % 93.6 % 90.2 % 3.4%	4 84-160 80-130 80-130 ≤30	
Definition								
CCV : Continuing Calibration Verification - Analyzed to verify the instrument calibration is within criteria.								
CCB : Continuing Calibration Blank - Analyzed to verify the instrument baseline is within criteria.								
Blank : Method Blank - Prepared to verify that the preparation process is not contributing contamination to the samples.								
LCS : Laboratory Control Standard/Sample - Prepared to verify that the preparation process is not affecting analyte recovery.								
MS : Matrix Spikes - A random sample is spiked with a known amount of analyte. The recoveries are an indication of how that sample matrix affects analyte recovery.								
MSD : Matrix Spike Duplicate of MS/MSD pair - A random sample duplicate is spiked with a known amount of analyte. The recoveries are an indication of how that sample matrix affects analyte recovery.								
MSRPD : MS/MSD Relative Percent Difference (RPD) - The MS relative percent difference is an indication of precision for the preparation and analysis.								
DQO : Data Quality Objective - This is the criteria against which the quality control data is compared.								

September 17, 2021

Alpha Analytical Laboratories, Inc.
Attn: Leslie Quinn
208 Mason St.
Ukiah, CA 95482

Subject: Subcontract Analysis for FGL Lab No. SP 2111724

Enclosed please find results for the following sample(s) which were received by FGL.

- Sub Contracted-Strontium 90

Please note that this analysis was performed by Pace Analytical (ELAP Certified Laboratory)

Thank you for using FGL Environmental.

Sincerely,

Tracy Proefrock  Digitally signed by Tracy Proefrock
Title: Customer Service Rep
Date: 2021-09-17

Enclosure

September 15, 2021

Cindy Aguirre
FGL Environmental, Inc.
853 Corporation St.
Santa Paula, CA 930603005

RE: Project: SP 2111724
Pace Project No.: 30437814

Dear Cindy Aguirre:

Enclosed are the analytical results for sample(s) received by the laboratory on August 26, 2021. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

- Pace Analytical Services - Greensburg

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Karen L. Smetanka
karen.smetanka@pacelabs.com
(724)850-5600
Project Manager

Enclosures



REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
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CERTIFICATIONS

Project: SP 2111724

Pace Project No.: 30437814

Pace Analytical Services Pennsylvania

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601

ANAB DOD-ELAP Rad Accreditation #: L2417

Alabama Certification #: 41590

Arizona Certification #: AZ0734

Arkansas Certification

California Certification #: 04222CA

Colorado Certification #: PA01547

Connecticut Certification #: PH-0694

Delaware Certification

EPA Region 4 DW Rad

Florida/TNI Certification #: E87683

Georgia Certification #: C040

Florida: Cert E871149 SEKS WET

Guam Certification

Hawaii Certification

Idaho Certification

Illinois Certification

Indiana Certification

Iowa Certification #: 391

Kansas/TNI Certification #: E-10358

Kentucky Certification #: KY90133

KY WW Permit #: KY0098221

KY WW Permit #: KY0000221

Louisiana DHH/TNI Certification #: LA180012

Louisiana DEQ/TNI Certification #: 4086

Maine Certification #: 2017020

Maryland Certification #: 308

Massachusetts Certification #: M-PA1457

Michigan/PADEP Certification #: 9991

Missouri Certification #: 235

Montana Certification #: Cert0082

Nebraska Certification #: NE-OS-29-14

Nevada Certification #: PA014572018-1

New Hampshire/TNI Certification #: 297617

New Jersey/TNI Certification #: PA051

New Mexico Certification #: PA01457

New York/TNI Certification #: 10888

North Carolina Certification #: 42706

North Dakota Certification #: R-190

Ohio EPA Rad Approval: #41249

Oregon/TNI Certification #: PA200002-010

Pennsylvania/TNI Certification #: 65-00282

Puerto Rico Certification #: PA01457

Rhode Island Certification #: 65-00282

South Dakota Certification

Tennessee Certification #: 02867

Texas/TNI Certification #: T104704188-17-3

Utah/TNI Certification #: PA014572017-9

USDA Soil Permit #: P330-17-00091

Vermont Dept. of Health: ID# VT-0282

Virgin Island/PADEP Certification

Virginia/VELAP Certification #: 9526

Washington Certification #: C868

West Virginia DEP Certification #: 143

West Virginia DHHR Certification #: 9964C

Wisconsin Approve List for Rad

Wyoming Certification #: 8TMS-L

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: SP 2111724

Pace Project No.: 30437814

Lab ID	Sample ID	Matrix	Date Collected	Date Received
30437814001	21H2617-01	Water	08/18/21 08:38	08/26/21 10:30
30437814002	21H2617-02	Water	08/18/21 12:00	08/26/21 10:30

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: SP 2111724

Pace Project No.: 30437814

Lab ID	Sample ID	Method	Analysts	Analytes Reported
30437814001	21H2617-01	EPA 905.0	JJY	1
30437814002	21H2617-02	EPA 905.0	JJY	1

PASI-PA = Pace Analytical Services - Greensburg

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: SP 2111724

Pace Project No.: 30437814

Sample: 21H2617-01		Lab ID: 30437814001	Collected: 08/18/21 08:38	Received: 08/26/21 10:30	Matrix: Water		
PWS:		Site ID:	Sample Type:				
Parameters	Method	Act ± Unc (MDC) Carr Trac		Units	Analyzed	CAS No.	Qual
Pace Analytical Services - Greensburg							
Strontium-90	EPA 905.0	-0.183 ± 0.353 (0.700) C:101% T:NA		pCi/L	09/14/21 17:14	10098-97-2	

Sample: 21H2617-02		Lab ID: 30437814002	Collected: 08/18/21 12:00	Received: 08/26/21 10:30	Matrix: Water		
PWS:		Site ID:	Sample Type:				
Parameters	Method	Act ± Unc (MDC) Carr Trac		Units	Analyzed	CAS No.	Qual
Pace Analytical Services - Greensburg							
Strontium-90	EPA 905.0	-0.0380 ± 0.404 (0.784) C:98% T:NA		pCi/L	09/14/21 17:14	10098-97-2	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL - RADIOCHEMISTRY

Project: SP 2111724

Pace Project No.: 30437814

QC Batch: 462847

Analysis Method: EPA 905.0

QC Batch Method: EPA 905.0

Analysis Description: 905.0 Strontium 89/90

Laboratory: Pace Analytical Services - Greensburg

Associated Lab Samples: 30437814001, 30437814002

METHOD BLANK: 2234496

Matrix: Water

Associated Lab Samples: 30437814001, 30437814002

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Strontium-90	-0.0231 ± 0.0704 (0.139) C:94% T:NA	pCi/L	09/14/21 17:15	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: SP 2111724
Pace Project No.: 30437814

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Reported results are not rounded until the final step prior to reporting. Therefore, calculated parameters that are typically reported as "Total" may vary slightly from the sum of the reported component parameters.

Act - Activity

Unc - Uncertainty: For Safe Drinking Water Act (SDWA) analyses, the reported Unc. is the calculated Count Uncertainty (95% confidence interval) using a coverage factor of 1.96. For all other matrices (non-SDWA), the reported Unc. is the calculated Expanded Uncertainty (aka Combined Standard Uncertainty, CSU), reported at the 95% confidence interval using a coverage factor of 1.96.

Gamma Spec: The Unc. reported for all gamma-spectroscopy analyses (EPA 901.1), is the calculated Expanded Uncertainty (CSU) at the 95.4% confidence interval, using a coverage factor of 2.0.

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

REPORT OF LABORATORY ANALYSIS

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without the written consent of Pace Analytical Services, LLC.

[illegible]

Corporate Offices & Laboratory	Office & Laboratory	Office & Laboratory	Office & Laboratory
1553 Corporation Street San Francisco, CA 94106 TEL: (805)392-2000 FAX: (805)392-2000 Env FAX: (805)392-2063	2500 Stagecoach Road Stockton, CA 95215 TEL: (209)942-0182 FAX: (209)942-0423	563 E. Lindo Avenue Chicago, CA 95926 TEL: (530)343-5818 FAX: (530)343-3807	3442 Empresa Drive, Suite D San Luis Obispo, CA 93401 TEL: (805)783-2940 FAX: (805)783-2812
CA ELAP Certification No. 1573	CA ELAP Certification No. 1563	CA ELAP Certification No. 2670	CA ELAP Certification No. 2810

Pittsburgh Lab Sample Condition Upon Receipt



Client Name: FGL

Project # _____

Courier: ☐ Fed Ex ☒ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace Other _____

Tracking #: 1Z 942 031013 6023097

Label <u>MR</u>
LIMS Login <u>WPE</u>

Custody Seal on Cooler/Box Present: ☐ yes ☒ no Seals intact: ☐ yes ☒ no

Thermometer Used _____

Type of Ice: Wet Blue None

Cooler Temperature _____ Observed Temp _____ °C Correction Factor: _____ °C Final Temp: _____ °C

Temp should be above freezing to 6°C

Comments:	Yes	No	N/A	pH paper Lot#	Date and Initials of person examining contents:
Chain of Custody Present:	-			1000011	MR 8-27-21
Chain of Custody Filled Out:	-				
Chain of Custody Relinquished:	-				
Sampler Name & Signature on COC:		-			
Sample Labels match COC:	-				
-Includes date/time/ID					
Matrix: <u>ur</u>					
Samples Arrived within Hold Time:	-				
Short Hold Time Analysis (<72hr remaining):		-			
Rush Turn Around Time Requested:		-			
Sufficient Volume:	-				
Correct Containers Used:	-				
-Pace Containers Used:		-			
Containers Intact:	-				
Orthophosphate field filtered			-		
Hex Cr Aqueous sample field filtered			-		
Organic Samples checked for dechlorination:			-		
Filtered volume received for Dissolved tests			-		
All containers have been checked for preservation.	-				
exceptions: VOA, coliform, TOC, O&G, Phenolics, Radon, Non-aqueous matrix				PH42	
All containers meet method preservation requirements.	-			Initial when completed <u>MR</u>	Date/time of preservation
				Lot # of added preservative	
Headspace in VOA Vials (>6mm):			-		
Trip Blank Present:			-		
Trip Blank Custody Seals Present			-		
Rad Samples Screened < 0.5 mrem/hr	-			Initial when completed <u>MR</u>	Date: <u>8-27-21</u> Survey Meter SN: <u>1563</u>

Client Notification/ Resolution:

Person Contacted: _____ Date/Time: _____ Contacted By: _____

Comments/ Resolution: _____

☐ A check in this box indicates that additional information has been stored in ereports.

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

*PM review is documented electronically in LIMS. When the Project Manager closes the SRF Review schedule in LIMS. The review is in the Status section of the Workorder Edit Screen.

30437814

Client

FGC

Site

SP 2111724

Profile Number

13358

Notes

Sample Line Item	Matrix	AG1H	AG1S	AG1T	AG2U	AG3S	AG3U	AG5U	AG5T	BG1U	BG2U	BP1N	BP1U	BP2S	BP2U	BP3C	BP3N	BP3S	BP3U	DG9S	GCUB	VG9H	VG9T	VG9U	VOAK	WG9U	WGKU	ZPLC
1	W1																											
2	W1											1																
3																												
4																												
5																												
6																												
7																												
8																												
9																												
10																												
11																												
12																												

Container Codes

Glass

GJN	1 Gallon Jug with HNO3	DG9S	40mL amber VOA vial H2SO4
AG5U	100mL amber glass unpreserved	VG9U	40mL clear VOA vial
AG5T	100mL amber glass Na Thiosulfate	VG9T	40mL clear VOA vial Na Thiosul
GJN	1 Gallon Jug	VG9H	40mL clear VOA vial HCl
AG1S	1L amber glass H2SO4	JGFU	4oz amber wide jar
AG1H	1L amber glass HCl	WGFU	4oz wide jar unpreserved
AG1T	1L amber glass Na Thiosulfate	BG2U	500mL clear glass unpreserved
BG1U	1L clear glass unpreserved	AG2U	500mL amber glass unpreserved
AG3S	250mL amber glass H2SO4	WGKU	8oz wide jar unpreserved
AG3U	250mL amber glass unpreserved		

Plastic / Misc.

GCUB	1 Gallon Cubitainer	EZ1	5g Encore
12GN	1/2 Gallon Cubitainer	VOAK	Kit for Volatile Solid
SP5T	120mL Coliform Na Thiosulfate	I	Wipe/Swab
BP1N	1L plastic HNO3	ZPLC	Ziploc Bag
BP1U	1L plastic unpreserved		
BP3S	250mL plastic H2SO4	WT	Water
BP3N	250mL plastic HNO3	SL	Solid
BP3U	250mL plastic unpreserved	OL	Non-aqueous liquid
BP3C	250mL plastic NAOH	WP	Wipe
BP2S	500mL plastic H2SO4		
BP2U	500mL plastic unpreserved		



Certificate of Analysis

FINAL REPORT

Work Orders: 1H24035

Report Date: 9/15/2021

Project: 21H2617

Received Date: 8/24/2021

Turnaround Time: Normal

Phones: (925) 872-9637

Fax: (707) 468-5267

P.O. #:

Billing Code:

Attn: David Pingatore

Client: Alpha Analytical Laboratories - Ukiah CA
208 Mason St
Ukiah, CA 95482

Dear David Pingatore,

Enclosed are the results of analyses for samples received 8/24/21 with the Chain-of-Custody document. The samples were received in good condition, at 2.9 °C and on ice. All analyses met the method criteria except as noted in the case narrative or in the report with data qualifiers.

Sample Results

1H24035-01 (Water)



FINAL REPORT

(Continued)

1H24035-01 (Water)

S-11

Sample Results

(Continued)

Sample: 21H2617-02

Sampled: 08/18/21 12:00 by Client

1H24035-02 (Water)

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
Method: EPA 525.2		Instr: GCMS16				
Batch ID: W110028	Preparation: EPA 525.2/SPE		Prepared: 09/01/21 09:56		Analyst: rmr	
Alachlor	ND	0.10	ug/l	1	09/10/21	
Atrazine	ND	0.10	ug/l	1	09/10/21	
Benzo (a) pyrene	ND	0.10	ug/l	1	09/10/21	
Bis(2-ethylhexyl)adipate	ND	5.0	ug/l	1	09/10/21	
Bis(2-ethylhexyl)phthalate	ND	3.0	ug/l	1	09/10/21	
Bromacil	ND	0.50	ug/l	1	09/10/21	
Butachlor	ND	0.10	ug/l	1	09/10/21	
Captan	ND	1.0	ug/l	1	09/10/21	
Chlorpropham	ND	0.10	ug/l	1	09/10/21	
Cyanazine	ND	0.10	ug/l	1	09/10/21	
Diazinon	ND	0.10	ug/l	1	09/10/21	
Dimethoate	ND	0.20	ug/l	1	09/10/21	
Diphenamid	ND	0.10	ug/l	1	09/10/21	
Disulfoton	ND	0.10	ug/l	1	09/10/21	
EPTC	ND	0.10	ug/l	1	09/10/21	
Metolachlor	ND	0.10	ug/l	1	09/10/21	
Metribuzin	ND	0.10	ug/l	1	09/10/21	
Molinate	ND	0.10	ug/l	1	09/10/21	
Prometon	ND	0.10	ug/l	1	09/10/21	
Prometryn	ND	0.10	ug/l	1	09/10/21	
Simazine	ND	0.10	ug/l	1	09/10/21	
Terbacil	ND	2.0	ug/l	1	09/10/21	
Thiobencarb	ND	0.10	ug/l	1	09/10/21	
Trithion	ND	0.10	ug/l	1	09/10/21	
<i>Surrogate(s)</i>						
1,3-Dimethyl-2-nitrobenzene	61%	70-130	Conc: 3.18		09/10/21	S-GC
Perylene-d12	105%	50-120	Conc: 5.46		09/10/21	
Triphenyl phosphate	148%	70-130	Conc: 7.68		09/10/21	S-11

Quality Control Results

Semivolatile Organic Compounds by GC/MS

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch: W110028 - EPA 525.2/SPE										
Blank (W110028-BLK1)				Prepared: 09/01/21 Analyzed: 09/10/21						
Alachlor	ND	0.10	ug/l							
Atrazine	ND	0.10	ug/l							A-01
Benzo (a) pyrene	ND	0.10	ug/l							
Bis(2-ethylhexyl)adipate	ND	2.0	ug/l							
Bis(2-ethylhexyl)phthalate	ND	2.0	ug/l							
Bromacil	ND	0.50	ug/l							
Butachlor	ND	0.10	ug/l							
Captan	ND	1.0	ug/l							
Chlorpropham	ND	0.10	ug/l							A-01
Cyanazine	ND	0.10	ug/l							
Diazinon	ND	0.10	ug/l							
Dimethoate	ND	0.20	ug/l							A-01
Diphenamid	ND	0.10	ug/l							
Disulfoton	ND	0.10	ug/l							
EPTC	ND	0.10	ug/l							A-01
Metolachlor	ND	0.10	ug/l							
Metribuzin	ND	0.10	ug/l							
Molinate	ND	0.10	ug/l							A-01
Prometon	ND	0.10	ug/l							
Prometryn	ND	0.10	ug/l							
Propachlor	0.00		ug/l							
Simazine	ND	0.10	ug/l							
Terbacil	ND	2.0	ug/l							
Thiobencarb	ND	0.10	ug/l							
Trithion	ND	0.10	ug/l							
Surrogate(s)										
1,3-Dimethyl-2-nitrobenzene	3.60		ug/l	5.00		72	70-130			
Perylene-d12	4.86		ug/l	5.00		97	50-120			
Triphenyl phosphate	10.9		ug/l	5.00		217	70-130			S-11
LCS (W110028-B51)				Prepared: 09/01/21 Analyzed: 09/10/21						
Alachlor	5.98	0.10	ug/l	5.00		120	70-130			
Atrazine	10.4	0.10	ug/l	5.00		209	70-130			Q-08
Benzo (a) pyrene	5.40	0.10	ug/l	5.00		108	60-130			
Bis(2-ethylhexyl)adipate	8.09	2.0	ug/l	5.00		162	70-130			Q-08
Bis(2-ethylhexyl)phthalate	8.02	2.0	ug/l	5.00		160	70-130			Q-08
Bromacil	5.10	0.50	ug/l	5.00		102	70-130			
Butachlor	5.49	0.10	ug/l	5.00		110	70-130			
Captan	7.04	1.0	ug/l	5.00		141	70-130			Q-08
Chlorpropham	9.59	0.10	ug/l	5.00		192	70-130			Q-08
Cyanazine	6.05	0.10	ug/l	5.00		121	70-130			
Diazinon	3.65	0.10	ug/l	5.00		73	50-120			
Dimethoate	7.37	0.20	ug/l	5.00		147	50-120			Q-08
Diphenamid	7.11	0.10	ug/l	5.00		142	70-130			Q-08

Quality Control Results

(Continued)

Semivolatile Organic Compounds by GC/MS (Continued)

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch: W110028 - EPA 525.2/SPE (Continued)										
LCS (W110028-BS1)				Prepared: 09/01/21 Analyzed: 09/10/21						
Disulfoton	4.73	0.10	ug/l	5.00		95	50-120			
EPTC	5.44	0.10	ug/l	5.00		109	70-130			
Metolachlor	5.58	0.10	ug/l	5.00		112	60-130			
Metribuzin	4.20	0.10	ug/l	5.00		84	50-120			
Molinate	7.47	0.10	ug/l	5.00		149	70-130			Q-08
Prometon	1.00	0.10	ug/l	5.00		20	15-120			
Prometryn	4.26	0.10	ug/l	5.00		85	30-120			
Simazine	4.99	0.10	ug/l	5.00		100	60-130			
Terbacil	6.44	2.0	ug/l	5.00		129	70-130			
Thiobencarb	4.32	0.10	ug/l	5.00		86	70-130			
Trithion	4.82	0.10	ug/l	5.00		96	70-130			
Surrogate(s)										
1,3-Dimethyl-2-nitrobenzene	4.32		ug/l	5.00		86	70-130			
Perylene-d12	5.26		ug/l	5.00		105	50-120			
Triphenyl phosphate	7.68		ug/l	5.00		154	70-130			S-11
LCS Dup (W110028-BSD1)				Prepared: 09/01/21 Analyzed: 09/09/21						
Alachlor	6.15	0.10	ug/l	5.00		123	70-130	3	30	
Atrazine	7.62	0.10	ug/l	5.00		152	70-130	31	30	Q-08
Benzo (a) pyrene	5.45	0.10	ug/l	5.00		109	60-130	1	30	
Bis(2-ethylhexyl)adipate	7.03	2.0	ug/l	5.00		141	70-130	14	30	Q-08
Bis(2-ethylhexyl)phthalate	7.27	2.0	ug/l	5.00		145	70-130	10	30	Q-08
Bromacil	5.31	0.50	ug/l	5.00		106	70-130	4	30	
Butachlor	5.56	0.10	ug/l	5.00		111	70-130	1	30	
Captan	7.02	1.0	ug/l	5.00		140	70-130	0.2	30	Q-08
Chlorpropham	7.33	0.10	ug/l	5.00		147	70-130	27	30	Q-08
Cyanazine	5.56	0.10	ug/l	5.00		111	70-130	8	30	
Diazinon	4.18	0.10	ug/l	5.00		84	50-120	14	30	
Dimethoate	6.24	0.20	ug/l	5.00		125	50-120	17	30	Q-08
Diphenamid	6.53	0.10	ug/l	5.00		131	70-130	8	30	Q-08
Disulfoton	4.89	0.10	ug/l	5.00		98	50-120	3	30	
EPTC	5.64	0.10	ug/l	5.00		113	70-130	4	30	
Metolachlor	5.77	0.10	ug/l	5.00		115	60-130	3	30	
Metribuzin	4.75	0.10	ug/l	5.00		95	50-120	12	30	
Molinate	7.07	0.10	ug/l	5.00		141	70-130	6	30	Q-08
Prometon	1.33	0.10	ug/l	5.00		27	15-120	28	30	
Prometryn	4.65	0.10	ug/l	5.00		93	30-120	9	30	
Simazine	5.69	0.10	ug/l	5.00		114	60-130	13	30	
Terbacil	6.71	2.0	ug/l	5.00		134	70-130	4	30	Q-08
Thiobencarb	4.59	0.10	ug/l	5.00		92	70-130	6	30	
Trithion	4.82	0.10	ug/l	5.00		96	70-130	0.004	30	
Surrogate(s)										
1,3-Dimethyl-2-nitrobenzene	4.52		ug/l	5.00		90	70-130			
Perylene-d12	5.32		ug/l	5.00		106	50-120			

Quality Control Results

(Continued)

Semivolatile Organic Compounds by GC/MS (Continued)

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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Batch: W110028 - EPA 525.2/SPE (Continued)

LCS Dup (W110028-BSD1)

Prepared: 09/01/21 Analyzed: 09/09/21

Surrogate(s)

Triphenyl phosphate	6.77		ug/l	5.00		135	70-130			S-11
---------------------	------	--	------	------	--	-----	--------	--	--	------

Notes and Definitions

Item	Definition
A-01	Low recovery of associated IS. Analyte was judged ND based on standard below reporting limit.
Q-08	High bias in the QC sample does not affect sample result since analyte was not detected or below the reporting limit.
S-11	Surrogate recovery outside of control limits. The data was accepted based on valid recovery of the remaining surrogate.
S-GC	Surrogate recovery outside of control limits due to a possible matrix effect. The data was accepted based on valid recovery of the remaining surrogate.
%REC	Percent Recovery
Dil	Dilution
MRL	The minimum levels, concentrations, or quantities of a target variable (e.g., target analyte) that can be reported with a specified degree of confidence. The MRL is also known as Limit of Quantitation (LOQ)
ND	NOT DETECTED at or above the Method Reporting Limit (MRL). If Method Detection Limit (MDL) is reported, then ND means not detected at or above the MDL.
RPD	Relative Percent Difference

Any remaining sample(s) will be disposed of one month from the final report date unless other arrangements are made in advance.

All results are expressed on wet weight basis unless otherwise specified.

All samples collected by Weck Laboratories have been sampled in accordance to laboratory SOP Number MIS002.

Reviewed by:



Rahul R. Nair
Project Manager



DoD-ELAP ANAB #ADE-2882 • DoD-ISO ANAB # • ELAP-CA #1132 • EPA-UCMR #CA00211 • Guam-EPA #17-008R • HW-DOH #4047 • ISO17025 ANAB #L2457.01 • LACSD #10143 • NELAP-OR #4047 • NJ-DEP #CA015 • SCAQMD #93LA1006

This is a complete final report. The information in this report applies to the samples analyzed in accordance with the chain-of-custody document. Weck Laboratories certifies that the test results meet all requirements of TNI unless noted by qualifiers or written in the Case Narrative. This analytical report must be reproduced in its entirety.

[illegible]

21H2617

Alpha Analytical Laboratories Ukiah to North Bay Chain of Custody

Client: **Todd Groundwater**Client Code: **DP_TODENG**Bid: **Round 3 ASR Water Quality**Project: **Round 3 ASR Water Quality Baseline**Project Number: **Round 3 ASR Water Quality PO #:**Date Due: **09/02/21 15:00 (10 day TAT)**Received By: **James Bixler**Date Received: **08/18/21 22:15**Logged In By: **Sean Foley**Date Logged: **08/19/21 08:32**

Samples Received at: _____ deg C

All containers received and intact: YES NO

Analysis**Department****Expires****Comments****21H2617-02 3123 [Water] Sampled 08/18/21 12:00**NB Silica as SiO₂ ICP 200.7

NB Metals

02/14/22 12:00

Containers Supplied:250mL Poly HNO₃ (J)250mL Poly HNO₃ (J)

Relinquished By

Date

Time

Received By

Date

Time

Relinquished By

Date

Time

Received By

Date

Time



Alpha Analytical Laboratories, Inc. email: clientservices@alpha-labs.com
Corporate: 208 Mason Street | Ukiah, CA 95482 | T: 707-468-0401 | F: 707-468-5267 | ELAP# 1551

24 September 2021

Todd Groundwater

Attn: Nicole Grimm

2490 Mariner Square Loop, Suite 215

Alameda, CA 94501

RE: Round 3 ASR Water Quality Baseline

Work Order: 21H2633

Enclosed are the results of analyses for samples received by the laboratory on 08/18/21 22:15. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Alisabeth J. Wilcox For David S. Pingatore
Project Manager



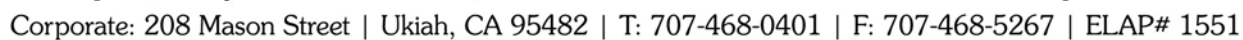
Alpha Analytical Laboratories, Inc. email: clientservices@alpha-labs.com
Corporate: 208 Mason Street | Ukiah, CA 95482 | T: 707-468-0401 | F: 707-468-5267 | ELAP# 1551

Todd Groundwater 2490 Mariner Square Loop, Suite 215 Alameda, CA 94501	Project Manager: Nicole Grimm Project: Round 3 ASR Water Quality Baseline Project Number: Round 3 ASR Water Quality Baseline	Reported: 09/24/21 16:57
--	--	-----------------------------

Bay Area: 262 Rickenbacker Circle | Livermore, CA 94551 | T: 925-828-6226 | F: 925-828-6309 | ELAP# 2728
Central Valley: 9090 Union Park Way Suite 113 | Elk Grove, CA 95624 | T: 916-686-5190 | F: 916-686-5192 | ELAP# 2922
North Bay: 110 Liberty Street | Petaluma, CA 94952 | T: 707-769-3128 | F: 707-769-8093 | ELAP# 2303
San Diego: 2722 Loker Avenue West Suite A | Carlsbad, CA 92010 | T: 760-930-2555 | F: 760-930-2510 | ELAP# 3055

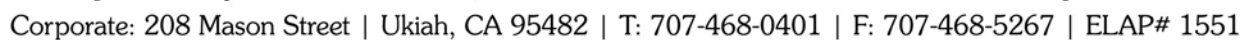
ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
████	████████	████	████████	████████
████████	████████	████	████████	████████
████	████████	████	████████	████████
3123	21H2633-04	Water	08/18/21 11:50	08/18/21 22:15
████	████████	████	████████	████████
████████	████████	████	████████	████████



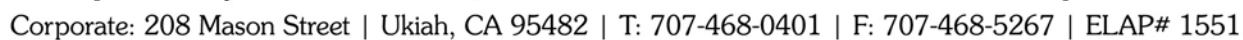
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09/24/21 16:57

Page 2 of 30



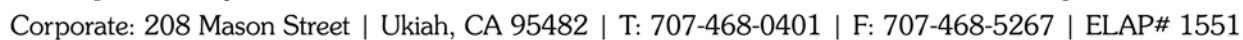
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09/24/21 16:57

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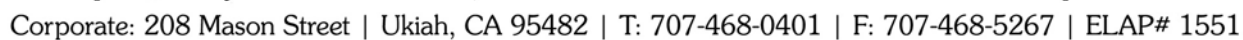
Reported:
09/24/21 16:57

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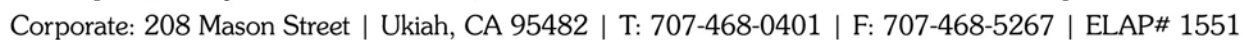
Reported:
09/24/21 16:57

Page 5 of 30



Reported:
09/24/21 16:57

Page 6 of 30



Reported:
09/24/21 16:57



Alpha Analytical Laboratories, Inc. email: clientservices@alpha-labs.com
Corporate: 208 Mason Street | Ukiah, CA 95482 | T: 707-468-0401 | F: 707-468-5267 | ELAP# 1551

Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: Round 3 ASR Water Quality Baseline

Reported:
09/24/21 16:57

	Result	Reporting Limit	Dilution	Batch	Prepared	Analyzed	ELAP#	Method	Note
3123 (21H2633-04)									
Sample Type: Water				Sampled: 08/18/21 11:50					
Conventional Chemistry Parameters by APHA/EPA Methods									
Color	ND CU	5.0	1	AH14313	08/18/21 16:48	08/18/21 16:48	2728	SM2120B	
MBAS, calculated as LAS, mw 340	ND mg/L	0.050	1	AH14260	08/20/21 08:15	08/20/21 16:30	1551	SM5540C	
Perchlorate	ND ug/L	2.0	1	AH14310	08/20/21 08:00	08/20/21 20:27	2303	EPA 314.0	
Sulfide	ND mg/L	0.10	1	AH14407	08/24/21 06:00	08/24/21 06:00	1551	SM4500-S2 D	
Total Dissolved Solids	1100 mg/L	10	1	AH14424	08/24/21 10:40	09/03/21 14:57	1551	SM2540C	
Turbidity	17 NTU	0.10	1	AH14314	08/18/21 16:57	08/18/21 16:57	2728	SM2130B	
Bicarbonate Alkalinity as CaCO3	300 mg/L	5.0	1	AH14703	08/30/21 08:00	08/30/21 12:21	1551	SM2320B	
Carbonate Alkalinity as CaCO3	ND mg/L	5.0	1	AH14703	08/30/21 08:00	08/30/21 12:21	1551	SM2320B	
Hydroxide Alkalinity as CaCO3	ND mg/L	5.0	1	AH14703	08/30/21 08:00	08/30/21 12:21	1551	SM2320B	
Total Alkalinity as CaCO3	300 mg/L	5.0	1	AH14703	08/30/21 08:00	08/30/21 12:21	1551	SM2320B	
Hardness, Total	178 mg/L	5	1	AH14872	09/01/21 13:35	09/03/21 17:29	1551	SM2340B	
Anions by EPA Method 300.0									
Chloride	340 mg/L	25	50	AH14195	08/20/21 10:30	08/20/21 10:30	1551	EPA 300.0	
Fluoride	ND mg/L	0.10	1	AH14195	08/19/21 17:10	08/19/21 17:10	1551	EPA 300.0	
Nitrate as N	1.2 mg/L	0.20	1	AH14195	08/19/21 17:10	08/19/21 17:10	1551	EPA 300.0	
Sulfate as SO4	65 mg/L	5.0	10	AH14195	08/19/21 17:27	08/19/21 17:27	1551	EPA 300.0	
Microbiological Parameters by APHA Standard Methods									
Total Coliforms	ND MPN/100mL	1.0	1	AH14327	08/18/21 16:35	08/19/21 16:35	2728	SM9223B	
E. Coli	ND MPN/100mL	1.0	1	AH14327	08/18/21 16:35	08/19/21 16:35	2728	SM9223B	
Volatile Organic Compounds by EPA Method 524.2									
Bromodichloromethane	ND ug/L	1.00	1	AH14496	08/25/21 15:00	08/26/21 01:16	1551	EPA 524.2	
Bromoform	ND ug/L	1.00	1	AH14496	08/25/21 15:00	08/26/21 01:16	1551	EPA 524.2	
Chloroform	ND ug/L	1.00	1	AH14496	08/25/21 15:00	08/26/21 01:16	1551	EPA 524.2	
Dibromochloromethane	ND ug/L	1.00	1	AH14496	08/25/21 15:00	08/26/21 01:16	1551	EPA 524.2	
Trihalomethanes (total)	ND ug/L	1.00	1	AH14496	08/25/21 15:00	08/26/21 01:16	1551	EPA 524.2	
Surrogate: Bromofluorobenzene	98.0 %	70-130		AH14496	08/25/21 15:00	08/26/21 01:16	1551	EPA 524.2	
Surrogate: Dibromofluoromethane	95.2 %	70-130		AH14496	08/25/21 15:00	08/26/21 01:16	1551	EPA 524.2	
Surrogate: Toluene-d8	95.4 %	70-130		AH14496	08/25/21 15:00	08/26/21 01:16	1551	EPA 524.2	



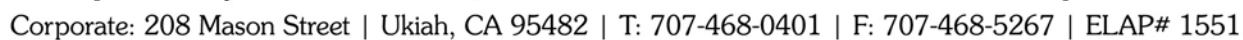
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Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: Round 3 ASR Water Quality Baseline

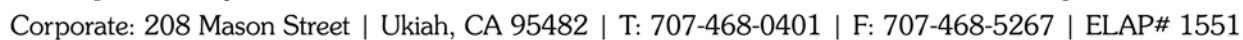
Reported:
09/24/21 16:57

	Result	Reporting Limit	Dilution	Batch	Prepared	Analyzed	ELAP#	Method	Note
3123 (21H2633-04)									
Sample Type: Water				Sampled: 08/18/21 11:50					
Haloacetic Acids by EPA Method 552.2									
Monobromoacetic Acid	ND ug/L	10	1	AH14766	08/31/21 07:00	09/02/21 05:10	1551	EPA 552.2	
Monochloroacetic Acid	ND ug/L	20	1	AH14766	08/31/21 07:00	09/02/21 05:10	1551	EPA 552.2	
Dibromoacetic Acid	ND ug/L	10	1	AH14766	08/31/21 07:00	09/02/21 05:10	1551	EPA 552.2	
Dichloroacetic Acid	ND ug/L	10	1	AH14766	08/31/21 07:00	09/02/21 05:10	1551	EPA 552.2	
Trichloroacetic Acid	ND ug/L	10	1	AH14766	08/31/21 07:00	09/02/21 05:10	1551	EPA 552.2	
Total Haloacetic Acids (HAA5)	ND ug/L	10	1	AH14766	08/31/21 07:00	09/02/21 05:10	1551	EPA 552.2	
Surrogate: 2,3-Dibromopropionic Acid	110 %	70-130		AH14766	08/31/21 07:00	09/02/21 05:10	1551	EPA 552.2	
Surrogate: 2-Bromopropionic Acid	110 %	70-130		AH14766	08/31/21 07:00	09/02/21 05:10	1551	EPA 552.2	



