



Central Coast Regional Water Quality Control Board

February 7, 2022

Sent Via Electronic Mail

Jonathan Lear, Water Resources Division Manager
Monterey Peninsula Water Management District
5 Harris Court, Building G
Monterey, CA 93942
Email: jlear@mpwmd.net

Dear Mr. Lear:

MONTEREY PENINSULA WATER MANAGEMENT DISTRICT AQUIFER STORAGE AND RECOVERY PROGRAM, 1910 AND 2111 GENERAL JIM MOORE BLVD, SEASIDE, MONTEREY COUNTY - NOTICE OF APPLICABILITY, ENROLLMENT IN GENERAL WASTE DISCHARGE REQUIREMENTS ORDER NO. 2012-0010 FOR AQUIFER STORAGE AND RECOVERY PROJECTS. TRANSMITTAL OF MONITORING AND REPORTING PROGRAM NO. R3-2022-0018.

TERMINATION OF PERMIT COVERAGE UNDER GENERAL WAIVER FOR SPECIFIC TYPES OF DISCHARGES (RESOLUTION R3-2019-0089).

Central Coast Regional Water Quality Control Board (Central Coast Water Board) staff reviewed Pueblo Water Resources' October 2021 *Technical Report for Notice of Intent SWRCB Water Quality Order 2012-0010 Monterey Peninsula ASR Project*, submitted on behalf of the Monterey Peninsula Water Management District (MPWMD). MPWMD has submitted annual technical reports for the project pursuant to Section 13267 of the California Water Code and the existing General