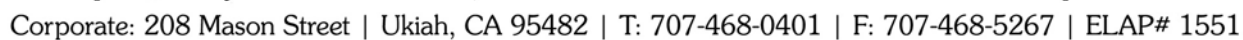
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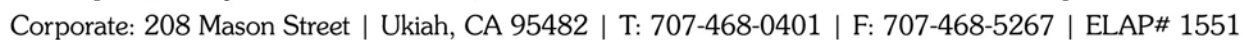
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Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: Round 3 ASR Water Quality Baseline

Reported:
09/24/21 16:57

Metals (Dissolved) by EPA 200 Series Methods - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Flag
Batch AH14872 - Metals Digest (D)									
Blank (AH14872-BLK1)				Prepared: 09/01/21 Analyzed: 09/03/21					
Calcium, dissolved	ND	10	mg/L						
Iron, dissolved	ND	0.10	mg/L						
Magnesium, dissolved	ND	10	mg/L						
Potassium, dissolved	ND	10	mg/L						
Sodium, dissolved	ND	10	mg/L						
LCS (AH14872-BS1)				Prepared: 09/01/21 Analyzed: 09/03/21					
Calcium, dissolved	8.37	10	mg/L	8.00		105	85-115		
Iron, dissolved	1.90	0.10	mg/L	2.00		95.1	85-115		
Magnesium, dissolved	8.66	10	mg/L	8.00		108	85-115		
Potassium, dissolved	8.06	10	mg/L	8.00		101	85-115		
Sodium, dissolved	8.12	10	mg/L	8.00		101	85-115		
Duplicate (AH14872-DUP1)				Source: 21H3452-01		Prepared: 09/01/21 Analyzed: 09/03/21			
Calcium, dissolved	48.0	10	mg/L		47.3			1.38	20
Iron, dissolved	ND	0.10	mg/L		ND				20
Magnesium, dissolved	28.7	10	mg/L		28.2			1.74	20
Potassium, dissolved	4.07	10	mg/L		4.04			0.855	20
Sodium, dissolved	23.1	10	mg/L		22.8			1.01	20
Matrix Spike (AH14872-MS1)				Source: 21H3452-01		Prepared: 09/01/21 Analyzed: 09/03/21			
Calcium, dissolved	56.4	10	mg/L	8.00	47.3	114	70-130		
Iron, dissolved	1.91	0.10	mg/L	2.00	ND	95.5	70-130		
Magnesium, dissolved	37.9	10	mg/L	8.00	28.2	122	70-130		
Potassium, dissolved	12.6	10	mg/L	8.00	4.04	107	70-130		
Sodium, dissolved	30.6	10	mg/L	8.00	22.8	96.6	70-130		
Matrix Spike (AH14872-MS2)				Source: 21H3374-01		Prepared: 09/01/21 Analyzed: 09/03/21			
Calcium, dissolved	21.6	10	mg/L	8.00	12.9	108	70-130		
Iron, dissolved	1.95	0.10	mg/L	2.00	ND	97.3	70-130		
Magnesium, dissolved	17.3	10	mg/L	8.00	8.10	115	70-130		
Potassium, dissolved	9.84	10	mg/L	8.00	1.75	101	70-130		
Sodium, dissolved	27.1	10	mg/L	8.00	19.7	92.7	70-130		

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Project Manager: Nicole Grimm
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Project Number: Round 3 ASR Water Quality Baseline

Reported:
09/24/21 16:57

Metals (Dissolved) by EPA 200 Series Methods - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
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Batch AH14872 - Metals Digest (D)

Matrix Spike Dup (AH14872-MSD1)

Source: 21H3452-01

Prepared: 09/01/21 Analyzed: 09/03/21

Calcium, dissolved	56.6	1.0	mg/L	8.00	47.3	117	70-130	0.409	20	
Iron, dissolved	1.87	0.10	mg/L	2.00	ND	93.6	70-130	1.95	20	
Magnesium, dissolved	37.4	1.0	mg/L	8.00	28.2	115	70-130	1.46	20	
Potassium, dissolved	12.4	1.0	mg/L	8.00	4.04	105	70-130	1.10	20	
Sodium, dissolved	30.8	1.0	mg/L	8.00	22.8	99.2	70-130	0.666	20	

Batch AI13118 - EPA 245.1 Hg Water

Blank (AI13118-BLK1)

Prepared: 09/02/21 Analyzed: 09/03/21

Mercury, dissolved	ND	0.20	ug/L							
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LCS (AI13118-BS1)

Prepared: 09/02/21 Analyzed: 09/03/21

Mercury, dissolved	2.56	0.20	ug/L	2.50		102	85-115			
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Duplicate (AI13118-DUP1)

Source: 21H2633-02

Prepared: 09/02/21 Analyzed: 09/03/21

Mercury, dissolved	ND	0.20	ug/L		ND				20	
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Matrix Spike (AI13118-MS1)

Source: 21H2633-02

Prepared: 09/02/21 Analyzed: 09/03/21

Mercury, dissolved	2.52	0.20	ug/L	2.50	ND	101	70-130			
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Matrix Spike Dup (AI13118-MSD1)

Source: 21H2633-02

Prepared: 09/02/21 Analyzed: 09/03/21

Mercury, dissolved	2.51	0.20	ug/L	2.50	ND	100	70-130	0.437	20	
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Project: Round 3 ASR Water Quality Baseline
Project Number: Round 3 ASR Water Quality Baseline

Reported:
09/24/21 16:57

Metals (Dissolved) by EPA Method 200.8 ICP/MS - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Flag
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Batch AH14197 - EPA 200.8 (D)

Blank (AH14197-BLK1)

Prepared: 08/24/21 Analyzed: 08/27/21

Aluminum, dissolved	ND	10	ug/L
Antimony, dissolved	ND	0.50	ug/L
Arsenic, dissolved	ND	0.50	ug/L
Barium, dissolved	ND	0.50	ug/L
Beryllium, dissolved	ND	0.10	ug/L
Boron, dissolved	ND	50	ug/L
Cadmium, dissolved	ND	0.10	ug/L
Chromium, dissolved	ND	0.50	ug/L
Copper, dissolved	0.591	0.50	ug/L
Lead, dissolved	ND	0.25	ug/L
Manganese, dissolved	ND	5.0	ug/L
Molybdenum, dissolved	ND	0.25	ug/L
Nickel, dissolved	ND	0.50	ug/L
Selenium, dissolved	ND	2.0	ug/L
Silver, dissolved	ND	0.10	ug/L
Thallium, dissolved	ND	0.10	ug/L
Vanadium, dissolved	ND	1.0	ug/L
Zinc, dissolved	ND	5.0	ug/L

LCS (AH14197-BS1)

Prepared: 08/24/21 Analyzed: 08/27/21

Aluminum, dissolved	554	10	ug/L	520	107	85-115
Antimony, dissolved	20.8	0.50	ug/L	20.0	104	85-115
Arsenic, dissolved	21.1	0.50	ug/L	20.0	105	85-115
Barium, dissolved	20.3	0.50	ug/L	20.0	102	85-115
Beryllium, dissolved	20.7	0.10	ug/L	20.0	104	85-115
Boron, dissolved	106	50	ug/L	100	106	85-115
Cadmium, dissolved	20.3	0.10	ug/L	20.0	101	85-115
Chromium, dissolved	20.3	0.50	ug/L	20.0	101	85-115
Copper, dissolved	22.3	0.50	ug/L	20.0	112	85-115
Lead, dissolved	20.5	0.25	ug/L	20.0	103	85-115
Manganese, dissolved	20.5	5.0	ug/L	20.0	102	85-115
Molybdenum, dissolved	21.3	0.25	ug/L	20.0	106	85-115
Nickel, dissolved	20.1	0.50	ug/L	20.0	100	85-115
Selenium, dissolved	21.6	2.0	ug/L	20.0	108	85-115
Silver, dissolved	18.0	0.10	ug/L	20.0	90.1	85-115

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Project Number: Round 3 ASR Water Quality Baseline

Reported:
09/24/21 16:57

Metals (Dissolved) by EPA Method 200.8 ICP/MS - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch AH14197 - EPA 200.8 (D)										
LCS (AH14197-BS1)				Prepared: 08/24/21 Analyzed: 08/26/21						
Thallium, dissolved	20.4	0.10	ug/L	20.0		102	85-115			
Vanadium, dissolved	20.6	1.0	ug/L	20.0		103	85-115			
Zinc, dissolved	103	5.0	ug/L	100		103	85-115			
Duplicate (AH14197-DUP1)				Source: 21H2633-01 Prepared: 08/24/21 Analyzed: 08/27/21						
Aluminum, dissolved	ND	100	ug/L		ND				20	
Antimony, dissolved	ND	0.50	ug/L		ND				20	
Arsenic, dissolved	5.05	0.50	ug/L		4.88			3.43	20	
Barium, dissolved	41.3	0.50	ug/L		40.5			2.00	20	
Beryllium, dissolved	ND	0.10	ug/L		ND				20	
Boron, dissolved	1930	50	ug/L		1910			0.965	20	
Cadmium, dissolved	ND	0.10	ug/L		ND				20	
Chromium, dissolved	11.6	0.50	ug/L		11.5			1.13	20	
Copper, dissolved	24.4	0.50	ug/L		24.2			0.967	20	
Lead, dissolved	0.340	0.25	ug/L		0.296			14.0	20	
Manganese, dissolved	ND	5.0	ug/L		ND				20	
Molybdenum, dissolved	5.45	0.25	ug/L		5.36			1.49	20	
Nickel, dissolved	1.19	0.50	ug/L		1.20			0.848	20	
Selenium, dissolved	5.75	2.0	ug/L		5.43			5.61	20	
Silver, dissolved	ND	0.10	ug/L		0.218			200	20	
Thallium, dissolved	ND	0.10	ug/L		ND				20	
Vanadium, dissolved	6.40	1.0	ug/L		6.47			1.08	20	
Zinc, dissolved	13.8	5.0	ug/L		13.4			2.85	20	
MRL Check (AH14197-MRL1)				Prepared: 08/24/21 Analyzed: 08/27/21						
Aluminum, dissolved	12.2	10	ug/L	8.00		153	0-200			
Silver, dissolved	0.0833	0.10	ug/L	0.0800		104	0-200			
Thallium, dissolved	0.0721	0.10	ug/L	0.0800		90.1	0-200			
Vanadium, dissolved	0.878	1.0	ug/L	0.800		110	0-200			

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Reported:
09/24/21 16:57

Metals (Dissolved) by EPA Method 200.8 ICP/MS - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch AH14197 - EPA 200.8 (D)										
Matrix Spike (AH14197-MS1)		Source: 21H2633-05		Prepared: 08/24/21		Analyzed: 08/27/21				
Aluminum, dissolved	616	10	ug/L	520	ND	117	70-130			QM-01
Antimony, dissolved	19.8	0.50	ug/L	20.0	ND	99.1	70-130			
Arsenic, dissolved	27.4	0.50	ug/L	20.0	7.71	98.7	70-130			
Barium, dissolved	82.4	0.50	ug/L	20.0	65.2	86.1	70-130			
Beryllium, dissolved	18.3	0.10	ug/L	20.0	ND	91.4	70-130			
Boron, dissolved	2380	50	ug/L	100	2470	NR	70-130			QM-4X
Cadmium, dissolved	18.5	0.10	ug/L	20.0	ND	92.6	70-130			
Chromium, dissolved	19.5	0.50	ug/L	20.0	ND	97.3	70-130			
Copper, dissolved	23.0	0.50	ug/L	20.0	3.01	100	70-130			
Lead, dissolved	16.2	0.25	ug/L	20.0	ND	80.8	70-130			
Manganese, dissolved	441	5.0	ug/L	20.0	429	63.4	70-130			QM-01
Molybdenum, dissolved	29.8	0.25	ug/L	20.0	8.61	106	70-130			
Nickel, dissolved	24.8	0.50	ug/L	20.0	7.15	88.4	70-130			
Selenium, dissolved	19.6	2.0	ug/L	20.0	ND	90.8	70-130			
Silver, dissolved	17.2	0.10	ug/L	20.0	ND	86.1	70-130			QM-01
Thallium, dissolved	16.0	0.10	ug/L	20.0	ND	80.2	70-130			
Vanadium, dissolved	24.9	1.0	ug/L	20.0	5.33	97.9	70-130			
Zinc, dissolved	98.0	5.0	ug/L	100	7.93	90.0	70-130			
Matrix Spike Dup (AH14197-MSD1)		Source: 21H2633-05		Prepared: 08/24/21		Analyzed: 08/27/21				
Aluminum, dissolved	621	10	ug/L	520	ND	118	70-130	0.734	20	QM-01
Antimony, dissolved	19.7	0.50	ug/L	20.0	ND	98.3	70-130	0.783	20	
Arsenic, dissolved	27.3	0.50	ug/L	20.0	7.71	98.0	70-130	0.533	20	
Barium, dissolved	82.5	0.50	ug/L	20.0	65.2	86.3	70-130	0.0474	20	
Beryllium, dissolved	18.3	0.10	ug/L	20.0	ND	91.7	70-130	0.349	20	
Boron, dissolved	2330	50	ug/L	100	2470	NR	70-130	2.06	20	QM-4X
Cadmium, dissolved	18.7	0.10	ug/L	20.0	ND	93.3	70-130	0.746	20	
Chromium, dissolved	19.8	0.50	ug/L	20.0	ND	99.0	70-130	1.72	20	
Copper, dissolved	23.1	0.50	ug/L	20.0	3.01	100	70-130	0.257	20	
Lead, dissolved	15.9	0.25	ug/L	20.0	ND	79.6	70-130	1.41	20	
Manganese, dissolved	448	5.0	ug/L	20.0	429	99.2	70-130	1.61	20	
Molybdenum, dissolved	29.8	0.25	ug/L	20.0	8.61	106	70-130	0.125	20	
Nickel, dissolved	25.3	0.50	ug/L	20.0	7.15	90.7	70-130	1.81	20	
Selenium, dissolved	19.8	2.0	ug/L	20.0	ND	91.7	70-130	0.900	20	
Silver, dissolved	17.6	0.10	ug/L	20.0	ND	88.1	70-130	2.40	20	QM-01

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Project: Round 3 ASR Water Quality Baseline
Project Number: Round 3 ASR Water Quality Baseline

Reported:
09/24/21 16:57

Metals (Dissolved) by EPA Method 200.8 ICP/MS - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
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Batch AH14197 - EPA 200.8 (D)

Matrix Spike Dup (AH14197-MSD1)

Source: 21H2633-05

Prepared: 08/24/21 Analyzed: 08/26/21

Thallium, dissolved	15.6	0.10	ug/L	20.0	ND	78.2	70-130	2.57	20	
Vanadium, dissolved	25.3	1.0	ug/L	20.0	5.33	99.8	70-130	1.46	20	
Zinc, dissolved	98.6	5.0	ug/L	100	7.93	90.7	70-130	0.676	20	



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Todd Groundwater	Project Manager: Nicole Grimm	Reported:
2490 Mariner Square Loop, Suite 215	Project: Round 3 ASR Water Quality Baseline	09/24/21 16:57
Alameda, CA 94501	Project Number: Round 3 ASR Water Quality Baseline	

Conventional Chemistry Parameters by APHA/EPA Methods - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch AH14260 - General Preparation										
Blank (AH14260-BLK1)				Prepared & Analyzed: 08/20/21						
MBAS, calculated as LAS, mw 340	ND	0.050	mg/L							
LCS (AH14260-BS1)				Prepared & Analyzed: 08/20/21						
MBAS, calculated as LAS, mw 340	0.201	0.050	mg/L	0.200		101	80-120			
Matrix Spike (AH14260-MS1)				Source: 21H2633-01		Prepared & Analyzed: 08/20/21				
MBAS, calculated as LAS, mw 340	0.188	0.050	mg/L	0.200	ND	94.0	80-120			
Matrix Spike Dup (AH14260-MSD1)				Source: 21H2633-01		Prepared & Analyzed: 08/20/21				
MBAS, calculated as LAS, mw 340	0.201	0.050	mg/L	0.200	ND	101	80-120	6.84	20	
Batch AH14310 - NB General Prep										
Blank (AH14310-BLK1)				Prepared & Analyzed: 08/20/21						
Perchlorate	ND	2.0	ug/L							
LCS (AH14310-BS1)				Prepared & Analyzed: 08/20/21						
Perchlorate	9.58	2.0	ug/L	10.0		95.8	85-115			
Duplicate (AH14310-DUP1)				Source: 21H2468-01		Prepared & Analyzed: 08/20/21				
Perchlorate	ND	2.0	ug/L		ND				15	
Matrix Spike (AH14310-MS1)				Source: 21H2414-13		Prepared & Analyzed: 08/20/21				
Perchlorate	9.36	2.0	ug/L	10.0	ND	93.6	70-130			
Matrix Spike Dup (AH14310-MSD1)				Source: 21H2414-13		Prepared & Analyzed: 08/20/21				
Perchlorate	9.72	2.0	ug/L	10.0	ND	97.2	70-130	3.77	15	



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Todd Groundwater 2490 Mariner Square Loop, Suite 215 Alameda, CA 94501	Project Manager: Nicole Grimm Project: Round 3 ASR Water Quality Baseline Project Number: Round 3 ASR Water Quality Baseline	Reported: 09/24/21 16:57
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Conventional Chemistry Parameters by APHA/EPA Methods - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch AH14314 - General Prep (BAL)										
Duplicate (AH14314-DUP1)		Source: 21H2633-03		Prepared & Analyzed: 08/18/21						
Turbidity	ND	0 10	NTU		ND				15	
Batch AH14407 - General Preparation										
Blank (AH14407-BLK1)		Prepared & Analyzed: 08/24/21								
Sulfide	ND	0 10	mg/L							
LCS (AH14407-BS1)		Prepared & Analyzed: 08/24/21								
Sulfide	0 230	0 10	mg/L	0 222		104	85-115			
Duplicate (AH14407-DUP1)		Source: 21H2633-01		Prepared & Analyzed: 08/24/21						
Sulfide	ND	0 10	mg/L		ND				15	
Matrix Spike (AH14407-MS1)		Source: 21H2633-01		Prepared & Analyzed: 08/24/21						
Sulfide	0 0910	0 10	mg/L	0 222	ND	41 0	80-120			QM-05
Matrix Spike Dup (AH14407-MSD1)		Source: 21H2633-01		Prepared & Analyzed: 08/24/21						
Sulfide	0 0900	0 10	mg/L	0 222	ND	40 5	80-120	1 10	15	QM-05
Batch AH14424 - General Preparation										
Blank (AH14424-BLK1)		Prepared: 08/24/21 Analyzed: 09/03/21								
Total Dissolved Solids	ND	10	mg/L							
Duplicate (AH14424-DUP1)		Source: 21H2326-01		Prepared: 08/24/21 Analyzed: 09/03/21						
Total Dissolved Solids	188	10	mg/L		172			8 89	15	



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Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: Round 3 ASR Water Quality Baseline

Reported:
09/24/21 16:57

Conventional Chemistry Parameters by APHA/EPA Methods - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
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Batch AH14424 - General Preparation

Duplicate (AH14424-DUP2)

Source: 21H2326-02

Prepared: 08/24/21 Analyzed: 09/03/21

Total Dissolved Solids	156	10	mg/L		154			1 29	15	
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Batch AH14703 - General Preparation

Blank (AH14703-BLK1)

Prepared & Analyzed: 08/30/21

Total Alkalinity as CaCO ₃	ND	5 0	mg/L							
Carbonate Alkalinity as CaCO ₃	ND	5 0	mg/L							
Hydroxide Alkalinity as CaCO ₃	ND	5 0	mg/L							
Bicarbonate Alkalinity as CaCO ₃	ND	5 0	mg/L							

LCS (AH14703-BS1)

Prepared & Analyzed: 08/30/21

Total Alkalinity as CaCO ₃	90 0	5 0	mg/L	80 0		112	70-130			
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Duplicate (AH14703-DUP1)

Source: 21H2633-01

Prepared & Analyzed: 08/30/21

Total Alkalinity as CaCO ₃	310	5 0	mg/L		310			0 00	20	
Carbonate Alkalinity as CaCO ₃	ND	5 0	mg/L		ND				20	
Hydroxide Alkalinity as CaCO ₃	ND	5 0	mg/L		ND				20	
Bicarbonate Alkalinity as CaCO ₃	310	5 0	mg/L		310			0 00	20	

Batch AH14872 - Metals Digest (D)

Blank (AH14872-BLK1)

Prepared: 09/01/21 Analyzed: 09/03/21

Hardness, Total	ND	5	mg/L							
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Duplicate (AH14872-DUP1)

Source: 21H3452-01

Prepared: 09/01/21 Analyzed: 09/03/21

Hardness, Total	238	5	mg/L		234			1 56	20	
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Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: Round 3 ASR Water Quality Baseline

Reported:
09/24/21 16:57

Anions by EPA Method 300.0 - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch AH14195 - EPA 300.0										
Blank (AH14195-BLK1)				Prepared & Analyzed: 08/19/21						
Nitrate as N	ND	0.20	mg/L							
Fluoride	ND	0.10	mg/L							
Sulfate as SO ₄	ND	0.50	mg/L							
Chloride	ND	0.50	mg/L							
LCS (AH14195-BS1)				Prepared & Analyzed: 08/19/21						
Nitrate as N	5.37	0.20	mg/L	5.56		96.7	90-110			
Fluoride	5.59	0.10	mg/L	5.56		101	90-110			
Chloride	10.9	0.50	mg/L	11.1		97.8	90-110			
Sulfate as SO ₄	22.2	0.50	mg/L	22.2		100	90-110			
Duplicate (AH14195-DUP1)				Source: 21H2530-02 Prepared & Analyzed: 08/19/21						
Sulfate as SO ₄	7.91	0.50	mg/L		7.92			0.0379	20	
Chloride	2.04	0.50	mg/L		2.04			0.0490	20	
Nitrate as N	0.277	0.20	mg/L		0.277			0.244	20	
Fluoride	0.163	0.10	mg/L		0.163			0.00	20	
Matrix Spike (AH14195-MS1)				Source: 21H2530-02 Prepared & Analyzed: 08/19/21						
Fluoride	5.01	1.0	mg/L	5.56	ND	90.2	80-120			
Nitrate as N	5.57	2.0	mg/L	5.56	ND	100	80-120			
Chloride	11.7	5.0	mg/L	11.1	ND	87.2	80-120			
Sulfate as SO ₄	26.4	5.0	mg/L	22.2	7.92	83.3	80-120			
Matrix Spike (AH14195-MS2)				Source: 21H2682-01 Prepared & Analyzed: 08/19/21						
Fluoride	4.71	1.0	mg/L	5.56	ND	84.8	80-120			
Nitrate as N	8.55	2.0	mg/L	5.56	3.70	87.3	80-120			
Sulfate as SO ₄	31.1	5.0	mg/L	22.2	12.9	82.2	80-120			
Chloride	17.1	5.0	mg/L	11.1	7.80	83.8	80-120			



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Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: Round 3 ASR Water Quality Baseline

Reported:
09/24/21 16:57

Anions by EPA Method 300.0 - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
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Batch AH14195 - EPA 300.0

Matrix Spike Dup (AH14195-MSD1)

Source: 21H2530-02

Prepared & Analyzed: 08/19/21

Sulfate as SO ₄	26.6	5.0	mg/L	22.2	7.92	84.2	80-120	0.796	20	
Fluoride	5.06	1.0	mg/L	5.56	ND	91.0	80-120	0.883	20	
Nitrate as N	5.61	2.0	mg/L	5.56	ND	101	80-120	0.717	20	
Chloride	11.8	5.0	mg/L	11.1	ND	88.0	80-120	0.755	20	



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Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: Round 3 ASR Water Quality Baseline

Reported:
09/24/21 16:57

Volatile Organic Compounds by EPA Method 524.2 - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch AH14496 - VOAs in Water GCMS										
Blank (AH14496-BLK1)				Prepared & Analyzed: 08/25/21						
Bromodichloromethane	ND	1 00	ug/L							
Bromoform	ND	1 00	ug/L							
Chloroform	ND	1 00	ug/L							
Dibromochloromethane	ND	1 00	ug/L							
Trihalomethanes (total)	ND	1 00	ug/L							
Surrogate: Bromofluorobenzene	25.4		ug/L	25.0		102	70-130			
Surrogate: Dibromofluoromethane	24.6		ug/L	25.0		98.5	70-130			
Surrogate: Toluene-d8	24.8		ug/L	25.0		99.1	70-130			
LCS (AH14496-BS1)				Prepared & Analyzed: 08/25/21						
Bromodichloromethane	4 57	1 00	ug/L	5 00		91 4	70-130			
Bromoform	4 31	1 00	ug/L	5 00		86 2	70-130			
Chloroform	5 19	1 00	ug/L	5 00		104	70-130			
Dibromochloromethane	4 45	1 00	ug/L	5 00		89 0	70-130			
Surrogate: Bromofluorobenzene	27.8		ug/L	25.0		111	70-130			
Surrogate: Dibromofluoromethane	23.5		ug/L	25.0		94.2	70-130			
Surrogate: Toluene-d8	24.8		ug/L	25.0		99.2	70-130			
LCS Dup (AH14496-BS1)				Prepared & Analyzed: 08/25/21						
Bromodichloromethane	4 59	1 00	ug/L	5 00		91 8	70-130	0 437	30	
Bromoform	4 11	1 00	ug/L	5 00		82 2	70-130	4 75	30	
Chloroform	5 14	1 00	ug/L	5 00		103	70-130	0 968	30	
Dibromochloromethane	4 58	1 00	ug/L	5 00		91 6	70-130	2 88	30	
Surrogate: Bromofluorobenzene	28.1		ug/L	25.0		113	70-130			
Surrogate: Dibromofluoromethane	22.4		ug/L	25.0		89.5	70-130			
Surrogate: Toluene-d8	24.9		ug/L	25.0		99.6	70-130			
Matrix Spike (AH14496-MS1)				Source: 21H2469-02	Prepared: 08/25/21	Analyzed: 08/26/21				
Bromodichloromethane	20 5	1 00	ug/L	5 00	14 0	130	70-130			
Bromoform	4 73	1 00	ug/L	5 00	ND	94 6	70-130			
Chloroform	79 8	1 00	ug/L	5 00	67 2	253	70-130			QM-05
Dibromochloromethane	8 71	1 00	ug/L	5 00	3 65	101	70-130			
Surrogate: Bromofluorobenzene	28.3		ug/L	25.0		113	70-130			
Surrogate: Dibromofluoromethane	23.0		ug/L	25.0		91.8	70-130			

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Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: Round 3 ASR Water Quality Baseline

Reported:
09/24/21 16:57

Volatile Organic Compounds by EPA Method 524.2 - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Flag
Batch AH14496 - VOAs in Water GCMS									
Matrix Spike (AH14496-MS1)		Source: 21H2469-02		Prepared: 08/25/21		Analyzed: 08/26/21			
Surrogate: Toluene-d8	24.4		ug/L	25.0		97.6	70-130		
Matrix Spike (AH14496-MS2)		Source: 21H2611-01		Prepared: 08/25/21		Analyzed: 08/26/21			
Bromodichloromethane	6.50	1.00	ug/L	5.00	1.77	94.6	70-130		
Bromoform	4.42	1.00	ug/L	5.00	ND	88.4	70-130		
Chloroform	60.2	1.00	ug/L	5.00	50.7	190	70-130		QM-05
Dibromochloromethane	4.27	1.00	ug/L	5.00	ND	85.4	70-130		
Surrogate: Bromofluorobenzene	27.8		ug/L	25.0		111	70-130		
Surrogate: Dibromofluoromethane	21.4		ug/L	25.0		85.8	70-130		
Surrogate: Toluene-d8	23.7		ug/L	25.0		94.7	70-130		



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Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: Round 3 ASR Water Quality Baseline

Reported:
09/24/21 16:57

Haloacetic Acids by EPA Method 552.2 - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch AH14766 - EPA 552.2										
Blank (AH14766-BLK1)				Prepared: 08/31/21 Analyzed: 09/01/21						
Monobromoacetic Acid	ND	1.0	ug/L							
Monochloroacetic Acid	ND	2.0	ug/L							
Dibromoacetic Acid	ND	1.0	ug/L							
Dichloroacetic Acid	ND	1.0	ug/L							
Trichloroacetic Acid	ND	1.0	ug/L							
Total Haloacetic Acids (HAA5)	ND	1.0	ug/L							
Surrogate: 2,3-Dibromopropionic Acid	8.28		ug/L	9.85		84.1	70-130			
Surrogate: 2-Bromopropionic Acid	10.9		ug/L	10.0		109	70-130			
LCS (AH14766-BS1)				Prepared: 08/31/21 Analyzed: 09/01/21						
Monobromoacetic Acid	28.6	1.0	ug/L	25.0		114	70-130			
Monochloroacetic Acid	28.6	2.0	ug/L	25.0		114	70-130			
Dibromoacetic Acid	24.9	1.0	ug/L	25.0		99.7	70-130			
Dichloroacetic Acid	28.5	1.0	ug/L	25.0		114	70-130			
Trichloroacetic Acid	24.5	1.0	ug/L	25.0		98.0	70-130			
Surrogate: 2,3-Dibromopropionic Acid	9.70		ug/L	9.85		98.5	70-130			
Surrogate: 2-Bromopropionic Acid	12.6		ug/L	10.0		126	70-130			
Matrix Spike (AH14766-MS1)				Source: 21H2633-01 Prepared: 08/31/21 Analyzed: 09/02/21						
Monobromoacetic Acid	31.8	1.0	ug/L	25.0	ND	127	70-130			
Monochloroacetic Acid	30.4	2.0	ug/L	25.0	ND	121	70-130			
Dibromoacetic Acid	28.2	1.0	ug/L	25.0	ND	113	70-130			
Dichloroacetic Acid	31.0	1.0	ug/L	25.0	ND	124	70-130			
Trichloroacetic Acid	27.6	1.0	ug/L	25.0	ND	110	70-130			
Surrogate: 2,3-Dibromopropionic Acid	11.8		ug/L	9.85		120	70-130			
Surrogate: 2-Bromopropionic Acid	14.3		ug/L	10.0		143	70-130			S-GC
Matrix Spike (AH14766-MS2)				Source: 21H2738-01 Prepared: 08/31/21 Analyzed: 09/02/21						
Monobromoacetic Acid	25.7	1.0	ug/L	25.0	ND	103	70-130			
Monochloroacetic Acid	51.4	2.0	ug/L	25.0	ND	205	70-130			QM-07
Dibromoacetic Acid	23.8	1.0	ug/L	25.0	ND	95.0	70-130			
Dichloroacetic Acid	26.3	1.0	ug/L	25.0	ND	105	70-130			
Trichloroacetic Acid	24.2	1.0	ug/L	25.0	ND	96.7	70-130			
Surrogate: 2,3-Dibromopropionic Acid	10.5		ug/L	9.85		107	70-130			

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Project Number: Round 3 ASR Water Quality Baseline

Reported:
09/24/21 16:57

Haloacetic Acids by EPA Method 552.2 - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
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Batch AH14766 - EPA 552.2

Matrix Spike (AH14766-MS2)

Source: 21H2738-01

Prepared: 08/31/21 Analyzed: 09/02/21

Surrogate: 2-Bromopropionic Acid

11.5

ug/L

10.0

115

70-130



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Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: Round 3 ASR Water Quality Baseline

Reported:
09/24/21 16:57

Notes and Definitions

FILT	The sample was filtered in the lab prior to analysis
QM-01	The spike recovery for this QC sample is outside of established control limits possibly due to a sample matrix interference.
QM-05	The spike recovery was outside acceptance limits for the MS and/or MSD due to matrix interference. The LCS and/or LCSD were within acceptance limits showing that the laboratory is in control and the data is acceptable.
QM-07	The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.
QM-4X	The spike recovery was outside of QC acceptance limits for the MS and/or MSD due to analyte concentration at 4 times or greater the spike concentration. The QC batch was accepted based on LCS and/or LCSD recoveries within the acceptance limits.
R-01	The Reporting Limit for this analyte has been raised to account for matrix interference.
S-GC	Surrogate recovery outside of control limits. The data was accepted based on valid recovery of the remaining surrogates.
ND	Analyte NOT DETECTED at or above the reporting limit
dry	Sample results reported on a dry weight basis
REC	Recovery
RPD	Relative Percent Difference

[illegible]

21H2633

Alpha Analytical Laboratories Ukiah to North Bay Chain of Custody

Client: **Todd Groundwater** Client Code: **DP_TODENG** Bid: **Round 3 ASR Water Quality**
Project: **Round 3 ASR Water Quality Baseline** Project Number: **Round 3 ASR Water Quality PO #:**

Date Due: 09/02/21 15:00 (10 day TAT)

Received By: James Bixler

Date Received: 08/18/21 22:15

Logged In By: Sean Foley

Date Logged: 08/19/21 10:02

Samples Received at: _____ deg C

All containers received and intact: YES NO

Analysis	Department	Expires	Comments
21H2633-01 3121 [Water] Sampled 08/18/21 09:10			Lab Filter
NB Perchlorate EPA 314.0	NB Wet Chem	09/15/21 23:59	
21H2633-02 12-5-23A20 [Water] Sampled 08/18/21 09:55			Lab Filter
NB Perchlorate EPA 314.0	NB Wet Chem	09/15/21 23:59	
21H2633-03 3357 [Water] Sampled 08/18/21 10:30			Lab Filter
NB Perchlorate EPA 314.0	NB Wet Chem	09/15/21 23:59	
21H2633-04 3123 [Water] Sampled 08/18/21 11:50			Lab Filter
NB Perchlorate EPA 314.0	NB Wet Chem	09/15/21 23:59	
21H2633-05 3127 [Water] Sampled 08/18/21 12:25			Lab Filter
NB Perchlorate EPA 314.0	NB Wet Chem	09/15/21 23:59	
21H2633-06 Hollister #2 [Water] Sampled 08/18/21 13:15			Lab Filter
NB Perchlorate EPA 314.0	NB Wet Chem	09/15/21 23:59	

Containers Supplied:

250mL Poly Unpres (C)

250mL Poly Unpres (C)

250mL Poly Unpres (C)

250mL Poly Unpres (C)

250mL Poly Unpres (C)

250mL Poly Unpres (C)

Relinquished By

Date

Time

Received By

Date

Time

Relinquished By

Date

Time

Received By

Date

Time



Alpha Analytical Laboratories, Inc. email: clientservices@alpha-labs.com
Corporate: 208 Mason Street | Ukiah, CA 95482 | T: 707-468-0401 | F: 707-468-5267 | ELAP# 1551

24 September 2021

Todd Groundwater

Attn: Nicole Grimm

2490 Mariner Square Loop, Suite 215

Alameda, CA 94501

RE: Round 3 ASR Water Quality Baseline

Work Order: 21H2633

Enclosed are the results of analyses for samples received by the laboratory on 08/18/21 22:15. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Alisabeth J. Wilcox For David S. Pingatore
Project Manager



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Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

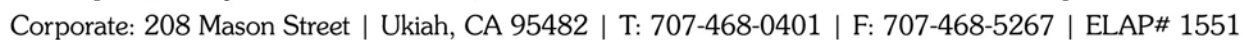
Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: Round 3 ASR Water Quality Baseline

Reported:
09/24/21 16:57

Bay Area: 262 Rickenbacker Circle | Livermore, CA 94551 | T: 925-828-6226 | F: 925-828-6309 | ELAP# 2728
Central Valley: 9090 Union Park Way Suite 113 | Elk Grove, CA 95624 | T: 916-686-5190 | F: 916-686-5192 | ELAP# 2922
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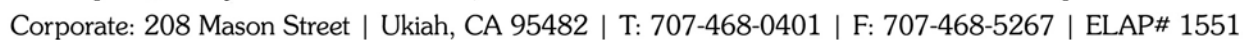
ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
████	████████	████	████████	████████
████████	████████	████	████████	████████
████	████████	████	████████	████████
████	████████	████	████████	████████
3127	21H2633-05	Water	08/18/21 12:25	08/18/21 22:15
████████	████████	████	████████	████████



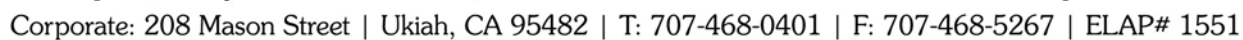
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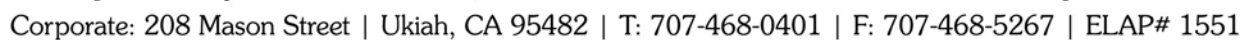
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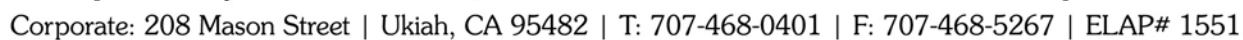
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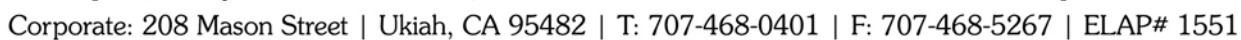
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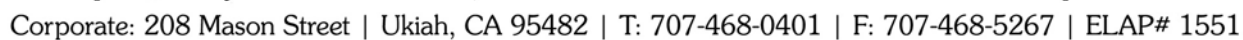
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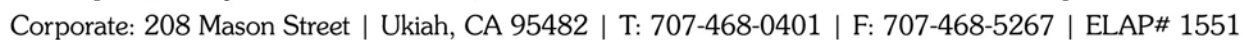
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Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: Round 3 ASR Water Quality Baseline

Reported:
09/24/21 16:57

	Result	Reporting Limit	Dilution	Batch	Prepared	Analyzed	ELAP#	Method	Note
3127 (21H2633-05)									
Sample Type: Water				Sampled: 08/18/21 12:25					
Conventional Chemistry Parameters by APHA/EPA Methods									
Color	ND CU	5.0	1	AH14313	08/18/21 16:48	08/18/21 16:48	2728	SM2120B	
MBAS, calculated as LAS, mw 340	ND mg/L	0.050	1	AH14260	08/20/21 08:15	08/20/21 16:30	1551	SM5540C	
Perchlorate	ND ug/L	2.0	1	AH14310	08/20/21 08:00	08/20/21 19:54	2303	EPA 314.0	
Sulfide	ND mg/L	0.10	1	AH14407	08/24/21 06:00	08/24/21 06:00	1551	SM4500-S2 D	
Total Dissolved Solids	880 mg/L	10	1	AH14424	08/24/21 10:40	09/03/21 14:57	1551	SM2540C	
Turbidity	0.60 NTU	0.10	1	AH14314	08/18/21 16:57	08/18/21 16:57	2728	SM2130B	
Bicarbonate Alkalinity as CaCO3	330 mg/L	5.0	1	AH14703	08/30/21 08:00	08/30/21 12:21	1551	SM2320B	
Carbonate Alkalinity as CaCO3	ND mg/L	5.0	1	AH14703	08/30/21 08:00	08/30/21 12:21	1551	SM2320B	
Hydroxide Alkalinity as CaCO3	ND mg/L	5.0	1	AH14703	08/30/21 08:00	08/30/21 12:21	1551	SM2320B	
Total Alkalinity as CaCO3	330 mg/L	5.0	1	AH14703	08/30/21 08:00	08/30/21 12:21	1551	SM2320B	
Hardness, Total	340 mg/L	5	1	AH14872	09/01/21 13:35	09/03/21 17:37	1551	SM2340B	
Anions by EPA Method 300.0									
Chloride	150 mg/L	5.0	10	AH14195	08/19/21 18:00	08/19/21 18:00	1551	EPA 300.0	
Fluoride	0.46 mg/L	0.10	1	AH14195	08/19/21 17:43	08/19/21 17:43	1551	EPA 300.0	
Nitrate as N	0.27 mg/L	0.20	1	AH14195	08/19/21 17:43	08/19/21 17:43	1551	EPA 300.0	
Sulfate as SO4	150 mg/L	5.0	10	AH14195	08/19/21 18:00	08/19/21 18:00	1551	EPA 300.0	
Microbiological Parameters by APHA Standard Methods									
Total Coliforms	1.0 MPN/100mL	1.0	1	AH14327	08/18/21 16:35	08/19/21 16:35	2728	SM9223B	
E. Coli	ND MPN/100mL	1.0	1	AH14327	08/18/21 16:35	08/19/21 16:35	2728	SM9223B	
Volatile Organic Compounds by EPA Method 524.2									
Bromodichloromethane	ND ug/L	1.00	1	AH14496	08/25/21 15:00	08/26/21 05:57	1551	EPA 524.2	
Bromoform	ND ug/L	1.00	1	AH14496	08/25/21 15:00	08/26/21 05:57	1551	EPA 524.2	
Chloroform	ND ug/L	1.00	1	AH14496	08/25/21 15:00	08/26/21 05:57	1551	EPA 524.2	
Dibromochloromethane	ND ug/L	1.00	1	AH14496	08/25/21 15:00	08/26/21 05:57	1551	EPA 524.2	
Trihalomethanes (total)	ND ug/L	1.00	1	AH14496	08/25/21 15:00	08/26/21 05:57	1551	EPA 524.2	
Surrogate: Bromofluorobenzene	94.7 %	70-130		AH14496	08/25/21 15:00	08/26/21 05:57	1551	EPA 524.2	
Surrogate: Dibromofluoromethane	89.9 %	70-130		AH14496	08/25/21 15:00	08/26/21 05:57	1551	EPA 524.2	
Surrogate: Toluene-d8	99.5 %	70-130		AH14496	08/25/21 15:00	08/26/21 05:57	1551	EPA 524.2	

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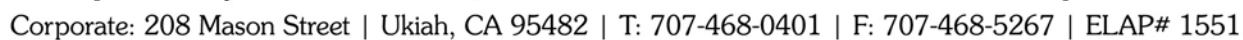
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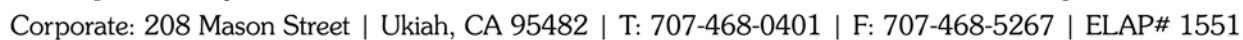
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	Result	Reporting Limit	Dilution	Batch	Prepared	Analyzed	ELAP#	Method	Note
3127 (21H2633-05)									
		Sample Type: Water			Sampled: 08/18/21 12:25				
Haloacetic Acids by EPA Method 552.2									
Monobromoacetic Acid	ND ug/L	1.0	1	AH14766	08/31/21 07:00	09/02/21 05:52	1551	EPA 552.2	
Monochloroacetic Acid	ND ug/L	2.0	1	AH14766	08/31/21 07:00	09/02/21 05:52	1551	EPA 552.2	
Dibromoacetic Acid	ND ug/L	1.0	1	AH14766	08/31/21 07:00	09/02/21 05:52	1551	EPA 552.2	
Dichloroacetic Acid	ND ug/L	1.0	1	AH14766	08/31/21 07:00	09/02/21 05:52	1551	EPA 552.2	
Trichloroacetic Acid	ND ug/L	1.0	1	AH14766	08/31/21 07:00	09/02/21 05:52	1551	EPA 552.2	
Total Haloacetic Acids (HAA5)	ND ug/L	1.0	1	AH14766	08/31/21 07:00	09/02/21 05:52	1551	EPA 552.2	
Surrogate: 2,3-Dibromopropionic Acid	123 %	70-130		AH14766	08/31/21 07:00	09/02/21 05:52	1551	EPA 552.2	
Surrogate: 2-Bromopropionic Acid	128 %	70-130		AH14766	08/31/21 07:00	09/02/21 05:52	1551	EPA 552.2	



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Project Number: Round 3 ASR Water Quality Baseline

Reported:
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Metals (Dissolved) by EPA 200 Series Methods - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch AH14872 - Metals Digest (D)										
Blank (AH14872-BLK1)				Prepared: 09/01/21 Analyzed: 09/03/21						
Calcium, dissolved	ND	10	mg/L							
Iron, dissolved	ND	0.10	mg/L							
Magnesium, dissolved	ND	10	mg/L							
Potassium, dissolved	ND	10	mg/L							
Sodium, dissolved	ND	10	mg/L							
LCS (AH14872-BS1)				Prepared: 09/01/21 Analyzed: 09/03/21						
Calcium, dissolved	8.37	10	mg/L	8.00		105	85-115			
Iron, dissolved	1.90	0.10	mg/L	2.00		95.1	85-115			
Magnesium, dissolved	8.66	10	mg/L	8.00		108	85-115			
Potassium, dissolved	8.06	10	mg/L	8.00		101	85-115			
Sodium, dissolved	8.12	10	mg/L	8.00		101	85-115			
Duplicate (AH14872-DUP1)				Source: 21H3452-01		Prepared: 09/01/21 Analyzed: 09/03/21				
Calcium, dissolved	48.0	10	mg/L		47.3			1.38	20	
Iron, dissolved	ND	0.10	mg/L		ND				20	
Magnesium, dissolved	28.7	10	mg/L		28.2			1.74	20	
Potassium, dissolved	4.07	10	mg/L		4.04			0.855	20	
Sodium, dissolved	23.1	10	mg/L		22.8			1.01	20	
Matrix Spike (AH14872-MS1)				Source: 21H3452-01		Prepared: 09/01/21 Analyzed: 09/03/21				
Calcium, dissolved	56.4	10	mg/L	8.00	47.3	114	70-130			
Iron, dissolved	1.91	0.10	mg/L	2.00	ND	95.5	70-130			
Magnesium, dissolved	37.9	10	mg/L	8.00	28.2	122	70-130			
Potassium, dissolved	12.6	10	mg/L	8.00	4.04	107	70-130			
Sodium, dissolved	30.6	10	mg/L	8.00	22.8	96.6	70-130			
Matrix Spike (AH14872-MS2)				Source: 21H3374-01		Prepared: 09/01/21 Analyzed: 09/03/21				
Calcium, dissolved	21.6	10	mg/L	8.00	12.9	108	70-130			
Iron, dissolved	1.95	0.10	mg/L	2.00	ND	97.3	70-130			
Magnesium, dissolved	17.3	10	mg/L	8.00	8.10	115	70-130			
Potassium, dissolved	9.84	10	mg/L	8.00	1.75	101	70-130			
Sodium, dissolved	27.1	10	mg/L	8.00	19.7	92.7	70-130			

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Project: Round 3 ASR Water Quality Baseline
Project Number: Round 3 ASR Water Quality Baseline

Reported:
09/24/21 16:57

Metals (Dissolved) by EPA 200 Series Methods - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Flag
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Batch AH14872 - Metals Digest (D)

Matrix Spike Dup (AH14872-MSD1)

Source: 21H3452-01

Prepared: 09/01/21 Analyzed: 09/03/21

Calcium, dissolved	56.6	1.0	mg/L	8.00	47.3	117	70-130	0.409	20
Iron, dissolved	1.87	0.10	mg/L	2.00	ND	93.6	70-130	1.95	20
Magnesium, dissolved	37.4	1.0	mg/L	8.00	28.2	115	70-130	1.46	20
Potassium, dissolved	12.4	1.0	mg/L	8.00	4.04	105	70-130	1.10	20
Sodium, dissolved	30.8	1.0	mg/L	8.00	22.8	99.2	70-130	0.666	20

Batch AI13118 - EPA 245.1 Hg Water

Blank (AI13118-BLK1)

Prepared: 09/02/21 Analyzed: 09/03/21

Mercury, dissolved	ND	0.20	ug/L						
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LCS (AI13118-BS1)

Prepared: 09/02/21 Analyzed: 09/03/21

Mercury, dissolved	2.56	0.20	ug/L	2.50		102	85-115		
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Duplicate (AI13118-DUP1)

Source: 21H2633-02

Prepared: 09/02/21 Analyzed: 09/03/21

Mercury, dissolved	ND	0.20	ug/L		ND				20
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Matrix Spike (AI13118-MS1)

Source: 21H2633-02

Prepared: 09/02/21 Analyzed: 09/03/21

Mercury, dissolved	2.52	0.20	ug/L	2.50	ND	101	70-130		
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Matrix Spike Dup (AI13118-MSD1)

Source: 21H2633-02

Prepared: 09/02/21 Analyzed: 09/03/21

Mercury, dissolved	2.51	0.20	ug/L	2.50	ND	100	70-130	0.437	20
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Metals (Dissolved) by EPA Method 200.8 ICP/MS - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Flag
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Batch AH14197 - EPA 200.8 (D)

Blank (AH14197-BLK1)

Prepared: 08/24/21 Analyzed: 08/27/21

Aluminum, dissolved	ND	10	ug/L						
Antimony, dissolved	ND	0.50	ug/L						
Arsenic, dissolved	ND	0.50	ug/L						
Barium, dissolved	ND	0.50	ug/L						
Beryllium, dissolved	ND	0.10	ug/L						
Boron, dissolved	ND	50	ug/L						
Cadmium, dissolved	ND	0.10	ug/L						
Chromium, dissolved	ND	0.50	ug/L						
Copper, dissolved	0.591	0.50	ug/L						
Lead, dissolved	ND	0.25	ug/L						
Manganese, dissolved	ND	5.0	ug/L						
Molybdenum, dissolved	ND	0.25	ug/L						
Nickel, dissolved	ND	0.50	ug/L						
Selenium, dissolved	ND	2.0	ug/L						
Silver, dissolved	ND	0.10	ug/L						
Thallium, dissolved	ND	0.10	ug/L						
Vanadium, dissolved	ND	1.0	ug/L						
Zinc, dissolved	ND	5.0	ug/L						

LCS (AH14197-BS1)

Prepared: 08/24/21 Analyzed: 08/27/21

Aluminum, dissolved	554	10	ug/L	520	107	85-115
Antimony, dissolved	20.8	0.50	ug/L	20.0	104	85-115
Arsenic, dissolved	21.1	0.50	ug/L	20.0	105	85-115
Barium, dissolved	20.3	0.50	ug/L	20.0	102	85-115
Beryllium, dissolved	20.7	0.10	ug/L	20.0	104	85-115
Boron, dissolved	106	50	ug/L	100	106	85-115
Cadmium, dissolved	20.3	0.10	ug/L	20.0	101	85-115
Chromium, dissolved	20.3	0.50	ug/L	20.0	101	85-115
Copper, dissolved	22.3	0.50	ug/L	20.0	112	85-115
Lead, dissolved	20.5	0.25	ug/L	20.0	103	85-115
Manganese, dissolved	20.5	5.0	ug/L	20.0	102	85-115
Molybdenum, dissolved	21.3	0.25	ug/L	20.0	106	85-115
Nickel, dissolved	20.1	0.50	ug/L	20.0	100	85-115
Selenium, dissolved	21.6	2.0	ug/L	20.0	108	85-115
Silver, dissolved	18.0	0.10	ug/L	20.0	90.1	85-115

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Metals (Dissolved) by EPA Method 200.8 ICP/MS - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Flag
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Batch AH14197 - EPA 200.8 (D)

LCS (AH14197-BS1)

Prepared: 08/24/21 Analyzed: 08/26/21

Thallium, dissolved	20.4	0.10	ug/L	20.0	102	85-115
Vanadium, dissolved	20.6	1.0	ug/L	20.0	103	85-115
Zinc, dissolved	103	5.0	ug/L	100	103	85-115

Duplicate (AH14197-DUP1)

Source: 21H2633-01

Prepared: 08/24/21 Analyzed: 08/27/21

Aluminum, dissolved	ND	100	ug/L	ND		20
Antimony, dissolved	ND	0.50	ug/L	ND		20
Arsenic, dissolved	5.05	0.50	ug/L	4.88	3.43	20
Barium, dissolved	41.3	0.50	ug/L	40.5	2.00	20
Beryllium, dissolved	ND	0.10	ug/L	ND		20
Boron, dissolved	1930	50	ug/L	1910	0.965	20
Cadmium, dissolved	ND	0.10	ug/L	ND		20
Chromium, dissolved	11.6	0.50	ug/L	11.5	1.13	20
Copper, dissolved	24.4	0.50	ug/L	24.2	0.967	20
Lead, dissolved	0.340	0.25	ug/L	0.296	14.0	20
Manganese, dissolved	ND	5.0	ug/L	ND		20
Molybdenum, dissolved	5.45	0.25	ug/L	5.36	1.49	20
Nickel, dissolved	1.19	0.50	ug/L	1.20	0.848	20
Selenium, dissolved	5.75	2.0	ug/L	5.43	5.61	20
Silver, dissolved	ND	0.10	ug/L	0.218	200	20
Thallium, dissolved	ND	0.10	ug/L	ND		20
Vanadium, dissolved	6.40	1.0	ug/L	6.47	1.08	20
Zinc, dissolved	13.8	5.0	ug/L	13.4	2.85	20

MRL Check (AH14197-MRL1)

Prepared: 08/24/21 Analyzed: 08/27/21

Aluminum, dissolved	12.2	10	ug/L	8.00	153	0-200
Silver, dissolved	0.0833	0.10	ug/L	0.0800	104	0-200
Thallium, dissolved	0.0721	0.10	ug/L	0.0800	90.1	0-200
Vanadium, dissolved	0.878	1.0	ug/L	0.800	110	0-200



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Metals (Dissolved) by EPA Method 200.8 ICP/MS - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch AH14197 - EPA 200.8 (D)										
Matrix Spike (AH14197-MS1)		Source: 21H2633-05		Prepared: 08/24/21		Analyzed: 08/27/21				
Aluminum, dissolved	616	10	ug/L	520	ND	117	70-130			QM-01
Antimony, dissolved	19.8	0.50	ug/L	20.0	ND	99.1	70-130			
Arsenic, dissolved	27.4	0.50	ug/L	20.0	7.71	98.7	70-130			
Barium, dissolved	82.4	0.50	ug/L	20.0	65.2	86.1	70-130			
Beryllium, dissolved	18.3	0.10	ug/L	20.0	ND	91.4	70-130			
Boron, dissolved	2380	50	ug/L	100	2470	NR	70-130			QM-4X
Cadmium, dissolved	18.5	0.10	ug/L	20.0	ND	92.6	70-130			
Chromium, dissolved	19.5	0.50	ug/L	20.0	ND	97.3	70-130			
Copper, dissolved	23.0	0.50	ug/L	20.0	3.01	100	70-130			
Lead, dissolved	16.2	0.25	ug/L	20.0	ND	80.8	70-130			
Manganese, dissolved	441	5.0	ug/L	20.0	429	63.4	70-130			QM-01
Molybdenum, dissolved	29.8	0.25	ug/L	20.0	8.61	106	70-130			
Nickel, dissolved	24.8	0.50	ug/L	20.0	7.15	88.4	70-130			
Selenium, dissolved	19.6	2.0	ug/L	20.0	ND	90.8	70-130			
Silver, dissolved	17.2	0.10	ug/L	20.0	ND	86.1	70-130			QM-01
Thallium, dissolved	16.0	0.10	ug/L	20.0	ND	80.2	70-130			
Vanadium, dissolved	24.9	1.0	ug/L	20.0	5.33	97.9	70-130			
Zinc, dissolved	98.0	5.0	ug/L	100	7.93	90.0	70-130			
Matrix Spike Dup (AH14197-MSD1)		Source: 21H2633-05		Prepared: 08/24/21		Analyzed: 08/27/21				
Aluminum, dissolved	621	10	ug/L	520	ND	118	70-130	0.734	20	QM-01
Antimony, dissolved	19.7	0.50	ug/L	20.0	ND	98.3	70-130	0.783	20	
Arsenic, dissolved	27.3	0.50	ug/L	20.0	7.71	98.0	70-130	0.533	20	
Barium, dissolved	82.5	0.50	ug/L	20.0	65.2	86.3	70-130	0.0474	20	
Beryllium, dissolved	18.3	0.10	ug/L	20.0	ND	91.7	70-130	0.349	20	
Boron, dissolved	2330	50	ug/L	100	2470	NR	70-130	2.06	20	QM-4X
Cadmium, dissolved	18.7	0.10	ug/L	20.0	ND	93.3	70-130	0.746	20	
Chromium, dissolved	19.8	0.50	ug/L	20.0	ND	99.0	70-130	1.72	20	
Copper, dissolved	23.1	0.50	ug/L	20.0	3.01	100	70-130	0.257	20	
Lead, dissolved	15.9	0.25	ug/L	20.0	ND	79.6	70-130	1.41	20	
Manganese, dissolved	448	5.0	ug/L	20.0	429	99.2	70-130	1.61	20	
Molybdenum, dissolved	29.8	0.25	ug/L	20.0	8.61	106	70-130	0.125	20	
Nickel, dissolved	25.3	0.50	ug/L	20.0	7.15	90.7	70-130	1.81	20	
Selenium, dissolved	19.8	2.0	ug/L	20.0	ND	91.7	70-130	0.900	20	
Silver, dissolved	17.6	0.10	ug/L	20.0	ND	88.1	70-130	2.40	20	QM-01

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Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: Round 3 ASR Water Quality Baseline

Reported:
09/24/21 16:57

Metals (Dissolved) by EPA Method 200.8 ICP/MS - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
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Batch AH14197 - EPA 200.8 (D)

Matrix Spike Dup (AH14197-MSD1)

Source: 21H2633-05

Prepared: 08/24/21 Analyzed: 08/26/21

Thallium, dissolved	15.6	0.10	ug/L	20.0	ND	78.2	70-130	2.57	20	
Vanadium, dissolved	25.3	1.0	ug/L	20.0	5.33	99.8	70-130	1.46	20	
Zinc, dissolved	98.6	5.0	ug/L	100	7.93	90.7	70-130	0.676	20	



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Project Manager: Nicole Grimm
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Project Number: Round 3 ASR Water Quality Baseline

Reported:
09/24/21 16:57

Conventional Chemistry Parameters by APHA/EPA Methods - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch AH14260 - General Preparation										
Blank (AH14260-BLK1)				Prepared & Analyzed: 08/20/21						
MBAS, calculated as LAS, mw 340	ND	0.050	mg/L							
LCS (AH14260-BS1)				Prepared & Analyzed: 08/20/21						
MBAS, calculated as LAS, mw 340	0.201	0.050	mg/L	0.200		101	80-120			
Matrix Spike (AH14260-MS1)				Source: 21H2633-01		Prepared & Analyzed: 08/20/21				
MBAS, calculated as LAS, mw 340	0.188	0.050	mg/L	0.200	ND	94.0	80-120			
Matrix Spike Dup (AH14260-MSD1)				Source: 21H2633-01		Prepared & Analyzed: 08/20/21				
MBAS, calculated as LAS, mw 340	0.201	0.050	mg/L	0.200	ND	101	80-120	6.84	20	
Batch AH14310 - NB General Prep										
Blank (AH14310-BLK1)				Prepared & Analyzed: 08/20/21						
Perchlorate	ND	2.0	ug/L							
LCS (AH14310-BS1)				Prepared & Analyzed: 08/20/21						
Perchlorate	9.58	2.0	ug/L	10.0		95.8	85-115			
Duplicate (AH14310-DUP1)				Source: 21H2468-01		Prepared & Analyzed: 08/20/21				
Perchlorate	ND	2.0	ug/L		ND				15	
Matrix Spike (AH14310-MS1)				Source: 21H2414-13		Prepared & Analyzed: 08/20/21				
Perchlorate	9.36	2.0	ug/L	10.0	ND	93.6	70-130			
Matrix Spike Dup (AH14310-MSD1)				Source: 21H2414-13		Prepared & Analyzed: 08/20/21				
Perchlorate	9.72	2.0	ug/L	10.0	ND	97.2	70-130	3.77	15	



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Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: Round 3 ASR Water Quality Baseline

Reported:
09/24/21 16:57

Conventional Chemistry Parameters by APHA/EPA Methods - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch AH14314 - General Prep (BAL)										
Duplicate (AH14314-DUP1)		Source: 21H2633-03		Prepared & Analyzed: 08/18/21						
Turbidity	ND	0 10	NTU		ND				15	
Batch AH14407 - General Preparation										
Blank (AH14407-BLK1)		Prepared & Analyzed: 08/24/21								
Sulfide	ND	0 10	mg/L							
LCS (AH14407-BS1)		Prepared & Analyzed: 08/24/21								
Sulfide	0 230	0 10	mg/L	0 222		104	85-115			
Duplicate (AH14407-DUP1)		Source: 21H2633-01		Prepared & Analyzed: 08/24/21						
Sulfide	ND	0 10	mg/L		ND				15	
Matrix Spike (AH14407-MS1)		Source: 21H2633-01		Prepared & Analyzed: 08/24/21						
Sulfide	0 0910	0 10	mg/L	0 222	ND	41 0	80-120			QM-05
Matrix Spike Dup (AH14407-MSD1)		Source: 21H2633-01		Prepared & Analyzed: 08/24/21						
Sulfide	0 0900	0 10	mg/L	0 222	ND	40 5	80-120	1 10	15	QM-05
Batch AH14424 - General Preparation										
Blank (AH14424-BLK1)		Prepared: 08/24/21 Analyzed: 09/03/21								
Total Dissolved Solids	ND	10	mg/L							
Duplicate (AH14424-DUP1)		Source: 21H2326-01		Prepared: 08/24/21 Analyzed: 09/03/21						
Total Dissolved Solids	188	10	mg/L		172			8 89	15	



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Todd Groundwater	Project Manager: Nicole Grimm	Reported:
2490 Mariner Square Loop, Suite 215	Project: Round 3 ASR Water Quality Baseline	09/24/21 16:57
Alameda, CA 94501	Project Number: Round 3 ASR Water Quality Baseline	

Conventional Chemistry Parameters by APHA/EPA Methods - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
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Batch AH14424 - General Preparation

Duplicate (AH14424-DUP2)	Source: 21H2326-02			Prepared: 08/24/21	Analyzed: 09/03/21
Total Dissolved Solids	156	10	mg/L	154	1 29 15

Batch AH14703 - General Preparation

Blank (AH14703-BLK1)			Prepared & Analyzed: 08/30/21
Total Alkalinity as CaCO3	ND	5.0	mg/L
Carbonate Alkalinity as CaCO3	ND	5.0	mg/L
Hydroxide Alkalinity as CaCO3	ND	5.0	mg/L
Bicarbonate Alkalinity as CaCO3	ND	5.0	mg/L

LCS (AH14703-BS1)				Prepared & Analyzed: 08/30/21		
Total Alkalinity as CaCO3	90.0	5.0	mg/L	80.0	112	70-130

Duplicate (AH14703-DUP1)	Source: 21H2633-01			Prepared & Analyzed: 08/30/21		
Total Alkalinity as CaCO3	310	5.0	mg/L	310	0.00	20
Carbonate Alkalinity as CaCO3	ND	5.0	mg/L	ND		20
Hydroxide Alkalinity as CaCO3	ND	5.0	mg/L	ND		20
Bicarbonate Alkalinity as CaCO3	310	5.0	mg/L	310	0.00	20

Batch AH14872 - Metals Digest (D)

Blank (AH14872-BLK1)			Prepared: 09/01/21 Analyzed: 09/03/21	
Hardness, Total	ND	5	mg/L	

Duplicate (AH14872-DUP1)	Source: 21H3452-01			Prepared: 09/01/21	Analyzed: 09/03/21
Hardness, Total	238	5	mg/L	234	1 56 20



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Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: Round 3 ASR Water Quality Baseline

Reported:
09/24/21 16:57

Anions by EPA Method 300.0 - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch AH14195 - EPA 300.0										
Blank (AH14195-BLK1)				Prepared & Analyzed: 08/19/21						
Nitrate as N	ND	0.20	mg/L							
Fluoride	ND	0.10	mg/L							
Sulfate as SO ₄	ND	0.50	mg/L							
Chloride	ND	0.50	mg/L							
LCS (AH14195-BS1)				Prepared & Analyzed: 08/19/21						
Nitrate as N	5.37	0.20	mg/L	5.56		96.7	90-110			
Fluoride	5.59	0.10	mg/L	5.56		101	90-110			
Chloride	10.9	0.50	mg/L	11.1		97.8	90-110			
Sulfate as SO ₄	22.2	0.50	mg/L	22.2		100	90-110			
Duplicate (AH14195-DUP1)				Source: 21H2530-02 Prepared & Analyzed: 08/19/21						
Sulfate as SO ₄	7.91	0.50	mg/L		7.92			0.0379	20	
Chloride	2.04	0.50	mg/L		2.04			0.0490	20	
Nitrate as N	0.277	0.20	mg/L		0.277			0.244	20	
Fluoride	0.163	0.10	mg/L		0.163			0.00	20	
Matrix Spike (AH14195-MS1)				Source: 21H2530-02 Prepared & Analyzed: 08/19/21						
Fluoride	5.01	1.0	mg/L	5.56	ND	90.2	80-120			
Nitrate as N	5.57	2.0	mg/L	5.56	ND	100	80-120			
Chloride	11.7	5.0	mg/L	11.1	ND	87.2	80-120			
Sulfate as SO ₄	26.4	5.0	mg/L	22.2	7.92	83.3	80-120			
Matrix Spike (AH14195-MS2)				Source: 21H2682-01 Prepared & Analyzed: 08/19/21						
Fluoride	4.71	1.0	mg/L	5.56	ND	84.8	80-120			
Nitrate as N	8.55	2.0	mg/L	5.56	3.70	87.3	80-120			
Sulfate as SO ₄	31.1	5.0	mg/L	22.2	12.9	82.2	80-120			
Chloride	17.1	5.0	mg/L	11.1	7.80	83.8	80-120			

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Reported:
09/24/21 16:57

Anions by EPA Method 300.0 - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
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Batch AH14195 - EPA 300.0

Matrix Spike Dup (AH14195-MSD1)

Source: 21H2530-02

Prepared & Analyzed: 08/19/21

Sulfate as SO ₄	26.6	5.0	mg/L	22.2	7.92	84.2	80-120	0.796	20	
Fluoride	5.06	1.0	mg/L	5.56	ND	91.0	80-120	0.883	20	
Nitrate as N	5.61	2.0	mg/L	5.56	ND	101	80-120	0.717	20	
Chloride	11.8	5.0	mg/L	11.1	ND	88.0	80-120	0.755	20	



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Reported:
09/24/21 16:57

Volatile Organic Compounds by EPA Method 524.2 - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch AH14496 - VOAs in Water GCMS										
Blank (AH14496-BLK1)				Prepared & Analyzed: 08/25/21						
Bromodichloromethane	ND	1 00	ug/L							
Bromoform	ND	1 00	ug/L							
Chloroform	ND	1 00	ug/L							
Dibromochloromethane	ND	1 00	ug/L							
Trihalomethanes (total)	ND	1 00	ug/L							
Surrogate: Bromofluorobenzene	25.4		ug/L	25.0		102	70-130			
Surrogate: Dibromofluoromethane	24.6		ug/L	25.0		98.5	70-130			
Surrogate: Toluene-d8	24.8		ug/L	25.0		99.1	70-130			
LCS (AH14496-BS1)				Prepared & Analyzed: 08/25/21						
Bromodichloromethane	4 57	1 00	ug/L	5 00		91 4	70-130			
Bromoform	4 31	1 00	ug/L	5 00		86 2	70-130			
Chloroform	5 19	1 00	ug/L	5 00		104	70-130			
Dibromochloromethane	4 45	1 00	ug/L	5 00		89 0	70-130			
Surrogate: Bromofluorobenzene	27.8		ug/L	25.0		111	70-130			
Surrogate: Dibromofluoromethane	23.5		ug/L	25.0		94.2	70-130			
Surrogate: Toluene-d8	24.8		ug/L	25.0		99.2	70-130			
LCS Dup (AH14496-BS1)				Prepared & Analyzed: 08/25/21						
Bromodichloromethane	4 59	1 00	ug/L	5 00		91 8	70-130	0 437	30	
Bromoform	4 11	1 00	ug/L	5 00		82 2	70-130	4 75	30	
Chloroform	5 14	1 00	ug/L	5 00		103	70-130	0 968	30	
Dibromochloromethane	4 58	1 00	ug/L	5 00		91 6	70-130	2 88	30	
Surrogate: Bromofluorobenzene	28.1		ug/L	25.0		113	70-130			
Surrogate: Dibromofluoromethane	22.4		ug/L	25.0		89.5	70-130			
Surrogate: Toluene-d8	24.9		ug/L	25.0		99.6	70-130			
Matrix Spike (AH14496-MS1)				Source: 21H2469-02	Prepared: 08/25/21	Analyzed: 08/26/21				
Bromodichloromethane	20 5	1 00	ug/L	5 00	14 0	130	70-130			
Bromoform	4 73	1 00	ug/L	5 00	ND	94 6	70-130			
Chloroform	79 8	1 00	ug/L	5 00	67 2	253	70-130			QM-05
Dibromochloromethane	8 71	1 00	ug/L	5 00	3 65	101	70-130			
Surrogate: Bromofluorobenzene	28.3		ug/L	25.0		113	70-130			
Surrogate: Dibromofluoromethane	23.0		ug/L	25.0		91.8	70-130			

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Reported:
09/24/21 16:57

Volatile Organic Compounds by EPA Method 524.2 - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Flag
Batch AH14496 - VOAs in Water GCMS									
Matrix Spike (AH14496-MS1)		Source: 21H2469-02		Prepared: 08/25/21		Analyzed: 08/26/21			
Surrogate: Toluene-d8	24.4		ug/L	25.0		97.6	70-130		
Matrix Spike (AH14496-MS2)		Source: 21H2611-01		Prepared: 08/25/21		Analyzed: 08/26/21			
Bromodichloromethane	6.50	1.00	ug/L	5.00	1.77	94.6	70-130		
Bromoform	4.42	1.00	ug/L	5.00	ND	88.4	70-130		
Chloroform	60.2	1.00	ug/L	5.00	50.7	190	70-130		QM-05
Dibromochloromethane	4.27	1.00	ug/L	5.00	ND	85.4	70-130		
Surrogate: Bromofluorobenzene	27.8		ug/L	25.0		111	70-130		
Surrogate: Dibromofluoromethane	21.4		ug/L	25.0		85.8	70-130		
Surrogate: Toluene-d8	23.7		ug/L	25.0		94.7	70-130		



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Project: Round 3 ASR Water Quality Baseline
Project Number: Round 3 ASR Water Quality Baseline

Reported:
09/24/21 16:57

Haloacetic Acids by EPA Method 552.2 - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch AH14766 - EPA 552.2										
Blank (AH14766-BLK1)				Prepared: 08/31/21 Analyzed: 09/01/21						
Monobromoacetic Acid	ND	1 0	ug/L							
Monochloroacetic Acid	ND	2 0	ug/L							
Dibromoacetic Acid	ND	1 0	ug/L							
Dichloroacetic Acid	ND	1 0	ug/L							
Trichloroacetic Acid	ND	1 0	ug/L							
Total Haloacetic Acids (HAA5)	ND	1 0	ug/L							
Surrogate: 2,3-Dibromopropionic Acid	8.28		ug/L	9.85		84.1	70-130			
Surrogate: 2-Bromopropionic Acid	10.9		ug/L	10.0		109	70-130			
LCS (AH14766-BS1)				Prepared: 08/31/21 Analyzed: 09/01/21						
Monobromoacetic Acid	28.6	1 0	ug/L	25.0		114	70-130			
Monochloroacetic Acid	28.6	2 0	ug/L	25.0		114	70-130			
Dibromoacetic Acid	24.9	1 0	ug/L	25.0		99.7	70-130			
Dichloroacetic Acid	28.5	1 0	ug/L	25.0		114	70-130			
Trichloroacetic Acid	24.5	1 0	ug/L	25.0		98.0	70-130			
Surrogate: 2,3-Dibromopropionic Acid	9.70		ug/L	9.85		98.5	70-130			
Surrogate: 2-Bromopropionic Acid	12.6		ug/L	10.0		126	70-130			
Matrix Spike (AH14766-MS1)				Source: 21H2633-01 Prepared: 08/31/21 Analyzed: 09/02/21						
Monobromoacetic Acid	31.8	1 0	ug/L	25.0	ND	127	70-130			
Monochloroacetic Acid	30.4	2 0	ug/L	25.0	ND	121	70-130			
Dibromoacetic Acid	28.2	1 0	ug/L	25.0	ND	113	70-130			
Dichloroacetic Acid	31.0	1 0	ug/L	25.0	ND	124	70-130			
Trichloroacetic Acid	27.6	1 0	ug/L	25.0	ND	110	70-130			
Surrogate: 2,3-Dibromopropionic Acid	11.8		ug/L	9.85		120	70-130			
Surrogate: 2-Bromopropionic Acid	14.3		ug/L	10.0		143	70-130			S-GC
Matrix Spike (AH14766-MS2)				Source: 21H2738-01 Prepared: 08/31/21 Analyzed: 09/02/21						
Monobromoacetic Acid	25.7	1 0	ug/L	25.0	ND	103	70-130			
Monochloroacetic Acid	51.4	2 0	ug/L	25.0	ND	205	70-130			QM-07
Dibromoacetic Acid	23.8	1 0	ug/L	25.0	ND	95.0	70-130			
Dichloroacetic Acid	26.3	1 0	ug/L	25.0	ND	105	70-130			
Trichloroacetic Acid	24.2	1 0	ug/L	25.0	ND	96.7	70-130			
Surrogate: 2,3-Dibromopropionic Acid	10.5		ug/L	9.85		107	70-130			

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



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Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: Round 3 ASR Water Quality Baseline

Reported:
09/24/21 16:57

Haloacetic Acids by EPA Method 552.2 - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
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Batch AH14766 - EPA 552.2

Matrix Spike (AH14766-MS2)

Source: 21H2738-01

Prepared: 08/31/21 Analyzed: 09/02/21

Surrogate: 2-Bromopropionic Acid	11.5		ug/L	10.0		115	70-130			
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Project Manager: Nicole Grimm
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Project Number: Round 3 ASR Water Quality Baseline

Reported:
09/24/21 16:57

Notes and Definitions

FILT	The sample was filtered in the lab prior to analysis
QM-01	The spike recovery for this QC sample is outside of established control limits possibly due to a sample matrix interference.
QM-05	The spike recovery was outside acceptance limits for the MS and/or MSD due to matrix interference. The LCS and/or LCSD were within acceptance limits showing that the laboratory is in control and the data is acceptable.
QM-07	The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.
QM-4X	The spike recovery was outside of QC acceptance limits for the MS and/or MSD due to analyte concentration at 4 times or greater the spike concentration. The QC batch was accepted based on LCS and/or LCSD recoveries within the acceptance limits.
R-01	The Reporting Limit for this analyte has been raised to account for matrix interference.
S-GC	Surrogate recovery outside of control limits. The data was accepted based on valid recovery of the remaining surrogates.
ND	Analyte NOT DETECTED at or above the reporting limit
dry	Sample results reported on a dry weight basis
REC	Recovery
RPD	Relative Percent Difference

[illegible]

21H2633

Alpha Analytical Laboratories Ukiah to North Bay Chain of Custody

Client: **Todd Groundwater** Client Code: **DP_TODENG** Bid: **Round 3 ASR Water Quality**
Project: **Round 3 ASR Water Quality Baseline** Project Number: **Round 3 ASR Water Quality PO #:**

Date Due: 09/02/21 15:00 (10 day TAT)

Received By: James Bixler

Date Received: 08/18/21 22:15

Logged In By: Sean Foley

Date Logged: 08/19/21 10:02

Samples Received at: _____ deg C

All containers received and intact: YES NO

Analysis	Department	Expires	Comments
21H2633-01 3121 [Water] Sampled 08/18/21 09:10			Lab Filter
NB Perchlorate EPA 314.0	NB Wet Chem	09/15/21 23:59	
21H2633-02 12-5-23A20 [Water] Sampled 08/18/21 09:55			Lab Filter
NB Perchlorate EPA 314.0	NB Wet Chem	09/15/21 23:59	
21H2633-03 3357 [Water] Sampled 08/18/21 10:30			Lab Filter
NB Perchlorate EPA 314.0	NB Wet Chem	09/15/21 23:59	
21H2633-04 3123 [Water] Sampled 08/18/21 11:50			Lab Filter
NB Perchlorate EPA 314.0	NB Wet Chem	09/15/21 23:59	
21H2633-05 3127 [Water] Sampled 08/18/21 12:25			Lab Filter
NB Perchlorate EPA 314.0	NB Wet Chem	09/15/21 23:59	
21H2633-06 Hollister #2 [Water] Sampled 08/18/21 13:15			Lab Filter
NB Perchlorate EPA 314.0	NB Wet Chem	09/15/21 23:59	

Containers Supplied:

250mL Poly Unpres (C)

250mL Poly Unpres (C)

250mL Poly Unpres (C)

250mL Poly Unpres (C)

250mL Poly Unpres (C)

250mL Poly Unpres (C)

Relinquished By

Date

Time

Received By

Date

Time

Relinquished By

Date

Time

Received By

Date

Time



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24 September 2021

Todd Groundwater

Attn: Nicole Grimm

2490 Mariner Square Loop, Suite 215

Alameda, CA 94501

RE: Round 3 ASR Water Quality Baseline

Work Order: 21H2633

Enclosed are the results of analyses for samples received by the laboratory on 08/18/21 22:15. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Alisabeth J. Wilcox For David S. Pingatore
Project Manager



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Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

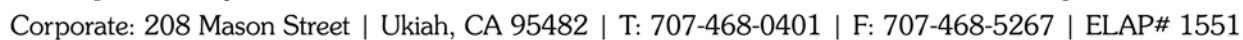
Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: Round 3 ASR Water Quality Baseline

Reported:
09/24/21 16:57

Bay Area: 262 Rickenbacker Circle | Livermore, CA 94551 | T: 925-828-6226 | F: 925-828-6309 | ELAP# 2728
Central Valley: 9090 Union Park Way Suite 113 | Elk Grove, CA 95624 | T: 916-686-5190 | F: 916-686-5192 | ELAP# 2922
North Bay: 110 Liberty Street | Petaluma, CA 94952 | T: 707-769-3128 | F: 707-769-8093 | ELAP# 2303
San Diego: 2722 Loker Avenue West Suite A | Carlsbad, CA 92010 | T: 760-930-2555 | F: 760-930-2510 | ELAP# 3055

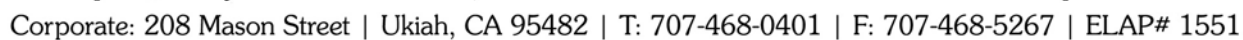
ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
██████████	██████████	██████████	██████████	██████████
12-5-23A20	21H2633-02	Water	08/18/21 09:55	08/18/21 22:15
██████████	██████████	██████████	██████████	██████████
██████████	██████████	██████████	██████████	██████████
██████████	██████████	██████████	██████████	██████████
██████████	██████████	██████████	██████████	██████████

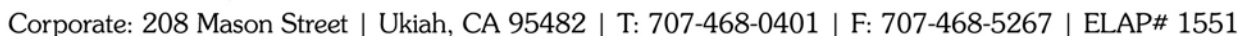


Reported:
09/24/21 16:57

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Reported:
09/24/21 16:57



Reported:
09/24/21 16:57

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Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: Round 3 ASR Water Quality Baseline

Reported:
09/24/21 16:57

	Result	Reporting Limit	Dilution	Batch	Prepared	Analyzed	ELAP#	Method	Note
12-5-23A20 (21H2633-02)									
Sample Type: Water				Sampled: 08/18/21 09:55					
Conventional Chemistry Parameters by APHA/EPA Methods									
Color	ND CU	5.0	1	AH14313	08/18/21 16:48	08/18/21 16:48	2728	SM2120B	
MBAS, calculated as LAS, mw 340	ND mg/L	0.050	1	AH14260	08/20/21 08:15	08/20/21 16:30	1551	SM5540C	
Perchlorate	ND ug/L	2.0	1	AH14310	08/20/21 08:00	08/20/21 19:21	2303	EPA 314.0	
Sulfide	ND mg/L	0.10	1	AH14407	08/24/21 06:00	08/24/21 06:00	1551	SM4500-S2 D	
Total Dissolved Solids	920 mg/L	10	1	AH14424	08/24/21 10:40	09/03/21 14:57	1551	SM2540C	
Turbidity	0.10 NTU	0.10	1	AH14314	08/18/21 16:57	08/18/21 16:57	2728	SM2130B	
Bicarbonate Alkalinity as CaCO3	340 mg/L	5.0	1	AH14703	08/30/21 08:00	08/30/21 12:21	1551	SM2320B	
Carbonate Alkalinity as CaCO3	ND mg/L	5.0	1	AH14703	08/30/21 08:00	08/30/21 12:21	1551	SM2320B	
Hydroxide Alkalinity as CaCO3	ND mg/L	5.0	1	AH14703	08/30/21 08:00	08/30/21 12:21	1551	SM2320B	
Total Alkalinity as CaCO3	340 mg/L	5.0	1	AH14703	08/30/21 08:00	08/30/21 12:21	1551	SM2320B	
Hardness, Total	306 mg/L	5	1	AH14872	09/01/21 13:35	09/03/21 17:17	1551	SM2340B	
Anions by EPA Method 300.0									
Chloride	180 mg/L	5.0	10	AH14195	08/19/21 16:20	08/19/21 16:20	1551	EPA 300.0	
Fluoride	0.41 mg/L	0.10	1	AH14195	08/19/21 15:47	08/19/21 15:47	1551	EPA 300.0	
Nitrate as N	0.82 mg/L	0.20	1	AH14195	08/19/21 15:47	08/19/21 15:47	1551	EPA 300.0	
Sulfate as SO4	120 mg/L	5.0	10	AH14195	08/19/21 16:20	08/19/21 16:20	1551	EPA 300.0	
Microbiological Parameters by APHA Standard Methods									
Total Coliforms	ND MPN/100mL	1.0	1	AH14327	08/18/21 16:35	08/19/21 16:35	2728	SM9223B	
E. Coli	ND MPN/100mL	1.0	1	AH14327	08/18/21 16:35	08/19/21 16:35	2728	SM9223B	
Volatile Organic Compounds by EPA Method 524.2									
Bromodichloromethane	ND ug/L	1.00	1	AH14496	08/25/21 15:00	08/26/21 00:05	1551	EPA 524.2	
Bromoform	ND ug/L	1.00	1	AH14496	08/25/21 15:00	08/26/21 00:05	1551	EPA 524.2	
Chloroform	ND ug/L	1.00	1	AH14496	08/25/21 15:00	08/26/21 00:05	1551	EPA 524.2	
Dibromochloromethane	ND ug/L	1.00	1	AH14496	08/25/21 15:00	08/26/21 00:05	1551	EPA 524.2	
Trihalomethanes (total)	ND ug/L	1.00	1	AH14496	08/25/21 15:00	08/26/21 00:05	1551	EPA 524.2	
Surrogate: Bromofluorobenzene	95.8 %	70-130		AH14496	08/25/21 15:00	08/26/21 00:05	1551	EPA 524.2	
Surrogate: Dibromofluoromethane	84.8 %	70-130		AH14496	08/25/21 15:00	08/26/21 00:05	1551	EPA 524.2	
Surrogate: Toluene-d8	97.0 %	70-130		AH14496	08/25/21 15:00	08/26/21 00:05	1551	EPA 524.2	

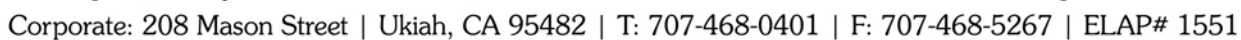
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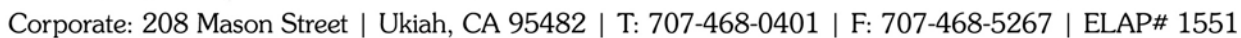
Todd Groundwater	Project Manager: Nicole Grimm	Reported:
2490 Mariner Square Loop, Suite 215	Project: Round 3 ASR Water Quality Baseline	09/24/21 16:57
Alameda, CA 94501	Project Number: Round 3 ASR Water Quality Baseline	

	Result	Reporting Limit	Dilution	Batch	Prepared	Analyzed	ELAP#	Method	Note
12-5-23A20 (21H2633-02)									
		Sample Type: Water			Sampled: 08/18/21 09:55				
Haloacetic Acids by EPA Method 552.2									
Monobromoacetic Acid	ND ug/L	1 0	1	AH14766	08/31/21 07:00	09/02/21 03:45	1551	EPA 552.2	
Monochloroacetic Acid	ND ug/L	2 0	1	AH14766	08/31/21 07:00	09/02/21 03:45	1551	EPA 552.2	
Dibromoacetic Acid	ND ug/L	1 0	1	AH14766	08/31/21 07:00	09/02/21 03:45	1551	EPA 552.2	
Dichloroacetic Acid	ND ug/L	1 0	1	AH14766	08/31/21 07:00	09/02/21 03:45	1551	EPA 552.2	
Trichloroacetic Acid	ND ug/L	1 0	1	AH14766	08/31/21 07:00	09/02/21 03:45	1551	EPA 552.2	
Total Haloacetic Acids (HAA5)	ND ug/L	1 0	1	AH14766	08/31/21 07:00	09/02/21 03:45	1551	EPA 552.2	
Surrogate: 2,3-Dibromopropionic Acid	102 %	70-130		AH14766	08/31/21 07:00	09/02/21 03:45	1551	EPA 552.2	
Surrogate: 2-Bromopropionic Acid	117 %	70-130		AH14766	08/31/21 07:00	09/02/21 03:45	1551	EPA 552.2	



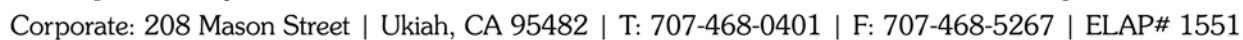
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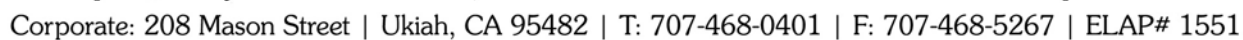
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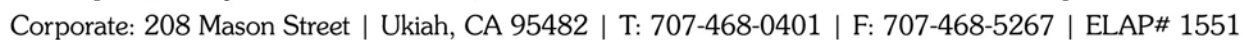
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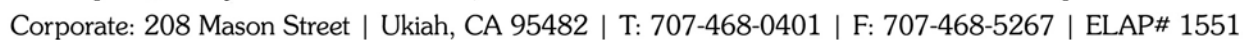


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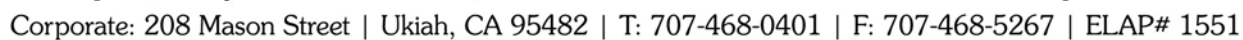
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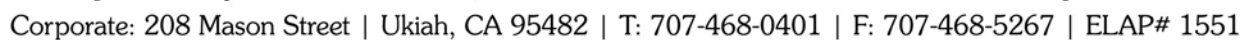
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Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: Round 3 ASR Water Quality Baseline

Reported:
09/24/21 16:57

Metals (Dissolved) by EPA 200 Series Methods - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch AH14872 - Metals Digest (D)										
Blank (AH14872-BLK1)				Prepared: 09/01/21 Analyzed: 09/03/21						
Calcium, dissolved	ND	10	mg/L							
Iron, dissolved	ND	0.10	mg/L							
Magnesium, dissolved	ND	10	mg/L							
Potassium, dissolved	ND	10	mg/L							
Sodium, dissolved	ND	10	mg/L							
LCS (AH14872-BS1)				Prepared: 09/01/21 Analyzed: 09/03/21						
Calcium, dissolved	8.37	10	mg/L	8.00		105	85-115			
Iron, dissolved	1.90	0.10	mg/L	2.00		95.1	85-115			
Magnesium, dissolved	8.66	10	mg/L	8.00		108	85-115			
Potassium, dissolved	8.06	10	mg/L	8.00		101	85-115			
Sodium, dissolved	8.12	10	mg/L	8.00		101	85-115			
Duplicate (AH14872-DUP1)				Source: 21H3452-01		Prepared: 09/01/21 Analyzed: 09/03/21				
Calcium, dissolved	48.0	10	mg/L		47.3			1.38	20	
Iron, dissolved	ND	0.10	mg/L		ND				20	
Magnesium, dissolved	28.7	10	mg/L		28.2			1.74	20	
Potassium, dissolved	4.07	10	mg/L		4.04			0.855	20	
Sodium, dissolved	23.1	10	mg/L		22.8			1.01	20	
Matrix Spike (AH14872-MS1)				Source: 21H3452-01		Prepared: 09/01/21 Analyzed: 09/03/21				
Calcium, dissolved	56.4	10	mg/L	8.00	47.3	114	70-130			
Iron, dissolved	1.91	0.10	mg/L	2.00	ND	95.5	70-130			
Magnesium, dissolved	37.9	10	mg/L	8.00	28.2	122	70-130			
Potassium, dissolved	12.6	10	mg/L	8.00	4.04	107	70-130			
Sodium, dissolved	30.6	10	mg/L	8.00	22.8	96.6	70-130			
Matrix Spike (AH14872-MS2)				Source: 21H3374-01		Prepared: 09/01/21 Analyzed: 09/03/21				
Calcium, dissolved	21.6	10	mg/L	8.00	12.9	108	70-130			
Iron, dissolved	1.95	0.10	mg/L	2.00	ND	97.3	70-130			
Magnesium, dissolved	17.3	10	mg/L	8.00	8.10	115	70-130			
Potassium, dissolved	9.84	10	mg/L	8.00	1.75	101	70-130			
Sodium, dissolved	27.1	10	mg/L	8.00	19.7	92.7	70-130			

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Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: Round 3 ASR Water Quality Baseline

Reported:
09/24/21 16:57

Metals (Dissolved) by EPA 200 Series Methods - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
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Batch AH14872 - Metals Digest (D)

Matrix Spike Dup (AH14872-MSD1)

Source: 21H3452-01

Prepared: 09/01/21 Analyzed: 09/03/21

Calcium, dissolved	56.6	1.0	mg/L	8.00	47.3	117	70-130	0.409	20	
Iron, dissolved	1.87	0.10	mg/L	2.00	ND	93.6	70-130	1.95	20	
Magnesium, dissolved	37.4	1.0	mg/L	8.00	28.2	115	70-130	1.46	20	
Potassium, dissolved	12.4	1.0	mg/L	8.00	4.04	105	70-130	1.10	20	
Sodium, dissolved	30.8	1.0	mg/L	8.00	22.8	99.2	70-130	0.666	20	

Batch AI13118 - EPA 245.1 Hg Water

Blank (AI13118-BLK1)

Prepared: 09/02/21 Analyzed: 09/03/21

Mercury, dissolved	ND	0.20	ug/L							
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LCS (AI13118-BS1)

Prepared: 09/02/21 Analyzed: 09/03/21

Mercury, dissolved	2.56	0.20	ug/L	2.50		102	85-115			
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Duplicate (AI13118-DUP1)

Source: 21H2633-02

Prepared: 09/02/21 Analyzed: 09/03/21

Mercury, dissolved	ND	0.20	ug/L		ND				20	
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Matrix Spike (AI13118-MS1)

Source: 21H2633-02

Prepared: 09/02/21 Analyzed: 09/03/21

Mercury, dissolved	2.52	0.20	ug/L	2.50	ND	101	70-130			
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Matrix Spike Dup (AI13118-MSD1)

Source: 21H2633-02

Prepared: 09/02/21 Analyzed: 09/03/21

Mercury, dissolved	2.51	0.20	ug/L	2.50	ND	100	70-130	0.437	20	
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Todd Groundwater
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Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: Round 3 ASR Water Quality Baseline

Reported:
09/24/21 16:57

Metals (Dissolved) by EPA Method 200.8 ICP/MS - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Flag
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Batch AH14197 - EPA 200.8 (D)

Blank (AH14197-BLK1)

Prepared: 08/24/21 Analyzed: 08/27/21

Aluminum, dissolved	ND	10	ug/L						
Antimony, dissolved	ND	0.50	ug/L						
Arsenic, dissolved	ND	0.50	ug/L						
Barium, dissolved	ND	0.50	ug/L						
Beryllium, dissolved	ND	0.10	ug/L						
Boron, dissolved	ND	50	ug/L						
Cadmium, dissolved	ND	0.10	ug/L						
Chromium, dissolved	ND	0.50	ug/L						
Copper, dissolved	0.591	0.50	ug/L						
Lead, dissolved	ND	0.25	ug/L						
Manganese, dissolved	ND	5.0	ug/L						
Molybdenum, dissolved	ND	0.25	ug/L						
Nickel, dissolved	ND	0.50	ug/L						
Selenium, dissolved	ND	2.0	ug/L						
Silver, dissolved	ND	0.10	ug/L						
Thallium, dissolved	ND	0.10	ug/L						
Vanadium, dissolved	ND	1.0	ug/L						
Zinc, dissolved	ND	5.0	ug/L						

LCS (AH14197-BS1)

Prepared: 08/24/21 Analyzed: 08/27/21

Aluminum, dissolved	554	10	ug/L	520	107	85-115
Antimony, dissolved	20.8	0.50	ug/L	20.0	104	85-115
Arsenic, dissolved	21.1	0.50	ug/L	20.0	105	85-115
Barium, dissolved	20.3	0.50	ug/L	20.0	102	85-115
Beryllium, dissolved	20.7	0.10	ug/L	20.0	104	85-115
Boron, dissolved	106	50	ug/L	100	106	85-115
Cadmium, dissolved	20.3	0.10	ug/L	20.0	101	85-115
Chromium, dissolved	20.3	0.50	ug/L	20.0	101	85-115
Copper, dissolved	22.3	0.50	ug/L	20.0	112	85-115
Lead, dissolved	20.5	0.25	ug/L	20.0	103	85-115
Manganese, dissolved	20.5	5.0	ug/L	20.0	102	85-115
Molybdenum, dissolved	21.3	0.25	ug/L	20.0	106	85-115
Nickel, dissolved	20.1	0.50	ug/L	20.0	100	85-115
Selenium, dissolved	21.6	2.0	ug/L	20.0	108	85-115
Silver, dissolved	18.0	0.10	ug/L	20.0	90.1	85-115

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Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: Round 3 ASR Water Quality Baseline

Reported:
09/24/21 16:57

Metals (Dissolved) by EPA Method 200.8 ICP/MS - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch AH14197 - EPA 200.8 (D)										
LCS (AH14197-BS1)				Prepared: 08/24/21 Analyzed: 08/26/21						
Thallium, dissolved	20.4	0.10	ug/L	20.0		102	85-115			
Vanadium, dissolved	20.6	1.0	ug/L	20.0		103	85-115			
Zinc, dissolved	103	5.0	ug/L	100		103	85-115			
Duplicate (AH14197-DUP1)				Source: 21H2633-01 Prepared: 08/24/21 Analyzed: 08/27/21						
Aluminum, dissolved	ND	100	ug/L		ND				20	
Antimony, dissolved	ND	0.50	ug/L		ND				20	
Arsenic, dissolved	5.05	0.50	ug/L		4.88			3.43	20	
Barium, dissolved	41.3	0.50	ug/L		40.5			2.00	20	
Beryllium, dissolved	ND	0.10	ug/L		ND				20	
Boron, dissolved	1930	50	ug/L		1910			0.965	20	
Cadmium, dissolved	ND	0.10	ug/L		ND				20	
Chromium, dissolved	11.6	0.50	ug/L		11.5			1.13	20	
Copper, dissolved	24.4	0.50	ug/L		24.2			0.967	20	
Lead, dissolved	0.340	0.25	ug/L		0.296			14.0	20	
Manganese, dissolved	ND	5.0	ug/L		ND				20	
Molybdenum, dissolved	5.45	0.25	ug/L		5.36			1.49	20	
Nickel, dissolved	1.19	0.50	ug/L		1.20			0.848	20	
Selenium, dissolved	5.75	2.0	ug/L		5.43			5.61	20	
Silver, dissolved	ND	0.10	ug/L		0.218			200	20	
Thallium, dissolved	ND	0.10	ug/L		ND				20	
Vanadium, dissolved	6.40	1.0	ug/L		6.47			1.08	20	
Zinc, dissolved	13.8	5.0	ug/L		13.4			2.85	20	
MRL Check (AH14197-MRL1)				Prepared: 08/24/21 Analyzed: 08/27/21						
Aluminum, dissolved	12.2	10	ug/L	8.00		153	0-200			
Silver, dissolved	0.0833	0.10	ug/L	0.0800		104	0-200			
Thallium, dissolved	0.0721	0.10	ug/L	0.0800		90.1	0-200			
Vanadium, dissolved	0.878	1.0	ug/L	0.800		110	0-200			

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Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: Round 3 ASR Water Quality Baseline

Reported:
09/24/21 16:57

Metals (Dissolved) by EPA Method 200.8 ICP/MS - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch AH14197 - EPA 200.8 (D)										
Matrix Spike (AH14197-MS1)		Source: 21H2633-05		Prepared: 08/24/21		Analyzed: 08/27/21				
Aluminum, dissolved	616	10	ug/L	520	ND	117	70-130			QM-01
Antimony, dissolved	19.8	0.50	ug/L	20.0	ND	99.1	70-130			
Arsenic, dissolved	27.4	0.50	ug/L	20.0	7.71	98.7	70-130			
Barium, dissolved	82.4	0.50	ug/L	20.0	65.2	86.1	70-130			
Beryllium, dissolved	18.3	0.10	ug/L	20.0	ND	91.4	70-130			
Boron, dissolved	2380	50	ug/L	100	2470	NR	70-130			QM-4X
Cadmium, dissolved	18.5	0.10	ug/L	20.0	ND	92.6	70-130			
Chromium, dissolved	19.5	0.50	ug/L	20.0	ND	97.3	70-130			
Copper, dissolved	23.0	0.50	ug/L	20.0	3.01	100	70-130			
Lead, dissolved	16.2	0.25	ug/L	20.0	ND	80.8	70-130			
Manganese, dissolved	441	5.0	ug/L	20.0	429	63.4	70-130			QM-01
Molybdenum, dissolved	29.8	0.25	ug/L	20.0	8.61	106	70-130			
Nickel, dissolved	24.8	0.50	ug/L	20.0	7.15	88.4	70-130			
Selenium, dissolved	19.6	2.0	ug/L	20.0	ND	90.8	70-130			
Silver, dissolved	17.2	0.10	ug/L	20.0	ND	86.1	70-130			QM-01
Thallium, dissolved	16.0	0.10	ug/L	20.0	ND	80.2	70-130			
Vanadium, dissolved	24.9	1.0	ug/L	20.0	5.33	97.9	70-130			
Zinc, dissolved	98.0	5.0	ug/L	100	7.93	90.0	70-130			
Matrix Spike Dup (AH14197-MSD1)		Source: 21H2633-05		Prepared: 08/24/21		Analyzed: 08/27/21				
Aluminum, dissolved	621	10	ug/L	520	ND	118	70-130	0.734	20	QM-01
Antimony, dissolved	19.7	0.50	ug/L	20.0	ND	98.3	70-130	0.783	20	
Arsenic, dissolved	27.3	0.50	ug/L	20.0	7.71	98.0	70-130	0.533	20	
Barium, dissolved	82.5	0.50	ug/L	20.0	65.2	86.3	70-130	0.0474	20	
Beryllium, dissolved	18.3	0.10	ug/L	20.0	ND	91.7	70-130	0.349	20	
Boron, dissolved	2330	50	ug/L	100	2470	NR	70-130	2.06	20	QM-4X
Cadmium, dissolved	18.7	0.10	ug/L	20.0	ND	93.3	70-130	0.746	20	
Chromium, dissolved	19.8	0.50	ug/L	20.0	ND	99.0	70-130	1.72	20	
Copper, dissolved	23.1	0.50	ug/L	20.0	3.01	100	70-130	0.257	20	
Lead, dissolved	15.9	0.25	ug/L	20.0	ND	79.6	70-130	1.41	20	
Manganese, dissolved	448	5.0	ug/L	20.0	429	99.2	70-130	1.61	20	
Molybdenum, dissolved	29.8	0.25	ug/L	20.0	8.61	106	70-130	0.125	20	
Nickel, dissolved	25.3	0.50	ug/L	20.0	7.15	90.7	70-130	1.81	20	
Selenium, dissolved	19.8	2.0	ug/L	20.0	ND	91.7	70-130	0.900	20	
Silver, dissolved	17.6	0.10	ug/L	20.0	ND	88.1	70-130	2.40	20	QM-01

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Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: Round 3 ASR Water Quality Baseline

Reported:
09/24/21 16:57

Metals (Dissolved) by EPA Method 200.8 ICP/MS - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
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Batch AH14197 - EPA 200.8 (D)

Matrix Spike Dup (AH14197-MSD1)

Source: 21H2633-05

Prepared: 08/24/21 Analyzed: 08/26/21

Thallium, dissolved	15.6	0.10	ug/L	20.0	ND	78.2	70-130	2.57	20	
Vanadium, dissolved	25.3	1.0	ug/L	20.0	5.33	99.8	70-130	1.46	20	
Zinc, dissolved	98.6	5.0	ug/L	100	7.93	90.7	70-130	0.676	20	



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Reported:
09/24/21 16:57

Conventional Chemistry Parameters by APHA/EPA Methods - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch AH14260 - General Preparation										
Blank (AH14260-BLK1)				Prepared & Analyzed: 08/20/21						
MBAS, calculated as LAS, mw 340	ND	0.050	mg/L							
LCS (AH14260-BS1)				Prepared & Analyzed: 08/20/21						
MBAS, calculated as LAS, mw 340	0.201	0.050	mg/L	0.200		101	80-120			
Matrix Spike (AH14260-MS1)				Source: 21H2633-01		Prepared & Analyzed: 08/20/21				
MBAS, calculated as LAS, mw 340	0.188	0.050	mg/L	0.200	ND	94.0	80-120			
Matrix Spike Dup (AH14260-MSD1)				Source: 21H2633-01		Prepared & Analyzed: 08/20/21				
MBAS, calculated as LAS, mw 340	0.201	0.050	mg/L	0.200	ND	101	80-120	6.84	20	
Batch AH14310 - NB General Prep										
Blank (AH14310-BLK1)				Prepared & Analyzed: 08/20/21						
Perchlorate	ND	2.0	ug/L							
LCS (AH14310-BS1)				Prepared & Analyzed: 08/20/21						
Perchlorate	9.58	2.0	ug/L	10.0		95.8	85-115			
Duplicate (AH14310-DUP1)				Source: 21H2468-01		Prepared & Analyzed: 08/20/21				
Perchlorate	ND	2.0	ug/L		ND				15	
Matrix Spike (AH14310-MS1)				Source: 21H2414-13		Prepared & Analyzed: 08/20/21				
Perchlorate	9.36	2.0	ug/L	10.0	ND	93.6	70-130			
Matrix Spike Dup (AH14310-MSD1)				Source: 21H2414-13		Prepared & Analyzed: 08/20/21				
Perchlorate	9.72	2.0	ug/L	10.0	ND	97.2	70-130	3.77	15	



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Conventional Chemistry Parameters by APHA/EPA Methods - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch AH14314 - General Prep (BAL)										
Duplicate (AH14314-DUP1)		Source: 21H2633-03		Prepared & Analyzed: 08/18/21						
Turbidity	ND	0 10	NTU		ND				15	
Batch AH14407 - General Preparation										
Blank (AH14407-BLK1)		Prepared & Analyzed: 08/24/21								
Sulfide	ND	0 10	mg/L							
LCS (AH14407-BS1)		Prepared & Analyzed: 08/24/21								
Sulfide	0 230	0 10	mg/L	0 222		104	85-115			
Duplicate (AH14407-DUP1)		Source: 21H2633-01		Prepared & Analyzed: 08/24/21						
Sulfide	ND	0 10	mg/L		ND				15	
Matrix Spike (AH14407-MS1)		Source: 21H2633-01		Prepared & Analyzed: 08/24/21						
Sulfide	0 0910	0 10	mg/L	0 222	ND	41 0	80-120			QM-05
Matrix Spike Dup (AH14407-MSD1)		Source: 21H2633-01		Prepared & Analyzed: 08/24/21						
Sulfide	0 0900	0 10	mg/L	0 222	ND	40 5	80-120	1 10	15	QM-05
Batch AH14424 - General Preparation										
Blank (AH14424-BLK1)		Prepared: 08/24/21 Analyzed: 09/03/21								
Total Dissolved Solids	ND	10	mg/L							
Duplicate (AH14424-DUP1)		Source: 21H2326-01		Prepared: 08/24/21 Analyzed: 09/03/21						
Total Dissolved Solids	188	10	mg/L		172			8 89	15	



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Todd Groundwater	Project Manager: Nicole Grimm	Reported:
2490 Mariner Square Loop, Suite 215	Project: Round 3 ASR Water Quality Baseline	09/24/21 16:57
Alameda, CA 94501	Project Number: Round 3 ASR Water Quality Baseline	

Conventional Chemistry Parameters by APHA/EPA Methods - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
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Batch AH14424 - General Preparation

Duplicate (AH14424-DUP2)	Source: 21H2326-02			Prepared: 08/24/21	Analyzed: 09/03/21
Total Dissolved Solids	156	10	mg/L	154	1 29 15

Batch AH14703 - General Preparation

Blank (AH14703-BLK1)			Prepared & Analyzed: 08/30/21	
Total Alkalinity as CaCO3	ND	5	0	mg/L
Carbonate Alkalinity as CaCO3	ND	5	0	mg/L
Hydroxide Alkalinity as CaCO3	ND	5	0	mg/L
Bicarbonate Alkalinity as CaCO3	ND	5	0	mg/L

LCS (AH14703-BS1)				Prepared & Analyzed: 08/30/21		
Total Alkalinity as CaCO3	90 0	5 0	mg/L	80 0	112	70-130

Duplicate (AH14703-DUP1)	Source: 21H2633-01			Prepared & Analyzed: 08/30/21			
Total Alkalinity as CaCO3	310	5	0	mg/L	310	0 00	20
Carbonate Alkalinity as CaCO3	ND	5	0	mg/L	ND		20
Hydroxide Alkalinity as CaCO3	ND	5	0	mg/L	ND		20
Bicarbonate Alkalinity as CaCO3	310	5	0	mg/L	310	0 00	20

Batch AH14872 - Metals Digest (D)

Blank (AH14872-BLK1)			Prepared: 09/01/21 Analyzed: 09/03/21	
Hardness, Total	ND	5	mg/L	

Duplicate (AH14872-DUP1)	Source: 21H3452-01			Prepared: 09/01/21	Analyzed: 09/03/21
Hardness, Total	238	5	mg/L	234	1 56 20



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Project Number: Round 3 ASR Water Quality Baseline

Reported:
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Anions by EPA Method 300.0 - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch AH14195 - EPA 300.0										
Blank (AH14195-BLK1)				Prepared & Analyzed: 08/19/21						
Nitrate as N	ND	0.20	mg/L							
Fluoride	ND	0.10	mg/L							
Sulfate as SO ₄	ND	0.50	mg/L							
Chloride	ND	0.50	mg/L							
LCS (AH14195-BS1)				Prepared & Analyzed: 08/19/21						
Nitrate as N	5.37	0.20	mg/L	5.56		96.7	90-110			
Fluoride	5.59	0.10	mg/L	5.56		101	90-110			
Chloride	10.9	0.50	mg/L	11.1		97.8	90-110			
Sulfate as SO ₄	22.2	0.50	mg/L	22.2		100	90-110			
Duplicate (AH14195-DUP1)				Source: 21H2530-02 Prepared & Analyzed: 08/19/21						
Sulfate as SO ₄	7.91	0.50	mg/L		7.92			0.0379	20	
Chloride	2.04	0.50	mg/L		2.04			0.0490	20	
Nitrate as N	0.277	0.20	mg/L		0.277			0.244	20	
Fluoride	0.163	0.10	mg/L		0.163			0.00	20	
Matrix Spike (AH14195-MS1)				Source: 21H2530-02 Prepared & Analyzed: 08/19/21						
Fluoride	5.01	1.0	mg/L	5.56	ND	90.2	80-120			
Nitrate as N	5.57	2.0	mg/L	5.56	ND	100	80-120			
Chloride	11.7	5.0	mg/L	11.1	ND	87.2	80-120			
Sulfate as SO ₄	26.4	5.0	mg/L	22.2	7.92	83.3	80-120			
Matrix Spike (AH14195-MS2)				Source: 21H2682-01 Prepared & Analyzed: 08/19/21						
Fluoride	4.71	1.0	mg/L	5.56	ND	84.8	80-120			
Nitrate as N	8.55	2.0	mg/L	5.56	3.70	87.3	80-120			
Sulfate as SO ₄	31.1	5.0	mg/L	22.2	12.9	82.2	80-120			
Chloride	17.1	5.0	mg/L	11.1	7.80	83.8	80-120			



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09/24/21 16:57

Anions by EPA Method 300.0 - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
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Batch AH14195 - EPA 300.0

Matrix Spike Dup (AH14195-MSD1)

Source: 21H2530-02

Prepared & Analyzed: 08/19/21

Sulfate as SO ₄	26.6	5.0	mg/L	22.2	7.92	84.2	80-120	0.796	20	
Fluoride	5.06	1.0	mg/L	5.56	ND	91.0	80-120	0.883	20	
Nitrate as N	5.61	2.0	mg/L	5.56	ND	101	80-120	0.717	20	
Chloride	11.8	5.0	mg/L	11.1	ND	88.0	80-120	0.755	20	



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Reported:
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Volatile Organic Compounds by EPA Method 524.2 - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch AH14496 - VOAs in Water GCMS										
Blank (AH14496-BLK1)				Prepared & Analyzed: 08/25/21						
Bromodichloromethane	ND	1 00	ug/L							
Bromoform	ND	1 00	ug/L							
Chloroform	ND	1 00	ug/L							
Dibromochloromethane	ND	1 00	ug/L							
Trihalomethanes (total)	ND	1 00	ug/L							
Surrogate: Bromofluorobenzene	25.4		ug/L	25.0		102	70-130			
Surrogate: Dibromofluoromethane	24.6		ug/L	25.0		98.5	70-130			
Surrogate: Toluene-d8	24.8		ug/L	25.0		99.1	70-130			
LCS (AH14496-BS1)				Prepared & Analyzed: 08/25/21						
Bromodichloromethane	4 57	1 00	ug/L	5 00		91 4	70-130			
Bromoform	4 31	1 00	ug/L	5 00		86 2	70-130			
Chloroform	5 19	1 00	ug/L	5 00		104	70-130			
Dibromochloromethane	4 45	1 00	ug/L	5 00		89 0	70-130			
Surrogate: Bromofluorobenzene	27.8		ug/L	25.0		111	70-130			
Surrogate: Dibromofluoromethane	23.5		ug/L	25.0		94.2	70-130			
Surrogate: Toluene-d8	24.8		ug/L	25.0		99.2	70-130			
LCS Dup (AH14496-BS1)				Prepared & Analyzed: 08/25/21						
Bromodichloromethane	4 59	1 00	ug/L	5 00		91 8	70-130	0 437	30	
Bromoform	4 11	1 00	ug/L	5 00		82 2	70-130	4 75	30	
Chloroform	5 14	1 00	ug/L	5 00		103	70-130	0 968	30	
Dibromochloromethane	4 58	1 00	ug/L	5 00		91 6	70-130	2 88	30	
Surrogate: Bromofluorobenzene	28.1		ug/L	25.0		113	70-130			
Surrogate: Dibromofluoromethane	22.4		ug/L	25.0		89.5	70-130			
Surrogate: Toluene-d8	24.9		ug/L	25.0		99.6	70-130			
Matrix Spike (AH14496-MS1)				Source: 21H2469-02	Prepared: 08/25/21	Analyzed: 08/26/21				
Bromodichloromethane	20 5	1 00	ug/L	5 00	14 0	130	70-130			
Bromoform	4 73	1 00	ug/L	5 00	ND	94 6	70-130			
Chloroform	79 8	1 00	ug/L	5 00	67 2	253	70-130			QM-05
Dibromochloromethane	8 71	1 00	ug/L	5 00	3 65	101	70-130			
Surrogate: Bromofluorobenzene	28.3		ug/L	25.0		113	70-130			
Surrogate: Dibromofluoromethane	23.0		ug/L	25.0		91.8	70-130			

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Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: Round 3 ASR Water Quality Baseline

Reported:
09/24/21 16:57

Volatile Organic Compounds by EPA Method 524.2 - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Flag
Batch AH14496 - VOAs in Water GCMS									
Matrix Spike (AH14496-MS1)		Source: 21H2469-02		Prepared: 08/25/21		Analyzed: 08/26/21			
Surrogate: Toluene-d8	24.4		ug/L	25.0		97.6	70-130		
Matrix Spike (AH14496-MS2)		Source: 21H2611-01		Prepared: 08/25/21		Analyzed: 08/26/21			
Bromodichloromethane	6.50	1.00	ug/L	5.00	1.77	94.6	70-130		
Bromoform	4.42	1.00	ug/L	5.00	ND	88.4	70-130		
Chloroform	60.2	1.00	ug/L	5.00	50.7	190	70-130		QM-05
Dibromochloromethane	4.27	1.00	ug/L	5.00	ND	85.4	70-130		
Surrogate: Bromofluorobenzene	27.8		ug/L	25.0		111	70-130		
Surrogate: Dibromofluoromethane	21.4		ug/L	25.0		85.8	70-130		
Surrogate: Toluene-d8	23.7		ug/L	25.0		94.7	70-130		



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2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: Round 3 ASR Water Quality Baseline

Reported:
09/24/21 16:57

Haloacetic Acids by EPA Method 552.2 - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch AH14766 - EPA 552.2										
Blank (AH14766-BLK1)				Prepared: 08/31/21 Analyzed: 09/01/21						
Monobromoacetic Acid	ND	1 0	ug/L							
Monochloroacetic Acid	ND	2 0	ug/L							
Dibromoacetic Acid	ND	1 0	ug/L							
Dichloroacetic Acid	ND	1 0	ug/L							
Trichloroacetic Acid	ND	1 0	ug/L							
Total Haloacetic Acids (HAA5)	ND	1 0	ug/L							
Surrogate: 2,3-Dibromopropionic Acid	8.28		ug/L	9.85		84.1	70-130			
Surrogate: 2-Bromopropionic Acid	10.9		ug/L	10.0		109	70-130			
LCS (AH14766-BS1)				Prepared: 08/31/21 Analyzed: 09/01/21						
Monobromoacetic Acid	28 6	1 0	ug/L	25 0		114	70-130			
Monochloroacetic Acid	28 6	2 0	ug/L	25 0		114	70-130			
Dibromoacetic Acid	24 9	1 0	ug/L	25 0		99 7	70-130			
Dichloroacetic Acid	28 5	1 0	ug/L	25 0		114	70-130			
Trichloroacetic Acid	24 5	1 0	ug/L	25 0		98 0	70-130			
Surrogate: 2,3-Dibromopropionic Acid	9.70		ug/L	9.85		98.5	70-130			
Surrogate: 2-Bromopropionic Acid	12.6		ug/L	10.0		126	70-130			
Matrix Spike (AH14766-MS1)				Source: 21H2633-01 Prepared: 08/31/21 Analyzed: 09/02/21						
Monobromoacetic Acid	31 8	1 0	ug/L	25 0	ND	127	70-130			
Monochloroacetic Acid	30 4	2 0	ug/L	25 0	ND	121	70-130			
Dibromoacetic Acid	28 2	1 0	ug/L	25 0	ND	113	70-130			
Dichloroacetic Acid	31 0	1 0	ug/L	25 0	ND	124	70-130			
Trichloroacetic Acid	27 6	1 0	ug/L	25 0	ND	110	70-130			
Surrogate: 2,3-Dibromopropionic Acid	11.8		ug/L	9.85		120	70-130			
Surrogate: 2-Bromopropionic Acid	14.3		ug/L	10.0		143	70-130			S-GC
Matrix Spike (AH14766-MS2)				Source: 21H2738-01 Prepared: 08/31/21 Analyzed: 09/02/21						
Monobromoacetic Acid	25 7	1 0	ug/L	25 0	ND	103	70-130			
Monochloroacetic Acid	51 4	2 0	ug/L	25 0	ND	205	70-130			QM-07
Dibromoacetic Acid	23 8	1 0	ug/L	25 0	ND	95 0	70-130			
Dichloroacetic Acid	26 3	1 0	ug/L	25 0	ND	105	70-130			
Trichloroacetic Acid	24 2	1 0	ug/L	25 0	ND	96 7	70-130			
Surrogate: 2,3-Dibromopropionic Acid	10.5		ug/L	9.85		107	70-130			

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Project Number: Round 3 ASR Water Quality Baseline

Reported:
09/24/21 16:57

Haloacetic Acids by EPA Method 552.2 - Quality Control

Analyte(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
------------	--------	--------------------	-------	----------------	------------------	------	----------------	-----	--------------	------

Batch AH14766 - EPA 552.2

Matrix Spike (AH14766-MS2)

Source: 21H2738-01

Prepared: 08/31/21 Analyzed: 09/02/21

Surrogate: 2-Bromopropionic Acid

11.5

ug/L

10.0

115

70-130



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Project Manager: Nicole Grimm
Project: Round 3 ASR Water Quality Baseline
Project Number: Round 3 ASR Water Quality Baseline

Reported:
09/24/21 16:57

Notes and Definitions

FILT	The sample was filtered in the lab prior to analysis
QM-01	The spike recovery for this QC sample is outside of established control limits possibly due to a sample matrix interference.
QM-05	The spike recovery was outside acceptance limits for the MS and/or MSD due to matrix interference. The LCS and/or LCSD were within acceptance limits showing that the laboratory is in control and the data is acceptable.
QM-07	The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.
QM-4X	The spike recovery was outside of QC acceptance limits for the MS and/or MSD due to analyte concentration at 4 times or greater the spike concentration. The QC batch was accepted based on LCS and/or LCSD recoveries within the acceptance limits.
R-01	The Reporting Limit for this analyte has been raised to account for matrix interference.
S-GC	Surrogate recovery outside of control limits. The data was accepted based on valid recovery of the remaining surrogates.
ND	Analyte NOT DETECTED at or above the reporting limit
dry	Sample results reported on a dry weight basis
REC	Recovery
RPD	Relative Percent Difference

[illegible]

21H2633

Alpha Analytical Laboratories Ukiah to North Bay Chain of Custody

Client: **Todd Groundwater** Client Code: **DP_TODENG** Bid: **Round 3 ASR Water Quality**
Project: **Round 3 ASR Water Quality Baseline** Project Number: **Round 3 ASR Water Quality PO #:**

Date Due: 09/02/21 15:00 (10 day TAT)

Received By: James Bixler

Date Received: 08/18/21 22:15

Logged In By: Sean Foley

Date Logged: 08/19/21 10:02

Samples Received at: _____ deg C

All containers received and intact: YES NO

Analysis	Department	Expires	Comments
21H2633-01 3121 [Water] Sampled 08/18/21 09:10			Lab Filter
NB Perchlorate EPA 314.0	NB Wet Chem	09/15/21 23:59	
21H2633-02 12-5-23A20 [Water] Sampled 08/18/21 09:55			Lab Filter
NB Perchlorate EPA 314.0	NB Wet Chem	09/15/21 23:59	
21H2633-03 3357 [Water] Sampled 08/18/21 10:30			Lab Filter
NB Perchlorate EPA 314.0	NB Wet Chem	09/15/21 23:59	
21H2633-04 3123 [Water] Sampled 08/18/21 11:50			Lab Filter
NB Perchlorate EPA 314.0	NB Wet Chem	09/15/21 23:59	
21H2633-05 3127 [Water] Sampled 08/18/21 12:25			Lab Filter
NB Perchlorate EPA 314.0	NB Wet Chem	09/15/21 23:59	
21H2633-06 Hollister #2 [Water] Sampled 08/18/21 13:15			Lab Filter
NB Perchlorate EPA 314.0	NB Wet Chem	09/15/21 23:59	

Containers Supplied:

250mL Poly Unpres (C)

250mL Poly Unpres (C)

250mL Poly Unpres (C)

250mL Poly Unpres (C)

250mL Poly Unpres (C)

250mL Poly Unpres (C)

Relinquished By

Date

Time

Received By

Date

Time

Relinquished By

Date

Time

Received By

Date

Time

APPENDIX B

Groundwater Recharge Alternatives Facility Plan, HDR, January 13, 2022



Groundwater Recharge Alternatives Facility Plan

San Benito County Water District

San Benito County, CA
January 13, 2022

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1 Introduction

The San Benito County Water District (SBCWD, District) purchases surface water through the Central Valley Project (CVP) that distributes raw surface water to the San Benito County area via the Hollister Conduit and its auxiliary pipelines. During dry years, a reduced CVP supply leads to increased groundwater pumping, resulting in less satisfactory water qualities from increased hardness, total dissolved solids (TDS) and mineral content, and potential groundwater depletion. The District's 2017 Water and Wastewater Master Plan Update (HDR, 2017) identified the need for additional high-quality surface water to meet future water demands and to improve water quality, especially in hardness and total dissolved solids (TDS). Based on a review of historical CVP allocations and other planning studies, approximately 6,000 acre-feet (AF) of excess CVP water was identified as being available to the District during wet years (Ellis, 2021).

In addition, the District has a need to maintain and improve long-term groundwater levels through recharge, as done previously from 1994 to 2004 via Managed Aquifer Recharge (MAR) programs (Todd Groundwater, 2021).

In 2021, HDR prepared a *Draft Evaluation of Water Supply and Storage Alternatives* comparing various alternatives to beneficially use the excess CVP water that included groundwater recharge. Alternatives considered include increasing local surface water storage, using CVP water to blend with increased groundwater production, Aquifer Storage and Recovery (ASR) and participating in out-of-basin surface water storage. The study concluded that ASR is the most advantageous and cost-effective method to utilize the excess CVP water for dry year demands. Concurrently, Todd Groundwater (TG) evaluated the feasibility of using MAR programs to recharge depleted groundwater and increase water supply as part of the Sustainable Groundwater Plan project for the District. This study identified potential locations for MAR wells.

1.1 Project Goals

The goals of this study are to perform a feasibility study for both ASR and MAR options for increased water supply and groundwater recharge, and recommend one of these for further analysis and development. Specifically, the following goals were established:

- Identify location and capacity of ASR and MAR wells
- Evaluate facilities required for ASR and MAR options including wells, pipelines, treatment, and pumping facilities.
- Develop an opinion of capital cost estimate (OPCC).
- Perform alternatives evaluation of the most suited alternative to maximize the use of CVP supply and provide a sustainable, long-term water supply for the agricultural and M&I needs of the District customers.
- Recommend one alternative and develop an implementation plan.

2 Well Siting

Todd Groundwater performed hydrogeological modeling to determine the best locations for ASR and MAR well locations. The well field locations were modelled by considering various hydrogeological conditions such as maximum draw-up and drawdown, mounding, groundwater movement and impacts from nearby wells. The ability of the wells to capture the available surplus water and the percolation capacity of the aquifer were also considered. To maximize the water quality benefit to municipal supply wells and achieve relatively long residence time of the injected water, the simulated well locations were in the Hollister area near and generally upgradient of City of Hollister (City) and Sunnyslope County Water District (SSCWD) wells. A minimum well spacing of 1,500 feet was assumed to avoid interference and excessive water-level mounding at the wells.

For the ASR wells, the wells were aligned in two rows roughly parallel to the regional groundwater flow direction. This maximizes the efficiency of recovering the injected high-quality water because the plumes of injected water would tend to drift toward another ASR well. The wells were also chosen to be along existing roads for ease of property acquisition and obtaining pipeline easements, and close to CVP conveyance pipelines to minimize the length of new pipelines required.

Preliminary well locations for both the ASR and MAR wells are presented in Figure 2-1.

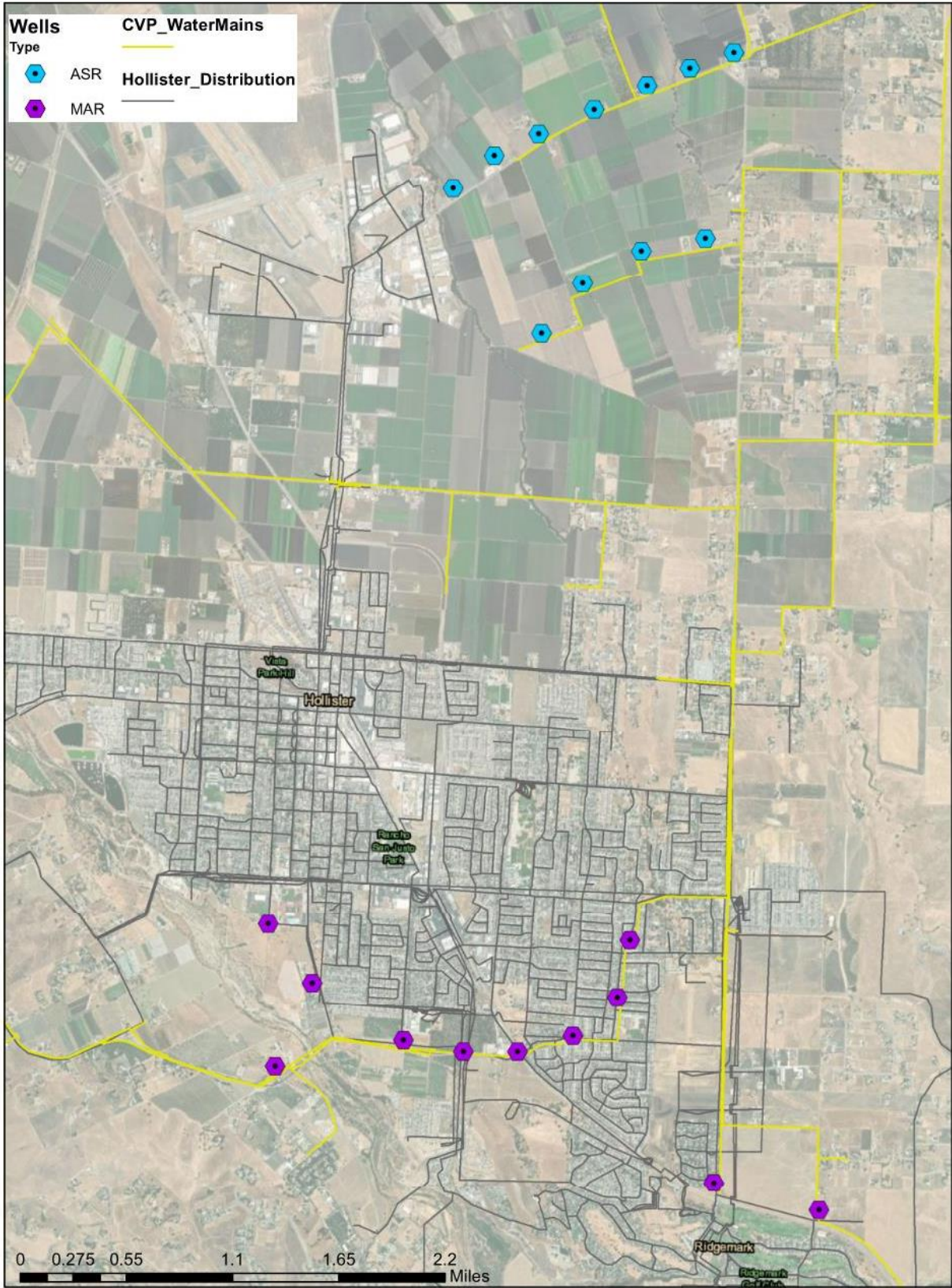


Figure 2-1. Preliminary Location of ASR and MAR Wells Identified by Todd Groundwater

3 Aquifer Storage and Recovery

ASR is the direct injection of water into an aquifer using injection wells for subsequent recovery utilizing the same well. The ASR facilities consist of ASR wells for injection of up to 6,000 AF of treated CVP water and recovery of stored water, a water treatment plant (WTP) to treat CVP water prior to injection and to treat ASR wells' output to drinking water standard prior to distribution, and pipelines that connect the ASR wells, the WTP and the Hollister Urban Area (HUA) distribution system. The major facilities required consist of 11 injection/recovery wells, one WTP and several miles of pipeline. These are described in the following sections.

3.1 Water Demand and Supply

Based on a review of CVP allocations over an extended period of record, it was concluded that 22 wet years occurred in the 83-year period (27% of all years), and approximately 6,000 AF of unused CVP supply was available in a wet year. This excess CVP water can provide for the 4,000 to 6,000 AFY deficit of high quality source water to improve water quality by 2035, as identified in the 2017 Master Plan Update (Ellis, 2021). The projection of additional high quality source water required to meet the District's future demand and water quality goals are currently being revised as part of a master plan update. Although the projected consumption demand is lower than that of the 2017 Master Plan Update, the amount of additional high quality source water required remains relatively unchanged, due to the extended projection horizon to 2045 and the revised hardness goal of 150mg/L to 180mg/L from the previous 220 mg/L goal.

3.2 Well Capacity and Sizing

The full cycle of ASR operation was assumed to be a minimum of one year injection period, followed by one to five years of storage, followed by a minimum of 12-month recovery period that could be spread over multiple dry years. The maximum capacity of the facilities has been sized based on this assumption. The recovery rate of injected water depends on the operation of the ASR wells and the movement of native groundwater. A pilot program will provide the data required to accurately establish the recovery rate. This is further discussed in Section 3.3.

Based on Todd Groundwater's hydrogeology analysis of the ASR site, a single ASR well will have a maximum injection capacity of 500 gpm (0.7 MGD) and a maximum recovery capacity of 1,000 gpm (1.4 MGD) considering allowable draw-up, drawdown, impacts from other wells and other hydrogeological factors. Clogging from precipitates is a common issue in ASR operation, therefore it is assumed that each well will be offline at least 25% of the time for backwash or other maintenance activities. Based on this, eleven ASR wells will be sufficient to inject the full 6,000 AF (5.4 MGD) excess CVP supply. Table 3-1 summarizes the design criteria of ASR wells. Phased well development is further discussed in Section 3.5. The well locations are shown in Figure 3-8 through Figure 3-1. The ASR well locations are slightly modified compared to locations identified by Todd Groundwater to obtain better groundwater water quality and to optimize pipeline routing.

Table 3-1. ASR Well Sizing Design Criteria

Parameter	Design Criteria
Injection Period ¹	9-12 months
Maximum ASR Injection Capacity	6,000 AFY
Storage Period	2 – 4 years
Recovery Period	12 months (in 2 years)
Injection Well Active-Duty Cycle	90%
Max Injection/Recovery Capacity per Well	500/1,000 gpm
Max. ASR Recovery Capacity	6,000 AFY ²
Recovery Rate ³ (of injected water)	75%
Number of Injection Wells	11
Minimum Spacing between Wells	1,500 feet

Notes:

1. Assumes a minimum of 12 months to inject 6,000 AF of excess CVP water.
2. Assumes that concentrate from treated groundwater is returned to the Hollister Conduit.
3. Full recovery refers to zero mixing between the injected water and native groundwater. Recovery rate of 75% assumes 25% of the injected water is replaced by native groundwater through storage.

3.3 Pipeline

The ASR facilities require a network of pipelines for raw water conveyance, transporting water between the wells and WTP, and connection to the HUA distribution system. Key pipelines are described below based on their intended function:

- **CVP Conveyance Pipeline** – A 20-inch pipeline conveying source CVP water from the Hollister Conduit branch along Fallon Road to the new WTP. A separate raw water pipe is required to keep the raw water separated from treated water pipe.
- **Wellfield Transmission Pipelines** – A network of pipelines conveying treated water from the WTP to ASR wells and recovered well water to the WTP. These dual direction pipelines vary in size and generally becomes smaller towards network extremities. The dual direction pipe network will be isolated from the raw water pipe and distribution system connection pipe to separate potable ASR injection water from raw water; and to separate recovered water that may need treatment from the potable water in the distribution system.
- **Distribution and Transmission Pipelines** – Two pipelines will convey treated water from the WTP to the HUA distribution system. The first pipeline is an 18-inch transmission pipe that connects to the distribution system at the intersection of Fallon Road and San Felipe Road. The second pipeline is a 12-inch distribution system pipe that runs parallel to an existing 12-inch pipe along San Felipe Road. The existing 12-inch pipe along San Felipe road cannot handle the increased load from the WTP, therefore, a parallel 12-inch distribution system pipe along San Felipe Road is required to expand the distribution system capacity when the ASR program operates at full capacity.
- **Concentrate Pipeline** – A 6-inch pipeline conveying nanofiltration (NF) concentrate from the WTP to the Hollister Conduit for blending and beneficial

reuse. The NF system provides treatment to raw CVP water and the extracted ASR water, if required.

The network of ASR pipeline required is shown in Figure 3-1. Facility location and alignments are conceptual and should be further developed during the design phase.

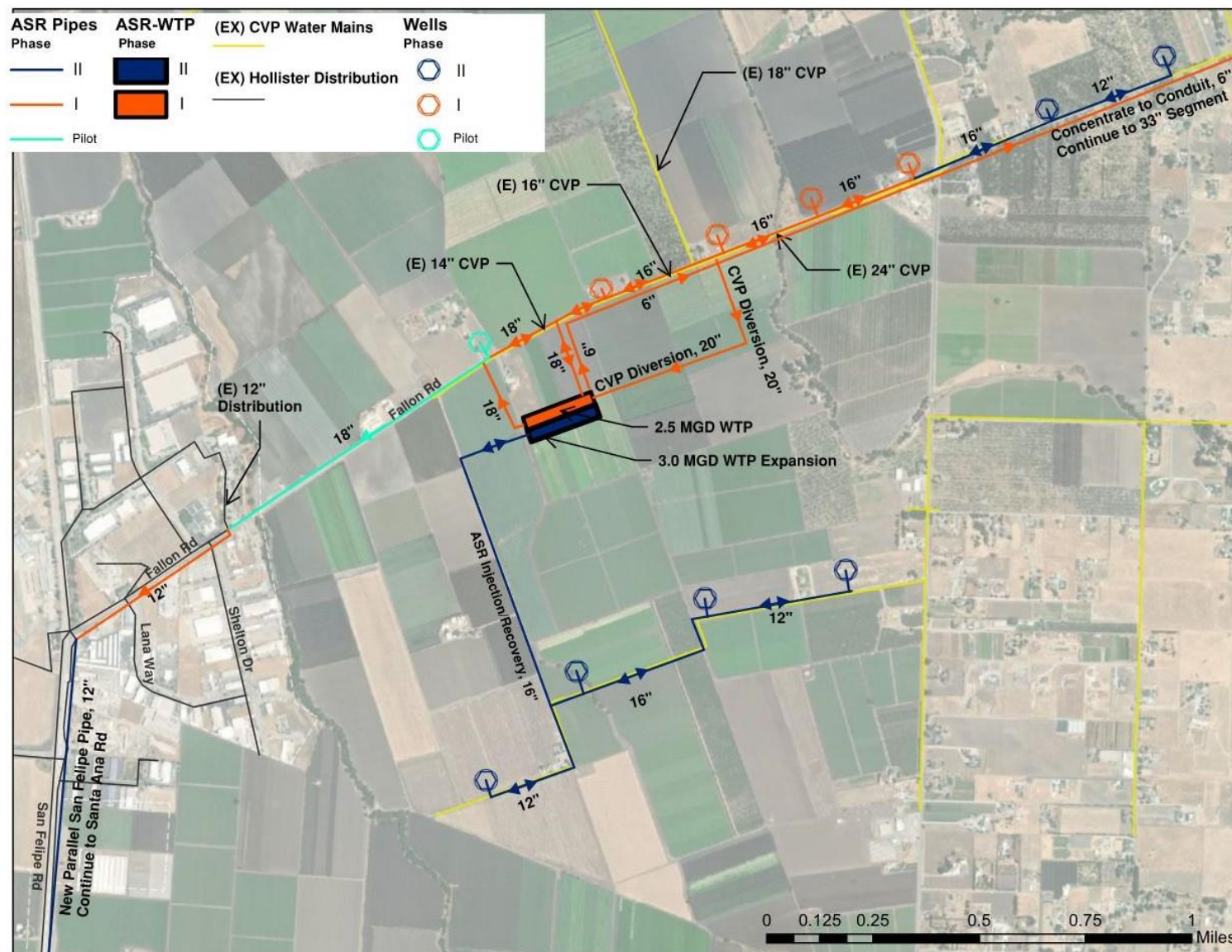


Figure 3-1. Facility Layout of ASR Program

3.4 Water Treatment

A new WTP is required to treat CVP water before injection into the ground and treat extracted water to potable water quality before entering the distribution system. The treatment processes at the WTP should be capable of treating CVP water that can be high in organics and treat the extracted ASR that could have elevated hardness, nitrates, etc., due to blending with native groundwater.

During initial discussions between the District, Todd Groundwater and the Regional Water Quality Control Board (RWQCB), the RWQCB indicated that treatment of surface water is required prior to injection into the aquifer. This is required to prevent the degradation of native groundwater and well fouling in the aquifer which is a potable water source. RWQCB also indicated that they could consider raw surface water injection, but this requires a lengthy permitting and complex demonstration process that often requires separation between existing or future agricultural and municipal wells from the ASR wells. This is unlikely to be applicable for the project as the production wells in the region may be closer to the ASR wells than permitted. Hence, for the purposes of this report, it is assumed that water treatment to potable water standards is required through a WTP.

3.4.1 Injection Water Quality and Treatment

Injection source water is CVP water diverted from the Hollister Conduit, similar to the source water for the West Hills WTP (WHWTP). Quarterly WHWTP source water quality data collected from the San Felipe system, ranging from November 2020 to August 2021 was provided by the District and summarized in Table 3-2. In general, the raw surface water from the Hollister Conduit can be characterized as moderate in total organic carbon (TOC), low turbidity, high bromide and seasonally high iron and manganese levels. Although the TOC levels are moderate, the DBP formation potential is high.

Table 3-2. Key Raw CVP Water Quality Parameters

Item	Unit	Average	95 th %
Turbidity	NTU	1.49	2.61
Manganese ¹	mg/L	0.08	0.18
Iron ¹	mg/L	0.07	0.12
Arsenic	ug/L	2.49	3.22
Barium	ug/L	70	70
Bromide ²	mg/L	0.31	0.43
Zinc ¹	mg/L	0.18	0.39
Boron ³	mg/L	0.2	-
Color	-	12.5	24.8
TDS	mg/L	288.8	306.5
Hardness	mg/L	110	120
TOC ²	mg/L	3.0	3.5

Notes:

1. Raw CVP water has seasonal variability in iron, manganese and zinc concentrations, worse in the summer when San Luis and San Justo Reservoirs are at lower levels. Since the water available for injection at the ASR wells is available during wet years when the water would be supplied from the San Luis Reservoir, any of the San Justo Reservoir data exceptionally high iron and manganese concentrations were excluded in calculations.
2. Data obtained from West Hills Water Treatment Plant Preliminary Design Report (HDR, 2011)
3. Data obtained from 2009 NF Pilot Study Operations and Test Plan (Kennedy Jenks, 2009)

Different treatment processes were evaluated including an ActifloCarb process like that of the WHWTP followed by either ion exchange or pellet softening, and a membrane WTP with microfiltration (MF) or ultrafiltration (UF) membranes followed by Nanofiltration (NF) membranes. A pellet softening process has limitations on the hardness levels it can treat and the ion exchange process produces brine as a byproduct that is difficult and expensive to dispose. Hence, due to the variability in water quality to be treated, a MF/NF WTP is preliminarily recommended due to its robustness and ability to remove a wide range of contaminants. This should be confirmed following the results of the pilot study.

Using IMSDesign, a membrane design software by membrane manufacturer Hydranautics, a preliminary NF system was modelled and developed by Hydranautics representatives, shown in Appendix A. Table 3-3 presents certain key NF permeate and blended permeate concentrations from the model. This analysis provides approximate treated water quality, potential bypass ratio, concentrate quality and other treatment design parameters.

Table 3-3. Key Blended Permeate Water Quality Parameters with 50% Bypass

Item	Unit	NF Permeate	50% Blended Permeate
Manganese	mg/L	0.015	0.052
Iron	mg/L	0.013	0.046
Arsenic ⁽¹⁾	ug/L	2.49	2.49
Barium	ug/L	10	40
Zinc ⁽¹⁾	ug/L	0.18	0.18
Boron	mg/L	0.2	0.2
Sulfate	mg/L	3.0	22.63
Chloride	mg/L	36.57	62.97
Sodium	mg/L	26.58	44.25
TDS	mg/L	100.31	227.16
Hardness	mg/L	15.81	68.78
TOC	mg/L	0.2	1.0

Figure 3-2 shows the process flow schematic for CVP water treatment. 100% of the WTP influent shall be passed through the MF unit. Depending on the actual water quality, up to 50% of MF-filtrate water can bypass the subsequent NF membranes where dissolved organics and multivalent ions are removed. Concentrate from MF is settled onsite and the liquid is diverted to the head of the plant to minimize water loss. NF concentrate, with a higher concentration of hardness and multivalent ions could be returned to the Hollister Conduit for blending and recovery or otherwise disposed of offsite. This is further discussed under Section 3.4.3.

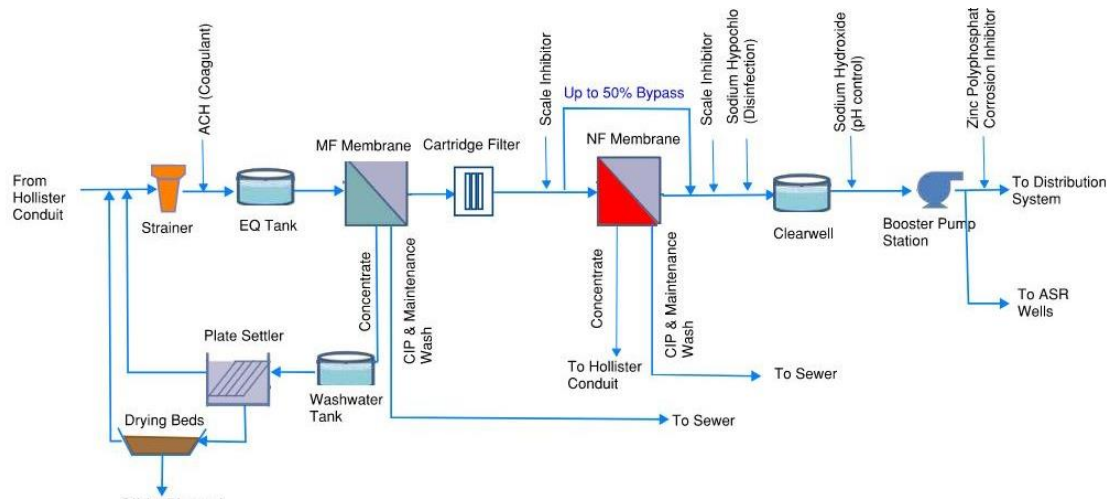


Figure 3-2. WTP Process Flow Diagram for Treatment before Injection

3.4.2 Recovery Water Quality and Treatment

3.4.2.1 Native Groundwater Quality

Selective wells in the approximate region of the proposed wellsite was performed by Todd Groundwater. The results of the sampling were used to refine the ASR well location and perform a blending analysis of native groundwater with injected groundwater. Figure 3-3 illustrates the sampling locations for both the ASR and MAR alternatives. Detailed information on the sampling results is listed in Appendix B. Table 3-4 highlights the concentrations of several key constituents in groundwater around the ASR location.

Table 3-4. Key Raw Groundwater Water Quality Parameters

Item	Unit	Average ²	Range
Turbidity	NTU	0.27	0.1-0.6
Manganese	mg/L	0.24	0.05-0.43
Iron	mg/L	ND ¹	ND
Arsenic	ug/L	7.64	4.4-14
Barium	ug/L	76.4	34-180
Zinc	ug/L	17.63	7.9-32
Boron	mg/L	2.84	1.5-4.2
Color	-	ND	ND
TDS	mg/L	938	850-1,100
Hardness	mg/L	275	209-336
TOC	mg/L	ND	ND

Notes:

1. ND: Non-detected. Measurements are below lab instrument detection level.

2. Average concentrations are calculated only based on above-ND measurements.

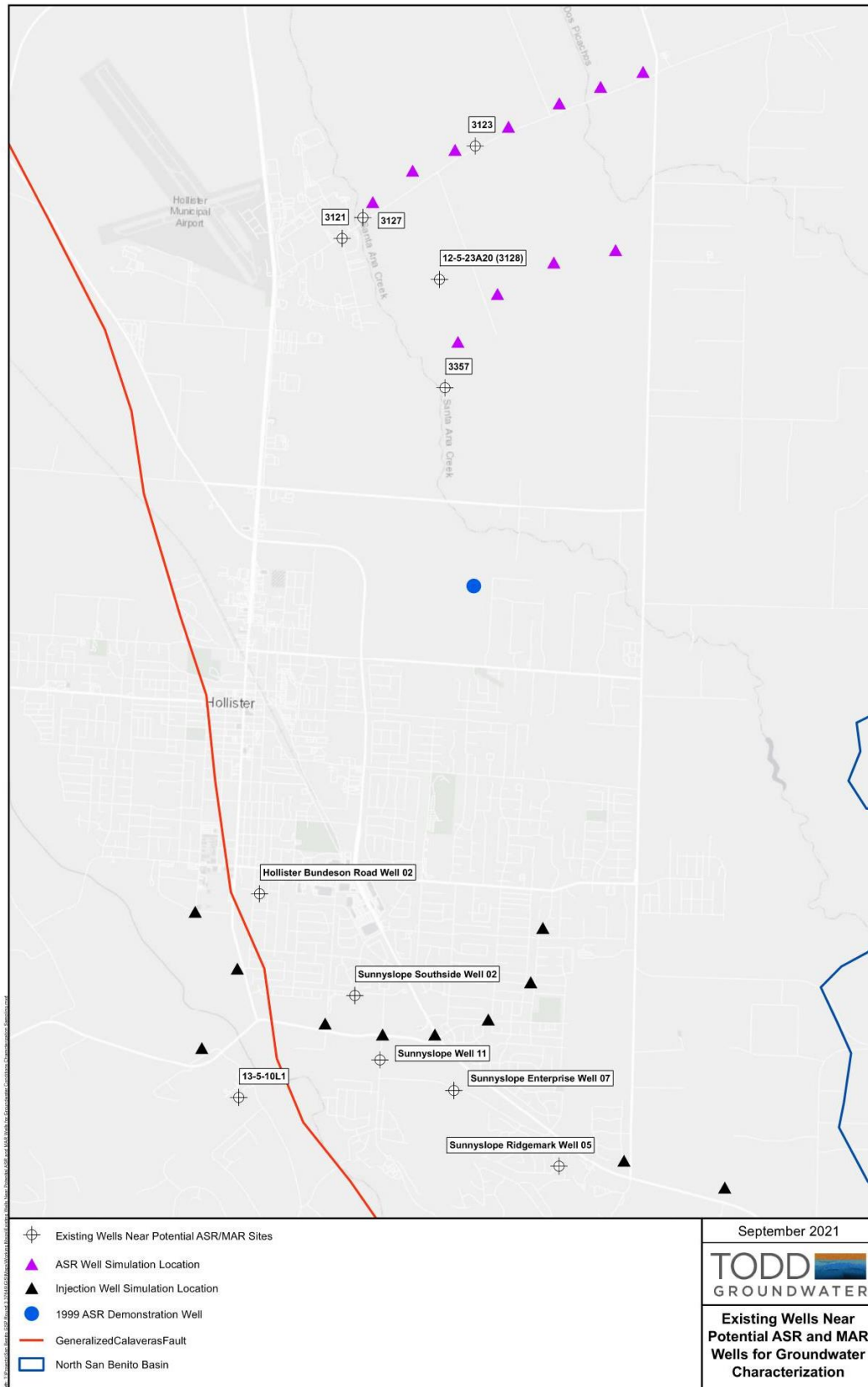


Figure 3-3. ASR and MAR Sampling Well Locations



Generally, the native groundwater quality at the ASR site has a great degree of variability even within as little as 1,500 feet between wells. Overall, native groundwater is high in TDS and hardness and moderately high in arsenic (at one well sampled), boron (in a couple of wells sampled) and manganese (at one well sampled). Depending on the geochemical reactions, groundwater movement and length of storage period, these constituents may appear or be in elevated concentrations in the recovery water due to mixing with native groundwater.

3.4.2.2 Blending Analysis

In the absence of geochemical analysis, a baseline 25% blending ratio (groundwater to injected water) was used to assess the quality of recovered water and the treatment levels needed. This value was derived based on the gap between the injection and recovery period of 2 to 6 years, past ASR projects in the region and review of hydrogeological model for the wells. It is recommended that a full geochemical analysis be performed in the next phase of work.

Two blending scenarios were analyzed with a blending ratio of 25% to capture the potential range of recovery water quality. These four scenarios consist of:

- 75% injected water blended with 25% average native groundwater concentrations of all wells sampled in the region.
- 75% injected water blended with 25% maximum native groundwater concentrations. Maximum concentration is each contaminant's highest measurement across the sampled locations and does not represent a single well source.

3.4.2.3 Recovered Water Quality

The blended concentrations were compared against regulated constituents' state Maximum Contaminant Levels (MCLs), secondary MCLs, Reporting Levels (RLs) and Notification Levels (NLs)¹. These comparisons are listed in Appendix B. A summary is provided in Table 3-5.

Table 3-5. Key Blended Water Quality Parameters

Item	Unit	Blended-Avg	Blended-Max	MCL/Sec MCL/NL
Turbidity	NTU	0.32	0.48	5
Manganese	mg/L	0.1	0.15 ⁽¹⁾	0.05 ⁽³⁾
Iron	mg/L	0.035	0.035 ⁽²⁾	0.3 ⁽³⁾
Arsenic ⁽⁴⁾	ug/L	3.8	5.4	10
Barium	mg/L	0.05	0.08	1
Zinc ⁽⁴⁾	mg/L	0.14	0.14	5 ⁽³⁾
Boron	mg/L	0.9	1.2 ⁽⁵⁾	1 ⁽⁶⁾

¹ MCLs are enforced thresholds for state-regulated constituents. Secondary MCLs typically address aesthetics such as taste and odor. RLs are considerably higher than NLs. DDW generally recommends water systems take sources containing constituents exceeding RLs out of service and requires reporting such detections in the annual consumer confidence report (CCR). NLs are advisory in nature and aims to monitor CECs in a water system. If a chemical is confirmed to exceed the NL, DDW requires the water system to notify the governing body of the local agency and recommends consumer notice.

Color	CU	8.83	8.83	15
TDS	mg/L	405	445	500 ⁽⁷⁾
Hardness	mg/L	120	136	150 ⁽⁶⁾
TOC	mg/L	1.1	1.1	1.5

Notes:

1. Manganese exceeds secondary MCL due to one well measured significantly higher manganese levels than others. Water will be required to be treated at the WTP if this is the only well being recovered.
2. Iron slightly exceeds the secondary MCL due to high concentrations of iron in raw CVP water. Iron was ND in groundwater through sampling.
3. Secondary MCLs.
4. Arsenic and Zinc were not modeled in the NF model by Hydranautics. The blended calculations assumed no removal of arsenic or zinc through NF.
5. Boron concentrations in the sampled well are highly variable. If water is only recovered from the high boron wells, the blending ratio should be maintained below 25% to avoid exceeding the boron NL.
6. Notification Level. No primary or secondary MCL exists.
7. District's water quality goals based on latest master plan

The results of the blending analysis suggests that there are no regulated constituents exceeding their respective primary MCLs. Some constituents exceed the secondary MCLs, RLs and NLs at maximum blended concentrations. Based on the assumed blended water quality, it is likely that the recovered water may not need to be treated at the WTP before it is sent to the distribution system except during scenarios where water may be recovered from specific wells. Only wellhead disinfection may be required in most operating scenarios. However, since the native groundwater concentrations are variable (especially in hardness), a conservative approach would be to assume that all water recovered from the wells would be sent through the WTP. Even with this assumption, only the NF membranes would be utilized with a high level of bypass. It is unlikely that the water would be routed through the MF membranes.

Additionally, in consistence with the District's historical records, boron is likely to exceed its NL if the blending ratio exceeds 25% (native groundwater to injection water) since sampled boron levels exceed the NL in all wells sampled. Hence, the blending level in the water should be monitored and ensured that it does not exceed 25% to avoid NL exceedance. This needs be monitored on a well-by-well basis as the boron concentrations are highly variable. Additionally, this blending level can be increased if the background boron levels in the distribution system is low, thereby allowing the ASR water to be blended in distribution. This is an operational strategy that the District can use based on the ratio of ASR water in the distribution system under various operating conditions.

3.4.2.4 Recovered Water Treatment

Figure 3-4 demonstrates the process schematic for extracted water treatment. Depending on the actual water quality, up to 100% of the extracted ASR recovery water may bypass the MF process and up to 100% of MF-treated water can bypass the NF process to meet the District's hardness and TDS goals. Concentrate from MF is settled onsite and the liquid is diverted to the back of the head of the plant to minimize loss. NF concentrate, with more concentrated rejects, is delivered to the Hollister Conduit for blending as described in Section 3.4.3.

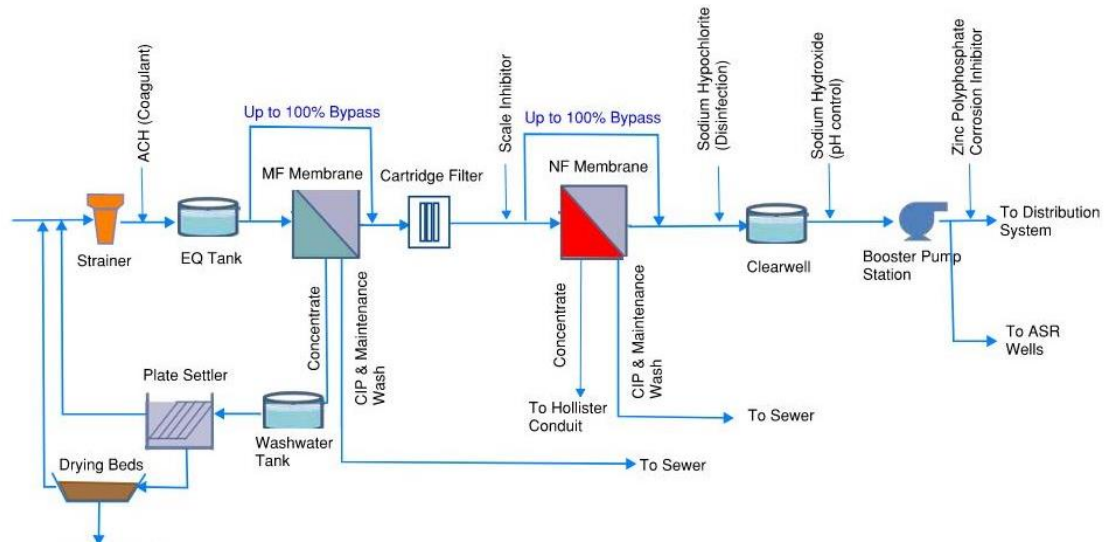


Figure 3-4. WTP Process Flow Diagram for Treatment after Recovery

3.4.3 Concentrate Management

Several concentrate management options available such as beneficial reuse for irrigation, recirculating back to the Hollister Conduit, and discharge to municipal sewer and recycled water system were considered due to favorable source water quality and comparatively concentrate volume. Other options such as deep well injection, evaporation ponds and zero-liquid discharge were not considered due to prohibitive cost and/or permitting requirements.

At 50% bypass ratio during raw CVP water treatment and 77% permeate recovery rate, modelled with IMSDesign, the volume of NF concentrate from treating 6,000 AFY of raw CVP water is approximately 0.61 MGD, or 700 AFY.² This quantity is significantly less than the average Hollister Conduit flowrate, which ranges between 15,000 AFY to 20,000 AFY during a wet year when the water would be available for injection. As shown in Table 3-6, pumping the concentrate back to the Hollister Conduit results in almost no changes in the Conduit's water quality. Blending calculations assumed that the NF concentrate is blended with 15,000 AFY of raw CVP water.

Table 3-6. Blended Concentrate Quality

Item	Unit	Concentrate	Raw CVP	Blended
Manganese	mg/L	0.31	0.08	0.08
Iron	mg/L	0.26	0.07	0.07
Arsenic	ug/L	4.98	2.49	2.50
Barium	mg/L	0.3	0.07	0.07
Zinc	mg/L	0.36	0.18	0.18
Boron	mg/L	0.4	0.2	0.2
Chloride	mg/L	239	83	83.7
Sodium	mg/L	115	58	58.5

² Concentrate volume is calculated by 6,000 AFY x 50% x (1-77%) = 0.613 MGD.

Sulfate	mg/L	153.6	38	38.5
Color	-	-	-	-
TDS	mg/L	1.073	300	304
Hardness	mg/L	422	109	110
TOC	mg/L	6.3	3.2	3.2

Comparatively, options such as irrigation reuse and discharge to local sewer are more sensitive to concentrate quality and have higher permitting requirements. High boron levels will impact crop growths and high chloride and sulfate concentrations may negatively contribute to the wastewater treatment plant's discharge monitoring and recycled water program³. Therefore, after discussions with the District, recirculating the concentrate back to the Hollister Conduit is determined to be the optimal solution to manage the NF concentrate to reduce cost and minimize water loss. The concentrate stream will be pumped back to a Hollister Conduit branch equal to or greater than 33-inch for sufficient blending.

3.5 Phased Facility Plan

The overall ASR program will be developed through a pilot program followed by two phases to reach full-scale operations, to refine operation procedures, control risks, and develop the program in reasonable increments that are consistent with the projected growth in water demands for the region. The operation of each of the facilities in the three phases depends on the year being either a wet, dry or normal precipitation year.

The initial pilot phase of the ASR facilities will consist of one ASR well and piping and provides an opportunity for piloting and demonstration. Operation for the various phases will depend on the type of rainfall year. During a wet year (shown in Figure 3-5), treated water from distribution system will be used for pilot testing injection at one well and the well will be operated to gather recovery water quality and other operation data. Phase I will add four wells, a 2.5 MGD treatment plant and pipeline to convey water among wells, the WTP and the distribution system. This phase provides capacity to utilize approximately half of the excess CVP water available to the District. Phase II provides full program capacity by completing the remaining six wells and expanding the WTP's capacity to 5.5 MGD to process 6,000 AFY of excess CVP water.

³ The Master Reclamation Requirements for the Domestic Water Recycling Facility state that the annual average limits of sodium, chloride and sulfate are 250, 280 and 250 mg/L, respectively.

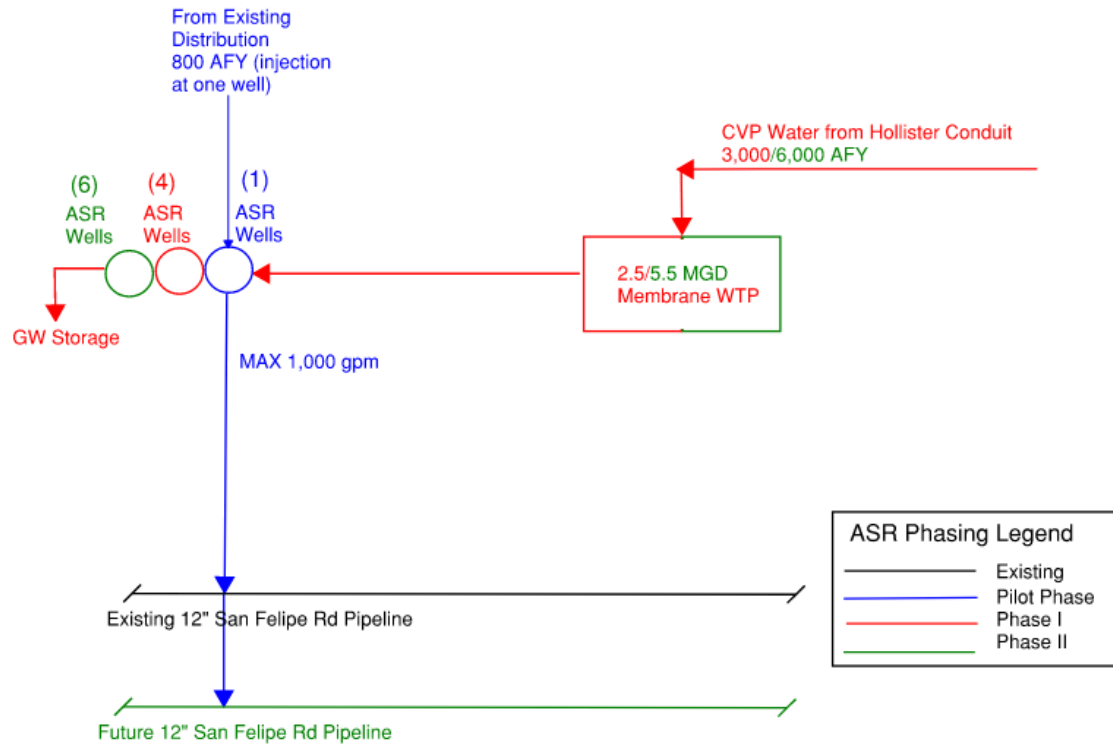


Figure 3-5. Phased ASR Operation during Wet Year

During a normal year (shown in Figure 3-6), there will be no injection activities as there is unlikely excess water, but approximately 3,000 AFY of available CVP water can be treated at the WTP and pumped directly to the distribution system to maximize use of the proposed facilities. The District has the option to purchase water from public or private spot market on a as-needed basis for injection as well, to further bolster local groundwater recharge and storage for future dry years.

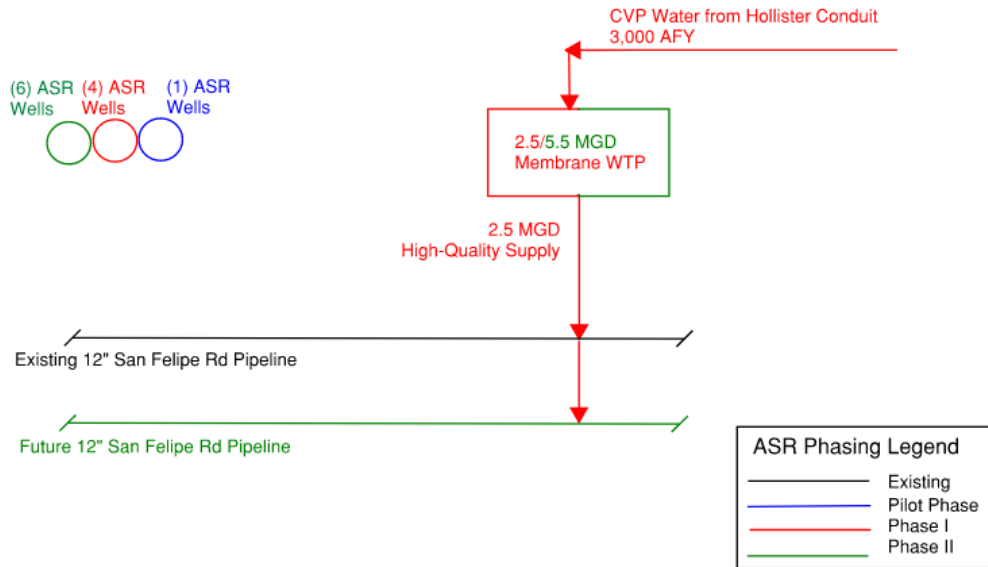


Figure 3-6. Phased ASR Operation during Normal Year

During dry years (shown in Figure 3-7), up to 6,000 AFY will be extracted from the injection wells and NAGW Phase 2 wells and treated at the WTP before being sent to the distribution system.

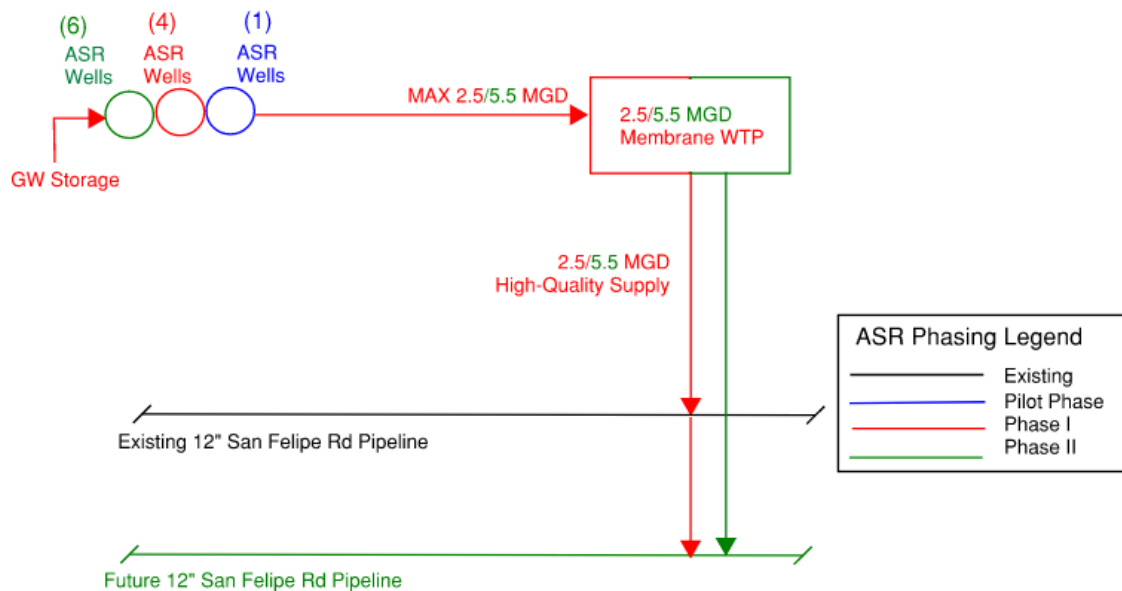


Figure 3-7. Phased ASR Operation during Dry Year

Figure 3-8, Figure 3-9, Figure 3-10 illustrate the facilities required during each phase of the ASR program.

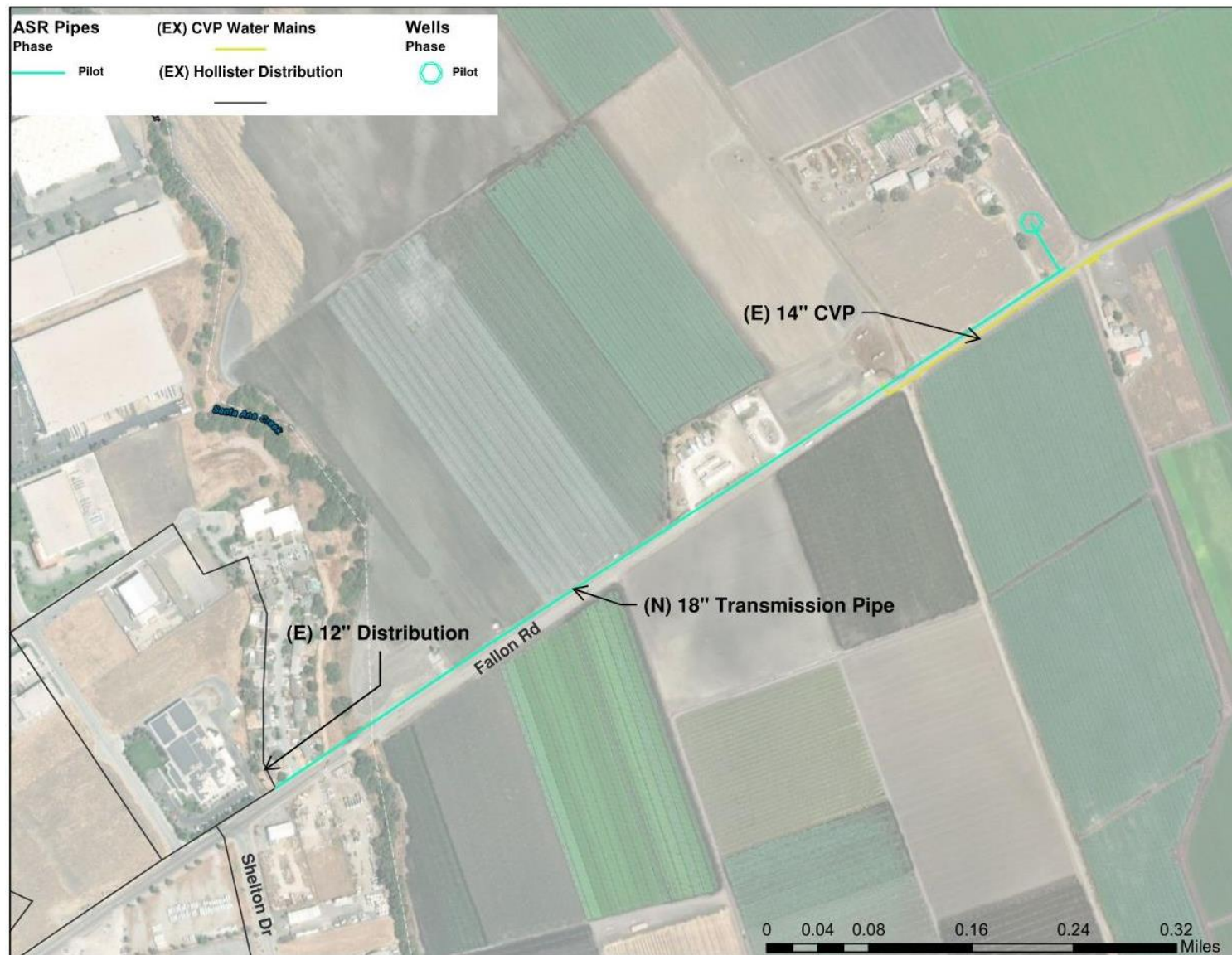


Figure 3-8. Pilot Phase Site Layout of ASR Program

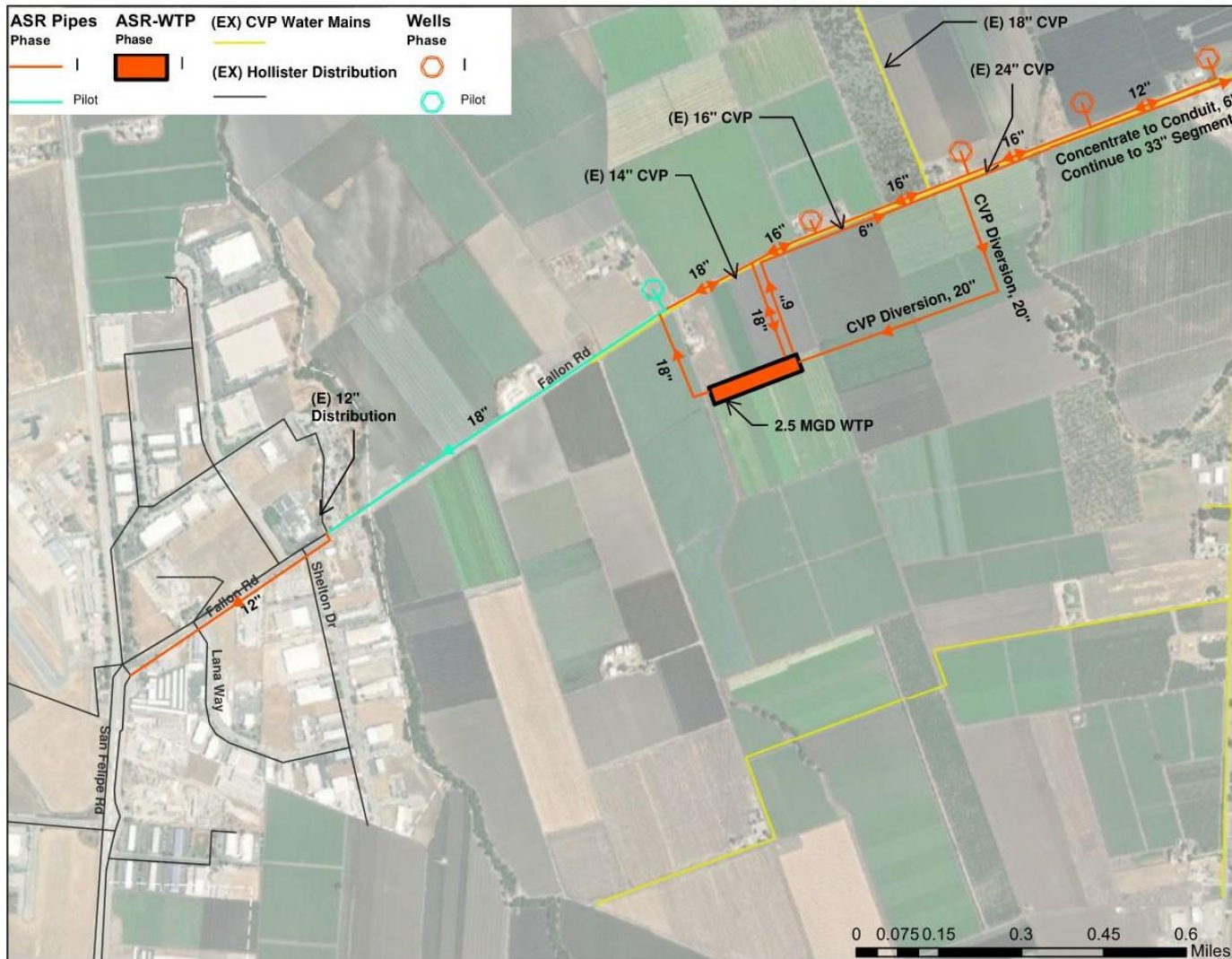


Figure 3-9. Phase I Site Layout of ASR Program

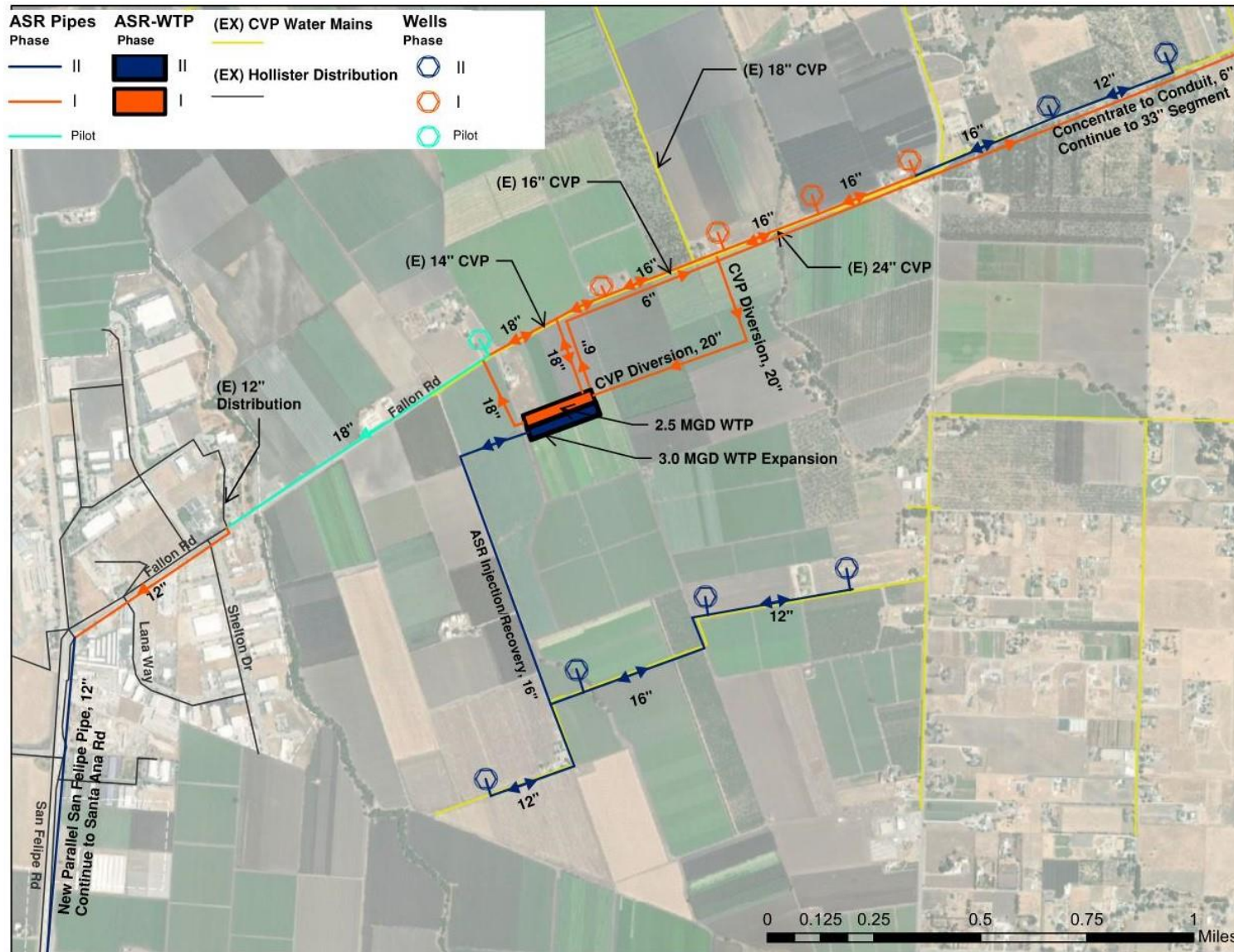


Figure 3-10. Phase II of ASR Program

3.5.1 Design Criteria

Table 3-7 summarizes the design criteria of major ASR facilities by phase and facility type.

Table 3-7. ASR Facilities Design Criteria

Parameter	Unit	Pilot Phase	Phase I	Phase II
Injection Wells				
Total Number	-	1	5	11
Max Injection Capacity (Each)	GPM	500	500	500
Max Total Capacity	AF	800	3000	6,000
Water Treatment Plant				
Total Flowrate	MGD	-	2.5	5.5
Total MF Membrane Capacity	MGD	-	2.5	5.5
Total NF Membrane Capacity	MGD	-	1.3	3.0
CVP Conveyance Pipeline				
Diameter	Inches	-	20	-
Length	Miles	-	0.60	-
Wellfield Transmission Pipelines				
Diameter	Inches	-	16-18	12-16
Length	Miles	-	1.28	3.30
Distribution Transmission Pipelines				
Diameter	Inches	18	12	12
Length	Miles	0.75	0.45	2
Concentrate Pipeline				
Diameter	Inches	-	6	
Length	Miles	-	1.8	

4 MAR Facilities

MAR is the use of water to recharge aquifers for environmental benefit such as replenishing overdraft basins or fending seawater intrusion. MAR allows for groundwater storage when excess water is available and improves groundwater quality in the aquifer by improving long-term salt balance. MAR can be achieved with different operations including infiltration ponds, drains and ASR. In this report, MAR refers to recharge methods using injection wells. The key different between MAR and ASR is that MAR does not allow for near-term recovery.

4.1 Well Capacity and Sizing

Hydrogeological modeling performed by Todd Groundwater identified suitable well locations that are identified in Section 2. The modelled maximum infiltration capacity is 500 gpm per well at 75% duty cycle for a total capacity of 6,000 AFY from 11 wells. These wells have been located at an area that has yet to recover from historical overdraft and away from streams or creeks to maximize recharging of the basin. In addition, the location allows capturing of the high-quality injection water by downstream wells.

4.2 Pipeline

The MAR wells will be placed upstream of the groundwater flow direction to existing production wells, so that water quality at these production wells may be potentially improved by the injection. A dedicated pipe network is required from the WTPs to the wells to ensure that only excess CVP surface water is injected at the MAR wells. Use of existing distribution piping may allow groundwater used for water supply to the distribution system to be recycled back for MAR injection. A new raw water supply pipeline is also required to the new WTP.

- **WTP to Well Pipes** – Runs of pipes that connect the WHWTP and a new WTP to the MAR wells.
- **CVP Diversion Pipeline** – A 16-inch pipeline conveying excess CVP water to the new WTP.

Figure 4-1 illustrates the overall MAR program layout.

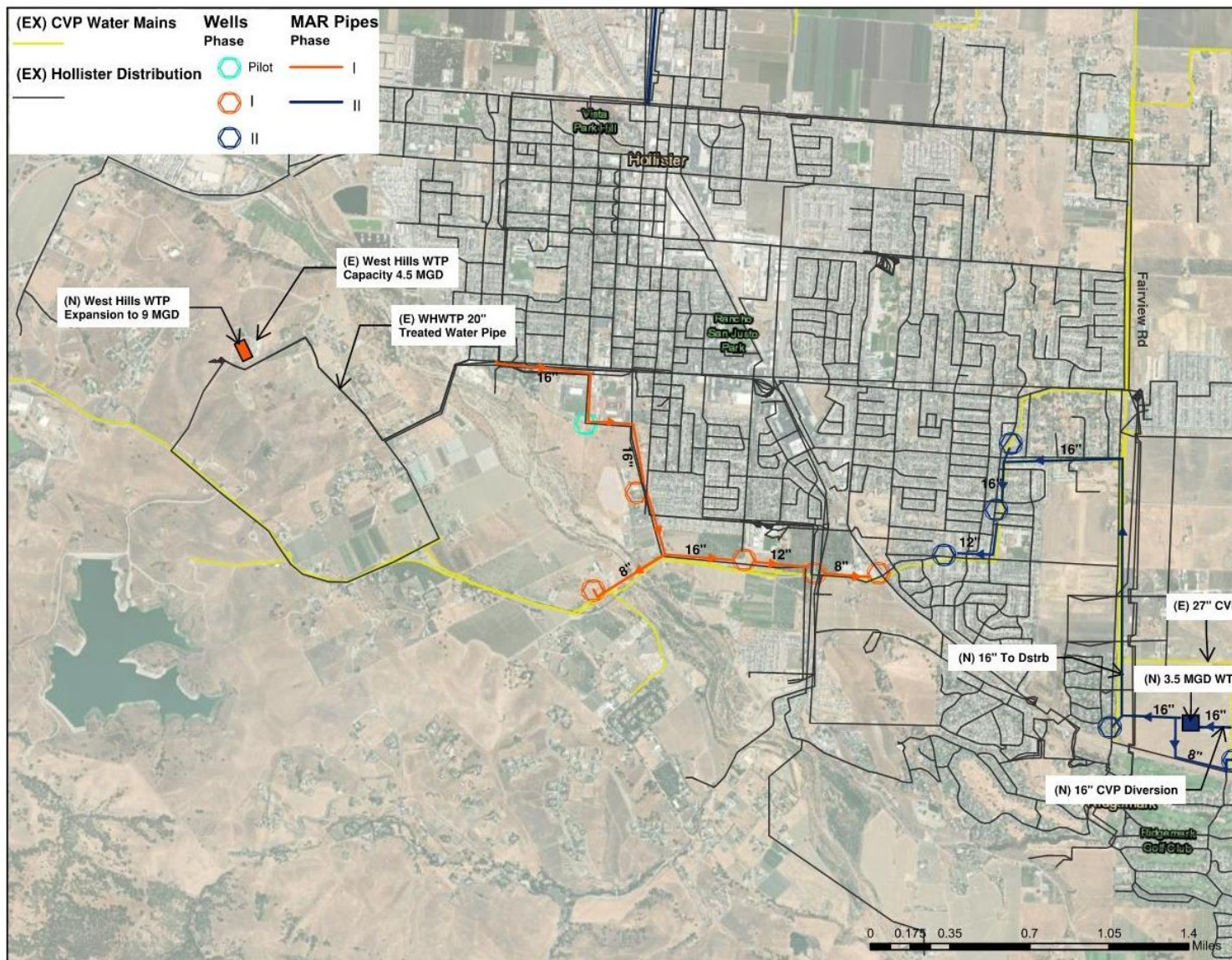


Figure 4-1. Phased MAR Program Site Layout

4.3 Water Treatment

As discussed in Section 3.3, treatment prior to injection is required by the RWQCB regardless of the intended use such as subsequent recovery or basin recharge. Thus, the MAR program also requires treatment processes as part of the program components. Since the MAR wells do not need to treat recovered water, it is feasible to treat excess CVP supply by expanding an existing treatment facility. It is recommended to expand the WHWTP by 4.5 MGD for Phase I MAR water supply. Since the WHWTP has buildout capacity of 9 MGD, a new WTP similar to WHWTP is required to meet Phase II treatment demand.

4.4 Phased Facility Plan

Similar to the ASR program, the MAR program will benefit in operation and permitting development by program phasing. Different than the ASR program, the MAR program only has one operation scenario which is injection, therefore, can only be implemented during a wet year when excess CVP water is available. The phased operation plan is presented in Figure 4-2.

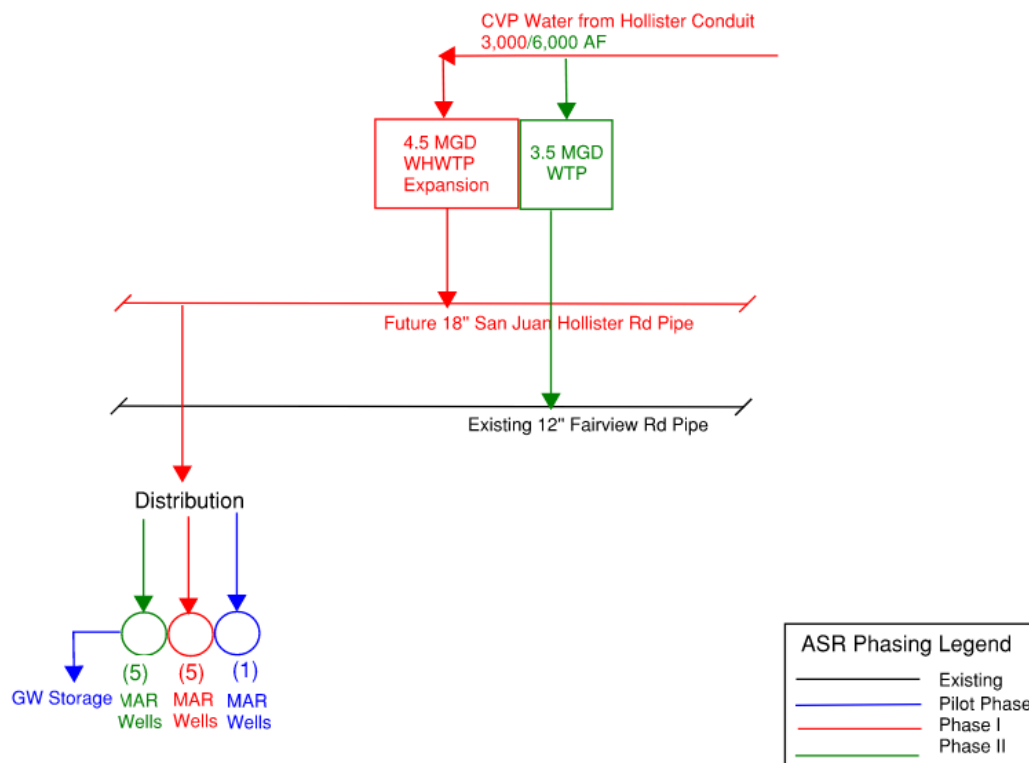


Figure 4-2. Phased MAR Operation

The pilot phase of the MAR program directs up to 800 AFY (500 gpm) distribution water to demonstrate the infiltration operation. Phase I requires treatment of 3,000 AFY of excess CVP water at the WHWTP and adds another five infiltration wells. Phase II requires treatment of the entire 6,000 AFY of excess CVP water and adds another five infiltration wells. At Phase II, the demand for treatment will exceed WHWTP's 9 MGD

capacity as the plant is also planned to supply high-quality water to meet future demands and water quality goals in the service area. Table 4-1 summarizes the sizing of the additional treatment capacity required for the MAR program at the end of Phase II. The 2017 Master Plan Update (HDR, 2017) identified the WHWTP needs to be expanded to 6.75 MGD starting in 2025 and 9 MGD in 2030 to meet future demands and blending goals. However, if the MAR program is carried forward, it would be more economical to expand WHWTP to 9 MGD before 2030. Based on the updated demand projection completed in 2021, by 2035, approximately 1MGD of excess CVP water needs to be treated outside of the WHWTP; and by 2045, approximately 3.5 MGD need to be treated at a new WTP. Therefore, it is recommended that the new WTP be planned for 3.5 MGD capacity to account for supply and blending demands beyond 2035.

Table 4-1. Additional MAR Treatment Required in Three Phases

		2023 (Pilot Phase)	2028 (End of Phase I)	2035 (End of Phase II)
1	Planned WHWTP Capacity per 2017 Master Plan Update (mgd)	4.5	9	9
2	WHWTP Current Production ¹ (mgd)	2.25	2.25	2.25
3	Demand for Additional High-Quality Water per 2022 Master Plan Update ² (mgd)	0.1	0.9	2.3
4	Demand for excess CVP Treatment ³ (mgd)	-	2.5	5.5
5	Additional Treatment Capacity Required (mgd)	-	-	1.05

Notes:

1. WHWTP was constructed at 4.5 mgd capacity but is currently only operating at 2.25 MGD due to water availability.
2. The 2017 Master Plan Update is currently being reviewed and updated. The latest estimate need for additional high-quality water required for supply and blending goals (based on hardness goal of 180 mg/L) are used in this calculation.
3. WHWTP's capacity will be prioritized for future demand and blending supply over the MAR program.

4.4.1 Design Criteria

Table 4-2 summarizes the design criteria of major MAR facilities by phase and facility type.

Table 4-2. MAR Facilities Design Criteria

Parameter	Unit	Pilot Phase Capacity	Total Phase I Capacity	Total Phase II Capacity
Injection Wells				
Total Number	-	1	6	11
Max Injection Capacity (Each)	GPM	500	500	500
Max Total Capacity	AF	800	3000	6,000
Water Treatment Plant (New or Expansion)				
WTP Capacity	MGD	-	4.5 ⁽¹⁾	3.5 ⁽¹⁾
WTP-to-Well Pipes				
Diameter	Inches	-	8-16	8-16
Length	Miles	-	2.6	3
CVP Diversion Pipeline				
Diameter	Inches			16
Length	Miles			0.2

Notes:

1. Phase I will expand the WHWTP to 9mgd from 4.5 mgd capacity. Phase III will build a new WTP with process similar to the WHWTP's on the east side of the service area.



5 Alternative Evaluation

5.1 Evaluation Criteria

The ASR and MAR alternatives were evaluated based on the following criteria:

- Increases ability to use CVP allocation - Alternatives will be evaluated based on their ability for beneficial use or storage of an additional 6,000 AF of CVP allocations available in wet years.
- Increases overall water supply – This criterion evaluates the ability to increase total water supply available to the District.
- Increases dry year reliability - This criterion is defined as contributing to a diverse portfolio of water supply sources with the ability to provide sustained yield during extended dry periods. Projects that provide new water supply and/or have the potential to provide carryover storage from wet years would meet this criterion. The goal is to meet 2035 demands in 3 consecutive dry years in combination with existing supplies and demand management measures.
- Improve Groundwater Basin Health – The proposed alternative should improve the overall groundwater levels, especially in historically depleted area. It should also improve water quality by improving long-term salt balance in groundwater.
- Minimizes cost – Capital costs were developed for each of the alternatives and were evaluated to determine the more cost-effective option.

5.2 Economic evaluation

The total capital cost for the ASR and MAR alternatives are provided under Table 5-1 and Table 5-2.

Table 5-1. ASR Facilities OPCC

	Pilot Phase OPCC	Phase I OPCC	Phase II OPCC	Total ASR Facilities Cost
New Water Treatment Plant	\$0	\$9,300,000	\$6,700,000	\$16,000,000
ASR Wells Development	\$1,630,000	\$6,010,000	\$9,020,000	\$16,660,000
Transmission and Distribution Pipeline	\$870,000	\$2,400,000	\$4,060,000	\$7,330,000
Concentrate Management	\$0	\$1,050,000	\$0	\$1,050,000
Subtotal Construction Cost	\$2,500,000	\$18,760,000	\$19,780,000	\$41,040,000
Mobilization, Bonds, and Insurance (6%)	\$150,000	\$1,125,600	\$1,186,800	\$2,462,400

Contractor OH&P (12%)	\$300,000	\$2,251,200	\$2,373,600	\$4,924,800
General Conditions (6%)	\$150,000	\$1,125,600	\$1,186,800	\$2,462,400
Subtotal	\$3,100,000	\$23,300,000	\$24,600,000	\$51,000,000
Contingency (30%)	\$930,000	\$6,990,000	\$7,380,000	\$15,300,000
Total Construction Cost	\$4,030,000	\$30,290,000	\$31,980,000	\$66,300,000
Planning, Design, ESDC, and CM (35%)	\$1,209,000	\$9,087,000	\$9,600,000	\$19,896,000
Total Capital Cost Estimate	\$5,300,000	\$39,400,000	\$41,600,000	\$86,300,000
High End of Range (+50%)	\$7,950,000	\$59,100,000	\$62,400,000	\$129,450,000
Low End of Range (-25%)	\$3,975,000	\$29,550,000	\$31,200,000	\$64,725,000

- (1) All costs are in \$2021 and are not escalated to the midpoint of construction.
- (2) Costs are referenced to the Engineering News Record (ENR) 2021 San Francisco construction cost index of 13110 from February 2021.
- (3) High and low end of OPCC range is based on AACE Class 5 level estimate.

Table 5-2. MAR Facilities OPCC

	Pilot Phase OPCC	Phase I OPCC	Phase II OPCC	Total MAR Facilities Cost
New Water Treatment Plant	\$0	\$0	\$9,800,000	\$9,800,000
MAR Wells Development	\$1,180,000	\$5,670,000	\$5,670,000	\$12,520,000
Transmission and Distribution Pipeline	\$250,000	\$2,340,000	\$2,760,000	\$5,350,000
WHWTP Expansion (4.5 to 9 MGD)	\$0	\$10,484,100	\$0	\$10,484,100
Subtotal Construction Cost	\$1,430,000	\$18,500,000	\$18,230,000	\$38,160,000
Mobilization, Bonds, and Insurance (6%)	\$85,800	\$1,110,000	\$1,093,800	\$2,289,600
Contractor OH&P (12%)	\$171,600	\$2,220,000	\$2,187,600	\$4,579,200
General Conditions (6%)	\$85,800	\$1,110,000	\$1,093,800	\$2,289,600
Subtotal	\$1,773,200	\$23,000,000	\$22,700,000	\$47,473,200
Contingency (30%)	\$532,000	\$6,900,000	\$6,810,000	\$14,242,000
Total Construction Cost	\$2,305,200	\$29,900,000	\$29,510,000	\$61,715,200
Planning, Design, ESDC, and CM (35%)	\$692,000	\$8,970,000	\$8,860,000	\$18,522,000
Total Capital Cost Estimate	\$3,000,000	\$38,900,000	\$38,400,000	\$80,300,000
High End of Range (+50%)	\$4,500,000	\$58,350,000	\$57,600,000	\$120,450,000
Low End of Range (-25%)	\$2,250,000	\$29,175,000	\$28,800,000	\$60,225,000

- (1) All costs are in \$2021 and are not escalated to the midpoint of construction.
- (2) Costs are referenced to the Engineering News Record (ENR) 2021 San Francisco construction cost index of 13110 from February 2021.
- (3) High and low end of OPCC range is based on AACE Class 5 level estimate.

The OPCC is provided as a range to align with a Class 5 level estimate as defined by the Association for Advancement of Cost Engineering (AACE), detailed in Appendix C. AACE prescribes a Class 5 range for planning level studies used for long term capital planning and budget approval that have a 0% to 2% level project definition. This estimate does not account for unknowns in site conditions, project requirements and changing market conditions, amongst other unknowns. Changing market conditions are especially of concern currently during the COVID-19 pandemic. During this period, substantial material prices increase in primary materials such as wood, steel and concrete, copper, and PVC, along with labor shortages and pre-existing tariffs have produced a volatile situation for owners as general contractors are factoring in uncertainties in their bid estimates.

Considering the current market conditions, it is recommended to retain a higher than usual contingency and assume that capital costs would be closer to the high end of the estimate range rather than the mid-range estimate. It is also recommended that

additional evaluation of the ASR alternative be performed and a more detailed OPCC developed before the costs are used for budgetary purposes since the costs developed for this report were developed for comparative evaluation of alternatives.

5.3 Summary Comparison of Alternatives

- **Maximize CVP Water Use** - Both the ASR and MAR alternatives provide the District with the ability to utilize excess CVP water available or bank on cheap water available in the spot market during wet years. The ASR facilities help the District to maximize the excess CVP water available as the water used for injection is exclusively CVP water. However, if the MAR wells extract injection water from the distribution network as originally planned, a portion of groundwater from the municipal wells may be recycled back into the aquifer as the source water for MAR treatment is drawn from the distribution system which has a combination of treated surface water and groundwater. This will reduce the capacity of the wells to maximize CVP water use.
- **Increase Water Supply** - The facilities planned for both alternatives provide the alternatives with the ability to utilize up to 6,000 AF of CVP water when available. However, due to the nature of MAR wells where the stored water is not recovered from the MAR wells, the MAR option does not provide the District with the ability to increase their overall water supply in a measurable way. The water stored using the MAR wells migrates in the groundwater basin and is recovered in the long term through agricultural and municipal wells in the region but is not available on a short to mid-term basis to augment water supply needs.
- **Increased Dry Year Reliability** - ASR wells and facilities provide the District with the ability to provide sustained yields during extended dry periods. The design of the ASR facilities will allow the District to recover up to 6,000 AF across 2 to 3 years, or within a year during critically dry years. However, the MAR water injected may not be available immediately during dry years following a wet year and normal year cycle. With ASR, while high quality treated water is lost due to water migration and blending of treated water and native groundwater, the migration is expected to happen over a long period of time and not significantly affect water quality during a 5 to 6 years wet-normal-dry year cycle.
- **Improve Groundwater Basin Health** - MAR facilities provide the most benefit to the overall groundwater basin health. The wells lead to increased groundwater levels, especially for the areas of the aquifer that are historically overdrawn and improve the water quality for municipal and agricultural which in the region which typically have high hardness, TDS and mineral concentrations. While ASR wells provide some basin recharge benefits, the benefits are lower than the MAR alternative. While a portion of the high quality, treated water is expected to migrate into the basin, majority of the water is expected to be recovered for use in dry years.
- **Minimizes Capital Cost** - The MAR facilities have a total capital cost of \$80,300,000 and the ASR facilities have a total cost of \$86,300,000. While the ASR alternative has a higher cost, it provides the District the ability and flexibility to obtain high quality water when needed. With MAR wells, while the capital

spent on treating CVP water is useful to recharge the basin, the benefit of spending capital on water treatment is not realized due to the lack of the ability to recover the water.

Based on the discussion in this section, the ASR program is recommended as the preferred water supply and groundwater recharge alternative. While the MAR alternative is not recommended for increasing water supply, it is recommended that the District consider using MAR wells as a sustainable groundwater management option for long term groundwater recharge.

6 Implementation Plan

This section describes the phasing, next steps, schedule, environmental considerations and financing requirements for the project.

6.1 Phasing

Based on the evaluation of alternatives under Section 5, ASR is the recommended alternative. The recommended phasing approach to implement the facility plan is summarized again in this section:

- Pilot Phase (2022) – Develop a pilot well in the north area that will inject water supplied from the distribution system. Install pipe to connect the ASR well to the distribution system. The total capital cost of the facilities required for this phase is \$5.3 million. The next steps towards Phase I are described under Section 6.2.
- Phase I – Implement Phase I of ASR that adds four injection/recovery wells, a new water treatment plant and associated pipelines to obtain up to 3,000 AFY of ASR capacity. The total capital cost of the facilities required for this phase is \$39.4 million.
- Phase II – Implement Phase II of ASR that adds up to an additional 2,200 AFY capacity. Expand the water treatment plant capacity, add six injection/recovery wells and associated pipelines. The total capital cost of the facilities required for this phase is \$41.6 million.

6.2 ASR Pilot Program

The next step for the ASR program consists of implementing the pilot phase of the program that involves development of a pilot program and design of facilities required for the pilot program. Preliminary design of pilot facilities is the immediate next step to finalize well location and pipeline alignment, refine design criteria and sizing, identify land requirements, and update cost estimate. Following completion of the preliminary design, additional engineering will include the design, permitting, construction management and startup of the pilot facilities. Once the pilot well has been constructed, the demonstration period will compile information on the following:

- Performance, injection and production testing of the pilot well.
- Assessment of aquifer response to injection.
- Evaluation of well plugging during injection.
- Determination of well backflushing rates and well recovery from backflushing.
- Determination of recovery efficiency.
- Water quality analysis.
- Collect geological information from cuttings.

- Creating of a geochemical and transport model. Confirmation of this model from test data.
- Refine water treatment processes based on water quality testing and geochemical modeling.

Upon completing the hydrological and geochemical analysis, the expected water quality and treatment process should be re-evaluated. Current conditions and assumptions point to good water quality in both CVP raw water and the ASR recovery water. If this remains true in the pilot study, a different treatment process of MF followed by a non-NF TOC removal option, such as via activated carbon, should be considered. Once favorable results are obtained from the wells, the next steps would be to implement Phase II of the program.

6.3 Environmental Compliance and Permitting

6.3.1 Pilot Phase

6.3.1.1 CEQA

Because the level of environmental review required by the California Environmental Quality Act (CEQA) is not yet defined, the recommended approach is to prepare a screening-level initial study to justify and support a general “common sense” categorical exemption. Initial work will involve completion of a high-level analysis to determine if there is potential for this phase to result in a significant impact to the environment. Through this process, it will be validated if the project qualifies for a categorical exemption per CEQA and if so, a Notice of Exemption will be prepared to environmentally clear the project.

There are a couple of portions of the transmission pipeline that would impact the categorical exemption process. The design of these portions of the pipeline should be based on obtaining the categorical exemption to not require a more detailed permitting approach and delay the project implementation. For example, the pipeline crossing at Santa Ana Creek should be designed to be supported under the Fallon Road bridge or use trenchless construction methods to not impact the creek. Similarly, the crossing of the drainage ditch at the intersection of Fallon Road and Scagliotti Road should be trenchless and avoid an open-cut of the ditch.

6.3.1.2 RWQCB

The ASR pilot project requires a permit with the RWQCB. A notice of intent (NOI) and Form 200 related to the General Information for Water Discharge Requirements is required for the pilot well operation. The State Water Board’s ASR General Order (order No. 2012-0010) allows for a pilot well exemption from CEQA with a notice of categorical exemption (CE). If well backflush or recharge water is required to be discharged to the stormwater system, a stormwater Permit and Drinking Water System Discharge Permits are also required for discharges from the pilot well into the storm drain system.

6.3.2 Phases I and II

The following environmental compliance and permitting efforts have been identified as a minimum for the ASR program. Additional permitting requirements will be identified before commencement of Phase II of the program.

- CEQA – The pipeline, wells and WTP will be required to comply with CEQA. A programmatic permit approach is recommended to include both Phases I and II.
- National Environmental Policy Act (NEPA) – Compliance with NEPA and the provisions of the Warren Act are required to make connections to the Hollister Conduit, which is a federal facility.
- RWQCB – A permit is required from the RWQCB for treated water injection into the aquifer.
- Department of Drinking Water (DDW) – A DDW permit is required for potable water treated at the WTP before it enters the distribution system.

Appendix A. IMSDesign Model Results

Permeate Blending, Permeate pressure

Project name	San Benito ASR	1/3
Client Name	HDR/Sifang	Permeate flow/train 0.42 mgd
Calculated by	Shannon Lopez	Total plant product flow 2.91 mgd
HP pump flow	378.47 gpm	Number of trains 3.00
Feed pressure	45.6 psi	Raw water flow/train 1.10 mgd
Feed temperature	21.9 °C(71.4°F)	Permeate recovery 77.00 %
Feed Water pH	7.73	Blended flow 0.97 mgd
Chemical dose, mg/l, -	None	Membrane age 0.0 years
Pumping specific energy	0.53 kWh/kgal	Flux decline %, per year 7.0 %
Pass NDP	22.3 psi	Fouling factor 1.00
Average flux	8.3 gfd	SP increase, per year 7.0 %
		Inter-stage pipe loss 3.000 psi
		Feed type Brackish Surface
		Pretreatment MF/UF

Pass-Stage	Perm. Flow	Flow / Vessel Feed	Conc	Flux gfd	DP psi	Flux Max	Beta	Perm. psi	Stagewise Pressure Boost pressure	Conc psi	Perm. TDS mg/l	Membrane Type	Membrane Quantity	PV# x Elem #
1-1	204.7	31.6	14.5	8.8	8.3	11.0	1.12	15.0	0.0	37.3	75.7	ESNA1-LF2-LD	84	12 x 7M
1-2	87.0	29.0	14.5	7.5	7.5	9.4	1.10	5.0	0.0	26.8	158.1	ESNA1-LF2-LD	42	6 x 7M

Ion (mg/l)	Raw Water	Feed Water	Permeate Water	Concentrate 1	Concentrate 2	Blended Water
Hardness, as CaCO3	109.20	109.20	15.851	224.3	421.9	68.78
Ca	22.37	22.37	4.062	45.2	83.7	14.44
Mg	13.00	13.00	1.390	27.1	51.9	7.97
Na	57.75	57.75	26.581	101.6	162.2	44.25
K	3.29	3.29	2.142	5.1	7.1	2.79
Ba	0.070	0.070	0.010	0.1	0.3	0.04
Fe+2	updated conc. is 0.07mg/L 0.07	0.350 0.07	0.350 0.07	0.063 0.013	0.708 0.262	0.230 0.046
Mn+2	updated conc. is 0.08mg/L 0.08	0.230 0.08	0.230 0.07	0.042 0.146	0.5 0.313	0.15 0.052
CO3	0.34	0.34	0.018	1.4	5.0	0.20
HCO3	103.85	103.85	25.467	203.2	362.6	69.96
SO4	37.63	37.63	2.998	79.4	153.6	22.63
Cl	83.13	83.13	36.567	147.9	239.1	62.97
F	0.09	0.09	0.078	0.1	0.1	0.08
NO3	1.78	1.78	0.843	3.1	4.9	1.37
*TOC (SR % = 93.00)	1.60	1.60	0.204	3.3	6.3	1.00
B	updated conc. is 0.2mg/L 0.2	0.05 0.2	0.050 0.2	0.1 0.4	0.1 0.4	0.05 0.2
CO2	3.00	3.00	3.00	3.00	3.00	3.00
NH3	0.00	0.00	0.00	0.00	0.00	0.00
TDS	323.93	323.93	100.31	615.61	1072.70	227.16
pH	7.73	7.73	7.14	8.01	8.25	7.56

Saturations	Raw Water	Feed Water	Permeate Water	Concentrate	Limits
CaSO4 / ksp * 100, %	1	1	0	3	400
SrSO4 / ksp * 100, %	0	0	0	0	1200
BaSO4 / ksp * 100, %	201	201	8	1074	10000
SiO2 Saturation, %	0	0	0	0	140
CaF2 / ksp * 100, %	0	0	0	0	50000
Ca3(PO4)2 saturation index	0.0	0.0	0.0	0.0	2.4
CCPP, mg/l	-3.52	-3.52	-5.67	49.66	850
Langelier index	-0.59	-0.59	-2.48	0.99	2.8
Ionic strength	0.01	0.01	0	0.03	
Osmotic pressure, psi	2.9	2.9	1.0	9.2	
TDS / Osmotic pressure mg/l.psi	110.9	110.9	98.7	115.5	

Permeate Blending, Permeate pressure

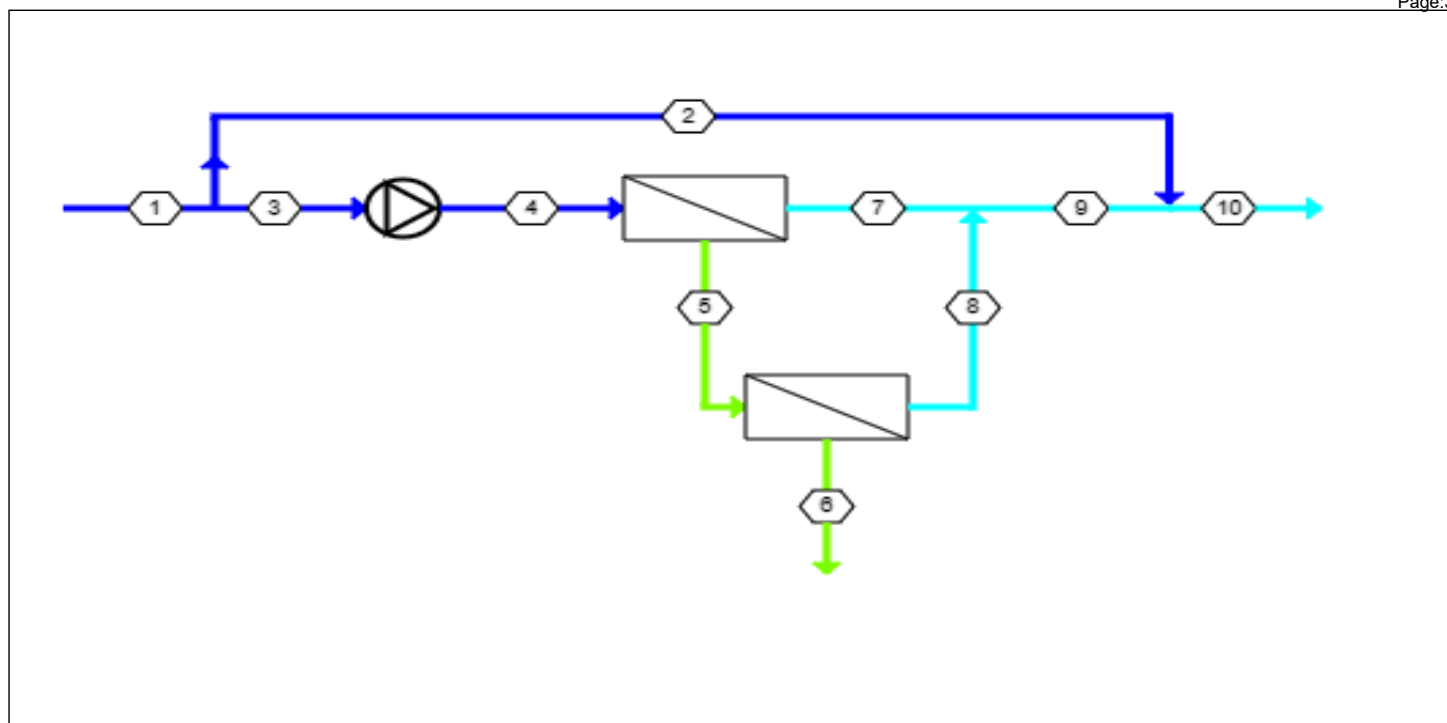
Project name	San Benito ASR	2/3
Client Name	HDR/Sifang	Permeate flow/train 0.42 mgd
Calculated by	Shannon Lopez	Total plant product flow 2.91 mgd
HP pump flow	378.47 gpm	Number of trains 3.00
Feed pressure	45.6 psi	Raw water flow/train 1.10 mgd
Feed temperature	21.9 °C(71.4°F)	Permeate recovery 77.00 %
Feed Water pH	7.73	Blended flow 0.97 mgd
Chemical dose, mg/l, -	None	Membrane age 0.0 years
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		Pretreatment MF/UF

Pass-Stage	Perm. Flow	Flow / Vessel Feed	Conc	Flux gfd	DP psi	Flux Max	Beta	Perm. psi	Stagewise Pressure Boost pressure	Conc psi	Perm. TDS	Membrane Type	Membrane Quantity	PV# x Elem #
1-1	204.7	31.6	14.5	8.8	8.3	11.0	1.12	15.0	0.0	37.3	75.7	ESNA1-LF2-LD	84	12 x 7M
1-2	87.0	29.0	14.5	7.5	7.5	9.4	1.10	5.0	0.0	26.8	158.1	ESNA1-LF2-LD	42	6 x 7M

Pass-Stage	membrane no.	Feed Pressure	Pressure Drop	Conc Osmotic pressure	NDP	Permeate Water Flow	Flux	Recovery	Beta	TDS	Permeate (Passwise cumulative)			
		psi	psi	psi	psi	gpm	gfd	(%)		mg/l	Econd (@ 25.0 °C)	Ca	Na	Cl
1-1	1	45.6	1.79	3.2	28.7	3.1	11.0	9.7	1.09	46.1	85.5	1.708	12.685	17.271
1-1	2	43.8	1.54	3.4	25.2	2.7	9.7	9.4	1.09	51.3	95.0	1.910	14.084	19.187
1-1	3	42.3	1.33	3.7	23.8	2.5	9.1	9.8	1.10	55.7	103.2	2.087	15.264	20.809
1-1	4	41.0	1.15	4.1	22.4	2.4	8.6	10.3	1.10	60.2	111.4	2.271	16.452	22.445
1-1	5	39.8	0.98	4.4	21.1	2.3	8.1	10.8	1.11	65.0	120.2	2.468	17.699	24.168
1-1	6	38.8	0.82	4.9	20.0	2.1	7.7	11.4	1.12	70.1	129.5	2.686	19.032	26.014
1-1	7	38.0	0.69	5.4	18.9	2.0	7.2	12.2	1.12	75.7	139.8	2.928	20.475	28.016
1-2	1	34.3	1.58	5.8	24.4	2.6	9.4	9.0	1.09	77.4	142.8	3.009	20.888	28.598
1-2	2	32.7	1.38	6.3	22.6	2.4	8.6	9.1	1.09	79.8	147.1	3.118	21.482	29.430
1-2	3	31.4	1.20	6.8	20.8	2.2	8.0	9.2	1.09	82.8	152.6	3.255	22.233	30.479
1-2	4	30.2	1.04	7.3	19.3	2.0	7.4	9.4	1.09	86.4	159.0	3.417	23.125	31.726
1-2	5	29.1	0.90	7.9	17.8	1.9	6.8	9.6	1.10	90.5	166.5	3.605	24.149	33.159
1-2	6	28.2	0.77	8.5	16.4	1.7	6.3	9.8	1.10	95.1	174.8	3.819	25.301	34.772
1-2	7	27.5	0.66	9.2	15.1	1.6	5.8	9.9	1.10	100.3	184.2	4.062	26.579	36.563

Permeate Blending, Permeate pressure

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Stream No.	Flow (gpm)	Pressure (psi)	TDS (mg/l)	Hardness as CaCO3	Cl	NO3
1	760	0	324	109	83.1	1.78
2	382	0	324	109	83.1	1.78
3	378	0	324	109	83.1	1.78
4	378	45.6	324	109	83.1	1.78
5	174	37.3	616	224	148	3.11
6	87.1	26.8	1073	422	239	4.92
7	205	15.0	75.7	11.4	28.0	0.651932
8	87.0	5.00	158	26.4	56.7	1.29
9	292	5.00	100	15.9	36.6	0.843312
10	674	5.00	227	68.8	63.0	1.37

Product performance calculations are based on nominal element performance when operated on a feed water of acceptable quality. The results shown on the printouts produced by this program are estimates of product performance. No guarantee of product or system performance is expressed or implied unless provided in a separate warranty statement signed by an authorized Hydranautics representative. Calculations for chemical consumption are provided for convenience and are based on various assumptions concerning water quality and composition. As the actual amount of chemical needed for pH adjustment is feedwater dependent and not membrane dependent, Hydranautics does not warrant chemical consumption. If a product or system warranty is required, please contact your Hydranautics representative. Non-standard or extended warranties may result in different pricing than previously quoted.

Appendix B. Water Quality Analysis

Notes:

1. All "ND" results are assigned a numerical value of zero for purpose of data manipulation
2. Average and 95th% calculations are only based on non-zero data points. i.e. if 1 of our 4 measurements is "ND", average and 95th percentile values are calculated based on the other three non-zero values.

ANALYTE	Units	ASR GW Data					ASR GW Summary					Raw CVP Water		MCL	Criteria RL	NL
		3128	3121	3357	3123	3127	# of Samples	# of ND	Avg	Min	Max	Avg	95th			
Bicarbonate Alkalinity as CaCO3	mg/L	340	310	250	300	330	5	0	306.00	250.00	340.00	85.125	96.9	NA		
Boron, dissolved	ug/L	4100	1900	1500	4200	2500	5	0	2840.00	1500.00	4200.00	200		NA	10,000.00	1000.0
Carbonate Alkalinity as CaCO3	mg/L	0	0	0	0	0	5	5		0.00	0.00			NA		
Chloride	mg/L	180	130	130	340	150	5	0	186.00	130.00	340.00	83.125	88	500.00		
Color	CU	0	0	0	0	0	5	5		0.00	0.00	12.5	24.75	15.00		
Fluoride	mg/L	0.41	0.32	0.21	0	0.46	5	1	0.35	0.00	0.46	0.091	0.11	2.00		
Hydroxide Alkalinity as CaCO3	mg/L	0	0	0	0	0	5	5		0.00	0.00			NA		
Nitrate as N	mg/L	0.82	3.7	3.1	1.2	0.27	5	0	1.82	0.27	3.70	0.385	0.5015	10.00		
Sulfate as SO4	mg/L	120	220	190	65	150	5	0	149.00	65.00	220.00	37.625	42.25	500.00		
Sulfide	mg/L	0	0	0	0	0	5	5		0.00	0.00			NA		
Total Alkalinity as CaCO3	mg/L	340	310	250	300	330	5	0	306.00	250.00	340.00	85.125	96.9	NA		
Total Coliforms	MPN/100mL	0	0	0	0	1	5	4	1.00	0.00	1.00			NA		
Total Dissolved Solids	mg/L	920	940	850	1100	880	5	0	938.00	850.00	1100.00	288.75	306.5	500.00		
Turbidity	NTU	0.1	0.1	0	0	0.6	5	1	0.20	0.00	0.60	1.49	2.61	5.00		
Calcium, dissolved	mg/L	33	47	39	42	41	5	0	40.40	33.00	47.00	22.38	23	NA		
Silica (SiO2)	mg/L	27	18	0	33	0	3	0	26.00	18.00	33.00			NA		
Chromium, hexavalent	ug/L	5	11	0	11	0	3	0	9.00	5.00	11.00			NA		
Carbon disulfide	ug/L	0	0	0	0	0	3	3		0.00	0.00			NA	1600.0	160.0
Hardness, Total	mg/L	271	336	259	209	300	5	0	275.00	209.00	336.00	110	120	NA		
Ammonia as NH3	mg/L	0	0	0	0	0	3	3		0.00	0.00			NA		
Phosphorus, total	mg/L	0.095	0.079	0	0.2	0	3	0	0.12	0.08	0.20			NA		
Aluminum, dissolved	mg/L	0	0	0	0	0	5	5		0.00	0.00	0.21	0.22	0.20		
Antimony, dissolved	ug/L	0	0	0	0.52	0	5	4	0.52	0.00	0.52			6.00		
Arsenic, dissolved	ug/L	7.2	4.9	4.4	14	7.7	5	0	7.64	4.40	14.00	2.49	3.22	10.00		
Barium, dissolved	ug/L	62	41	34	180	65	5	0	76.40	34.00	180.00	70	70	1000.00		
Beryllium, dissolved	ug/L	0	0	0	0	0	5	5		0.00	0.00			4.00		
Cadmium, dissolved	ug/L	0	0	0	0	0	5	5		0.00	0.00			5.00		
Chromium, dissolved	ug/L	6.8	12	3	0	0	5	2	7.27	0.00	12.00			50.00		
Cobalt	ug/L	0	0	0	1.8	0	3	2	1.80	0.00	1.80			NA		
Copper, dissolved	ug/L	2	24	5.7	3.6	3	5	0	7.66	2.00	24.00	53.23	95.1	1000.00		
Iron, dissolved	mg/L	0	0	0	0	0	5	5		0.00	0.00	0.064	0.118	0.30		
Lead, dissolved	ug/L	0	0.3	0	0	0	5	4	0.30	0.00	0.30	10.33	20.57	15.00		
Magnesium, dissolved	mg/L	46	53	39	25	48	5	0	42.20	25.00	53.00	13	14	NA		
Manganese, dissolved	mg/L	0	0	0	0.05	0.43	5	3	0.24	0.00	0.43	0.083	0.184	0.05	5.0	0.5
Mercury, dissolved	ug/L	0	0	0	0	0	5	5		0.00	0.00			2.00		
Nickel, dissolved	ug/L	0.77	1.2	1.5	0.87	7.1	5	0	2.29	0.77	7.10	1.5	14	100.00		
Potassium, dissolved	mg/L	2.4	3.2	2.6	3.3	2.9	5	0	2.88	2.40	3.30	3.29	3.47	NA		
Selenium, dissolved	ug/L	0	5.4	2.7	0	0	5	3	4.05	0.00	5.40			50.00		
Silver, dissolved	ug/L	0	0	0	0	0	5	5		0.00	0.00			100.00		
Sodium, dissolved	mg/L	210	180	170	320	190	5	0	214.00	170.00	320.00	5.75	61	NA		
Thallium, dissolved	ug/L	0	0	0	0	0	5	5		0.00	0.00			2.00		
Vanadium, dissolved	ug/L	7.3	6.5	5.9	3.2	5.3	5	0	5.64	3.20	7.30			NA	500.0	50.0
Zinc, dissolved	mg/L	0	0.013	0.032	0	0.0079	5	2	0.02	0.00	0.03	0.25	0.39	5.00		
Acetone	ug/L	0	0	0	0	0	3	3		0.00	0.00			NA		
Acrylonitrile	ug/L	0	0	0	0	0	3	3		0.00	0.00			NA		
Benzene	ug/L	0	0	0	0	0	3	3		0.00	0.00			1.00		
Bromobenzene	ug/L	0	0	0	0	0	3	3		0.00	0.00			NA		
Bromochloromethane	ug/L	0	0	0	0	0	3	3		0.00	0.00			NA		
Bromodichloromethane	ug/L	0	0	0	0	0	5	5		0.00	0.00			NA		
Bromofluorobenzene	ug/L	24	24.8	25.6	24.5	23.7	5	0	24.52	23.70	25.60			NA		
Bromoform	ug/L	0	0	0	0	0	5	5		0.00	0.00			NA		
2-Bromopropionic Acid	ug/L	11.7	12.3	14.4	11	12.8	5	0	12.44	11.00	14.40			NA		
Bromomethane	ug/L	0	0	0	0	0	3	3		0.00	0.00			NA		
n-Butylbenzene	ug/L	0	0	0	0	0	3	3		0.00	0.00			NA	2600.000	260.00
sec-Butylbenzene	ug/L	0	0	0	0	0	3	3		0.00	0.00			NA	2600.000	260.00
tert-Butylbenzene	ug/L	0	0	0	0	0	3	3		0.00	0.00			NA	2600.000	260.00
Carbon tetrachloride	ug/L	0	0	0	0	0	3	3		0.00	0.00			0.50		
Chlorobenzene	ug/L	0	0	0	0	0	3	3		0.00	0.00			NA		
Chloroethane	ug/L	0	0	0	0	0	3	3		0.00	0.00			NA		
Chloromethane	ug/L	0	0	0	0	0	3	3		0.00	0.00			NA		
2-Chlorotoluene	ug/L	0	0	0	0	0	3	3		0.00	0.00			NA	1400.000	140.000
4-Chlorotoluene	ug/L	0	0	0	0	0	3	3		0.00	0.00			NA	1400.000	140.000
Dibromomethane	ug/L	0	0	0	0	0	3	3		0.00	0.00			NA		
2,3-Dibromopropionic Acid	ug/L	10	10.4	10.5	10.8	12.1	5	0	10.76	10.00	12.10			NA		
1,2-Dichlorobenzene	ug/L	0	0	0	0	0	3	3		0.00	0.00			600.00		
1,3-Dichlorobenzene	ug/L	0	0	0	0	0	3	3		0.00	0.00			NA		
1,4-Dichlorobenzene	ug/L	0	0	0	0	0	3	3		0.00	0.00			5.00		
Dichlorodifluoromethane	ug/L	0	0	0	0	0	3	3		0.00	0.00			NA	10000.000	1000.000
1,1-Dichloroethane	ug/L	0	0	0	0	0	3	3		0.00	0.00			5.00		
1,2-Dichloroethane	ug/L	0	0	0	0	0	3	3		0.00	0.00			0.50		
1,1-Dichloroethene	ug/L	0	0	0	0	0	3	3		0.00	0.00			NA		
cis-1,2-Dichloroethene	ug/L	0	0	0	0	0	3	3		0.00	0.00			NA		
trans-1,2-Dichloroethene	ug/L	0	0	0	0	0	3	3		0.00	0.00			NA		
1,3-Dichloropropene (total)	ug/L	0	0	0	0	0	3	3		0.00	0.00			0.50		
1,2-Dichloropropane	ug/L	0	0	0	0	0	3	3		0.00	0.00			5.00		
1,3-Dichloropropane	ug/L	0	0	0	0	0	3	3		0.00	0.00			NA		
2,2-Dichloropropane	ug/L	0	0	0	0	0	3	3		0.00	0.00			NA		
1,1-Dichloropropene	ug/L	0	0	0	0	0	3	3		0.00	0.00			NA		
cis-1,3-Dichloropropene	ug/L	0	0	0	0	0	3	3		0.00	0.00			NA		
trans-1,3-Dichloropropene	ug/L	0	0	0	0	0	3	3		0.00	0.00			NA		
Chloroform	ug/L	0	0	0	0	0	5	5		0.00	0.00			NA		
Dibromoacetic Acid	ug/L	0	0	0	0	0	5	5		0.00	0.00			NA		
Dibromochloromethane	ug/L	0	0	0	0	0	5	5		0.00	0.00			NA		
Dibromofluoromethane	ug/L	44	46.9	24.5	47.4	22.5	8	0	23.16	21.20	24.50			NA		
Dichloroacetic Acid	ug/L	0	0	0	0	0	5	5		0.00	0.00			NA		
E. Coli	MPN/100mL	0	0	0	0	0	5	5		0.00	0.00			NA		
MBAS, calculated as LAS, mw 340	mg/L	0	0	0	0	0	5	5		0.00	0.00			0.50		
Molybdenum, dissolved	ug/L	9.4	5.4	5.1	29	8.6	5	0	11.50	5.10	29.00			NA		
Monobromoacetic Acid	ug/L	0	0	0	0	0	5	5		0.00	0.00			NA		
Monochloroacetic Acid	ug/L	0	0	0	0	0	5	5		0.00	0.00			NA		

Perchlorate	ug/L	0	0	0	0	0	5	5	0.00	0.00				NA
Toluene-d8	ug/L	24.2	24.1	23.7	23.8	24.9	5	0	24.14	23.70	24.90			NA
Total Haloacetic Acids (HAA5)	ug/L	0	0	0	0	0	5	5		0.00	0.00			NA
Trichloroacetic Acid	ug/L	0	0	0	0	0	5	5		0.00	0.00			NA
Trihalomethanes (total)	mg/L	0	0	0	0	0	8	8		0.00	0.00		0.08	NA
Ethylbenzene	ug/L	0	0	0	0	0	3	3		0.00	0.00			NA
Hexachlorobutadiene	ug/L	0	0	0	0	0	3	3		0.00	0.00			NA
Isopropylbenzene	ug/L	0	0	0	0	0	3	3		0.00	0.00		7700.000	770.000
p-Isopropyltoluene	ug/L	0	0	0	0	0	3	3		0.00	0.00			NA
Methyl ethyl ketone	ug/L	0	0	0	0	0	3	3		0.00	0.00			NA
Methyl isobutyl ketone	ug/L	0	0	0	0	0	3	3		0.00	0.00		1200.000	120.000
Methyl tert-butyl ether	ug/L	0	0	0	0	0	3	3		0.00	0.00		5.00	
Methylene chloride	ug/L	0	0	0	0	0	3	3		0.00	0.00		5.00	
Naphthalene	ug/L	0	0	0	0	0	3	3		0.00	0.00			NA
n-Propylbenzene	ug/L	0	0	0	0	0	3	3		0.00	0.00		2600.000	260.000
Styrene	ug/L	0	0	0	0	0	3	3		0.00	0.00		100.00	
1,1,1,2-Tetrachloroethane	ug/L	0	0	0	0	0	3	3		0.00	0.00			NA
1,1,2,2-Tetrachloroethane	ug/L	0	0	0	0	0	3	3		0.00	0.00		1.00	
Tetrachloroethene	ug/L	0	0	0	0	0	3	3		0.00	0.00			NA
Toluene	ug/L	0	0	0	0	0	3	3		0.00	0.00		150.00	
1,2,3-Trichlorobenzene	ug/L	0	0	0	0	0	3	3		0.00	0.00			NA
1,2,4-Trichlorobenzene	ug/L	0	0	0	0	0	3	3		0.00	0.00		5.00	
1,1,1-Trichloroethane	ug/L	0	0	0	0	0	3	3		0.00	0.00		200.00	
1,1,2-Trichloroethane	ug/L	0	0	0	0	0	3	3		0.00	0.00		5.00	
Trichloroethene	ug/L	0	0	0	0	0	3	3		0.00	0.00			NA
Trichlorofluoromethane	ug/L	0	0	0	0	0	3	3		0.00	0.00		150.00	
Trichlorotrifluoroethane	ug/L	0	0	0	0	0	3	3		0.00	0.00		1200.00	
1,2,4-Trimethylbenzene	ug/L	0	0	0	0	0	3	3		0.00	0.00			NA
1,3,5-Trimethylbenzene	ug/L	0	0	0	0	0	3	3		0.00	0.00		3300.000	330.000
Vinyl chloride	ug/L	0	0	0	0	0	3	3		0.00	0.00			NA
m,p-Xylene	ug/L	0	0	0	0	0	3	3		0.00	0.00		0.50	
o-Xylene	ug/L	0	0	0	0	0	3	3		0.00	0.00			NA
Xylenes (total)	ug/L	0	0	0	0	0	3	3		0.00	0.00		1750.00	
Total Organic Carbon	mg/L	0	0	0	0	0	3	3		0.00	0.00	3.2		NA
Uranium	pCi/l	1.3	2.9	0	0	0	3	1	2.10	0.00	2.90			20.00
Conductivity	umhos/sec											520	556.5	
Langelier Index	mg/L											-0.51	-0.17	
Nitrate + Nitrite as N	mg-N/L											0.385	0.5015	
Threshold Odor	T.O.N											1	1	
pH												7.73	7.97	
Temperature	C											21.9	22.57	
Dissolved Organic Compounds												2.9		
Bromide	ug/L											280		

Appendix C. Class 5 OPCC

ASR Facility Plan Capital Cost Estimate

Pilot Phase				2.5 MGD Phase I		3 MGD Phase II				
	Unit	Unit Cost	Quantity	Subtotal	Quantity	Subtotal	Quantity	Subtotal	Notes	Full Capacity Total
New Water Treatment Plant (5.5 MGD)				\$0		\$9,300,000		\$6,700,000		\$16,000,000
Influent Flow Control	EA	\$55,000	0	\$0	2	\$110,000	0	\$0		
MF Feed Pumps	EA	\$44,000	0	\$0	2	\$88,000	1.5	\$66,000		
Microfiltration Membranes Skids	MGD	\$517,000	0	\$0	2.5	\$1,292,500	3	\$1,551,000		
Nanofiltration Membrane Skids	MGD	\$815,100	0	\$0	1.3	\$1,059,630	1.5	\$1,222,650	50% Bypass to NF during Injection	
NF Feed Pumps	EA	\$77,000	0	\$0	2	\$154,000	2.4	\$184,800		
Membrane Reject Pumps and Storage Tanks	LS	\$330,000	0	\$0	1	\$330,000	1.2	\$396,000		
Clearwell Steel Tank	EA	\$220,000	0	\$0	1	\$220,000	0	\$0		
Finished Water Pumping Station	LS	\$330,000	0	\$0	1	\$330,000	1.2	\$396,000		
Chemical Processes	LS	\$440,000	0	\$0	1	\$440,000	1	\$440,000		
Solids Drying Beds	LS	\$385,000	0	\$0	1	\$385,000	1	\$385,000		
Plate Settler Sedimentation Basin for Solids	LS	\$220,000	0	\$0	1	\$220,000	1	\$220,000		
Admin/Chemical/Treatment Building	SF	\$220	0	\$0	8000	\$1,760,000	0	\$0		
Sitework and Access Roads	LS	\$220,000	0	\$0	1	\$220,000	1	\$220,000		
Onsite Piping, Valves and Appurtenances	LS	\$880,000	0	\$0	1	\$880,000	0.75	\$660,000		
Electrical	LS	\$1,054,206	0	\$0	1	\$1,054,206	0.5	\$527,103		
Instrumentation and Controls	LS	\$681,024	0	\$0	1	\$681,024	0.5	\$340,512		
Low Head Concentrate Pumps	EA	\$30,000	0	\$0	2	\$60,000	2	\$60,000		
ASR Wells (11 x 500 gpm)				\$1,630,000		\$6,010,000		\$9,020,000		\$16,660,000
Sitework	LS	\$82,500	2	\$200,000	4	\$330,000	6	\$495,000	1 Wellsite	
Deep Well with 12" Casing	VLF	\$660	800	\$528,000	3200	\$2,112,000	4800	\$3,168,000	800' Depth for Each Well	
ASR Well Pumps	EA	\$77,000	1	\$77,000	4	\$308,000	6	\$462,000		
ASR Well Pump VFD	EA	\$33,000	1	\$33,000	4	\$132,000	6	\$198,000		
Prefabricated Enclosure	LS	\$180,000	1	\$180,000	4	\$720,000	6	\$1,080,000		
Down-Hole Control Valve	EA	\$110,000	1	\$110,000	4	\$440,000	6	\$660,000		
Electrical	LS	\$611,353	0.3	\$183,406	1	\$611,353	1.50	\$917,029	3% of Civil and Mechanical	
Instrumentation	LS	\$475,569	0.2	\$95,114	1	\$475,569	1.50	\$713,353	2% of Civil and Mechanical	
Onsite Piping, Valves and Appurtenances	LS	\$220,000	1	\$220,000	4	\$880,000	6	\$1,320,000		
Transmission and Distribution Pipeline				\$870,000		\$2,400,000		\$4,060,000		\$7,330,000
CVP Diversion Pipe to WTP	FT	\$230	0	\$0	3120	\$717,600	0	\$0	20" HDPE	
Wellfield Transmission Pipe	FT	\$120	0	\$0		\$0	6400	\$768,000	12" HDPE	
Wellfield Transmission Pipe	FT	\$160	0	\$0	4300	\$688,000	11200	\$1,792,000	16" HDPE	
Wellfield Transmission Pipe	FT	\$180	0	\$0	2700	\$486,000	0	\$0	18" HDPE	
Distribution Pipe to Hollister System	FT	\$180	4500	\$810,000	0	\$0	0	\$0	18" HDPE	
Parallel Distribution Pipe along San Felipe Rd	FT	\$120	0	\$0	2386	\$286,320	10605	\$1,272,600	12" HDPE	
Connection to Existing Systems	LS	\$110,000	0.2	\$22,000	1	\$110,000	1	\$110,000		
Misc Valves, Fittings and Appurtenances	LS	\$110,000	0.3	\$33,000	1	\$110,000	1	\$110,000		
Concentrate Management				\$0		\$1,050,000		\$0		\$1,050,000
Concentrate to Hollister Conduit Pipe	FT	\$110	0	\$0	9504	\$1,045,440	0	\$0	6" HDPE	
WHWTP Expansion (4.5 to 9 MGD)				\$0		\$0		\$0		
Site Civil	LS	\$154,000	0	\$0	0	\$0	0	\$0		
Actiflo Carb	LS	\$2,860,000	0	\$0	0	\$0	0	\$0		
Gravity Filters	LS	\$3,025,000	0	\$0	0	\$0	0	\$0		
Clearwell	LS	\$1,650,000	0	\$0	0	\$0	0	\$0		
Chemical Feed/Storage Equipment	LS	\$229,900	0	\$0	0	\$0	0	\$0		

Drying Beds	LS	\$385,000	0	\$0	0	\$0	0	\$0	
Yard Piping	LS	\$435,600	0	\$0	0	\$0	0	\$0	
Electrical	LS	\$1,309,000	0	\$0	0	\$0	0	\$0	
Instrumentation	LS	\$435,600	0	\$0	0	\$0	0	\$0	
Subtotal Capital Cost			\$2,500,000		\$18,760,000		\$19,780,000		\$41,040,000
Contractor OH&P	12%		\$300,000		\$2,251,200		\$2,373,600		\$4,924,800
General Conditions	6%		\$150,000		\$1,125,600		\$1,186,800		\$2,462,400
Mobilization, Bonds & Insurance	6%		\$150,000		\$1,125,600		\$1,186,800		\$2,462,400
Subtotal			\$3,100,000		\$23,300,000		\$24,600,000		\$51,000,000
Contingency	30%		\$930,000		\$6,990,000		\$7,380,000		\$15,300,000
Subtotal w/Contingency			\$4,030,000		\$30,290,000		\$31,980,000		\$66,300,000
Engineering, Permitting, Admin & CM	30%		\$1,209,000		\$9,087,000		\$9,600,000		\$19,896,000
Total Conceptual Capital Cost			\$5,300,000		\$39,400,000		\$41,600,000		\$86,300,000
High End of Range			\$7,950,000		\$59,100,000		\$62,400,000		\$129,450,000
Low End of Range			\$3,975,000		\$29,550,000		\$31,200,000		\$64,725,000

(1) All costs are in \$2021 and do not include inflation or escalation to mid-point of construction.

(2) Capital costs do not include land or right of way acquisition costs.

MAR Facility Plan Capital Cost Estimate

			Pilot Phase		Phase I		Phase II		Notes	Full Capacity Total
	Unit	Unit Cost	Quantity	Subtotal	Quantity	Subtotal	Quantity	Subtotal		
New Water Treatment Plant (3.5 MGD)				\$0		\$0		\$9,800,000		\$9,800,000
Influent Flow Control	EA	\$12,222	0	\$0	0	\$0	3	\$36,667		
Actiflo Carb	LS	\$635,556	0	\$0	0	\$0	3	\$1,906,667		
Gravity Filters	LS	\$672,222	0	\$0	0	\$0	3	\$2,016,667		
Clearwell	LS	\$1,000,000	0	\$0	0	\$0	1	\$1,000,000		
Chemical Feed/Storage Equipment	LS	\$300,000	0	\$0	0	\$0	1	\$300,000		
Drying Beds	LS	\$385,000	0	\$0	0	\$0	1	\$385,000		
Yard Piping	LS	\$500,000	0	\$0	0	\$0	1	\$500,000		
Electrical	LS	\$290,889	0	\$0	0	\$0	1	\$1,129,000		
Instrumentation	LS	\$96,800	0	\$0	0	\$0	1	\$564,500		
Finished Water Pumping Station	LS	\$165,000	0	\$0	0	\$0	1	\$165,000		
Admin/Chemical/Treatment Building	SF	\$220	0	\$0	0	\$0	5000	\$1,100,000		
Sitework and Access Roads	LS	\$500,000	0	\$0	0	\$0	1	\$500,000		
Low Head Concentrate Pumps	EA	\$30,000	0	\$0	0	\$0	1	\$30,000		
Forcemain from WTP to City Collection System	LF	\$94	0	\$0	0	\$0	1775	\$165,963	8" PVC; Concentrate Disposal	
MAR Wells (11 x 500 gpm)				\$1,180,000		\$5,670,000		\$5,670,000		\$12,520,000
Sitework	LS	\$113,438	1	\$113,438	5	\$567,188	5	\$567,188	1 Wellsite	
Deep Well with 12" Casing	VLF	\$660	800	\$528,000	4000	\$2,640,000	4000	\$2,640,000	800' Depth for Each Well	
MAR Well Pumps	EA	\$77,000	0	\$0	0	\$0	0	\$0		
MAR Well Pump VFD	EA	\$33,000	0	\$0	0	\$0	0	\$0		
Prefabricated Enclosure	LS	\$132,000	0	\$0	0	\$0	0	\$0		
Down-Hole Control Valve	EA	\$110,000	1	\$110,000	5	\$550,000	5	\$550,000		
Electrical	LS	\$413,291	0.3	\$123,987	1	\$413,291	1	\$413,291	3% of Civil and Mechanical	
Instrumentation	LS	\$396,362	0.2	\$79,272	1	\$396,362	1	\$396,362	2% of Civil and Mechanical	
Onsite Piping, Valves and Appurtenances	LS	\$220,000	1	\$220,000	5	\$1,100,000	5	\$1,100,000		
Transmission and Distribution Pipeline				\$250,000		\$2,340,000		\$2,760,000		\$5,350,000
CVP Diversion Pipe to WTP	FT	\$160	0	\$0	0	\$0	720	\$115,200	16" HDPE	
WTP to MAR Wells	FT	\$121	200	\$24,200	3320	\$401,720	2650	\$320,650	8" HDPE	
WTP to MAR Wells	FT	\$165	0	\$0	1500	\$247,500	1950	\$321,750	12" HDPE	
WTP to MAR Wells	FT	\$160	0	\$0	9160	\$1,465,600	11115	\$1,778,400	16" HDPE	
Connection to Existing Systems	LS	\$110,000	1.0	\$110,000	1	\$110,000	1	\$110,000		
Misc Valves, Fittings and Appurtenances	LS	\$110,000	1.0	\$110,000	1	\$110,000	1	\$110,000		
WHWTP Expansion (4.5 to 9 MGD)				\$0		\$10,484,100		\$0		\$10,484,100
Site Civil	LS	\$154,000	0	\$0	1	\$154,000	0	\$0		
Actiflo Carb	LS	\$2,860,000	0	\$0	1	\$2,860,000	0	\$0		
Gravity Filters	LS	\$3,025,000	0	\$0	1	\$3,025,000	0	\$0		
Clearwell	LS	\$1,650,000	0	\$0	1	\$1,650,000	0	\$0		
Chemical Feed/Storage Equipment	LS	\$229,900	0	\$0	1	\$229,900	0	\$0		
Drying Beds	LS	\$385,000	0	\$0	1	\$385,000	0	\$0		
Yard Piping	LS	\$435,600	0	\$0	1	\$435,600	0	\$0		
Electrical	LS	\$1,309,000	0	\$0	1	\$1,309,000	0	\$0		
Instrumentation	LS	\$435,600	0	\$0	1	\$435,600	0	\$0		
Subtotal Capital Cost				\$1,430,000		\$18,500,000		\$18,230,000		\$38,160,000
Contractor OH&P	12%			\$171,600		\$2,220,000		\$2,187,600		\$4,579,200
General Conditions	6%			\$85,800		\$1,110,000		\$1,093,800		\$2,289,600
Mobilization, Bonds & Insurance	6%			\$85,800		\$1,110,000		\$1,093,800		\$2,289,600
Subtotal				\$1,773,200		\$23,000,000		\$22,700,000		\$47,473,200
Contingency	30%			\$532,000		\$6,900,000		\$6,810,000		\$14,242,000

Subtotal w/Contingency		\$2,305,200	\$29,900,000	\$29,510,000		\$61,715,200
Engineering, Permitting, Admin & CM	30%	\$692,000	\$8,970,000	\$8,860,000		\$18,522,000
Total Conceptual Capital Cost		\$3,000,000	\$38,900,000	\$38,400,000		\$80,300,000
High End of Range		\$4,500,000	\$58,350,000	\$57,600,000		\$120,450,000
Low End of Range		\$2,250,000	\$29,175,000	\$28,800,000		\$60,225,000

(1) All costs are in \$2020 and do not include inflation or escalation to mid-point of construction.
(2) Capital costs do not include land or right of way acquisition costs.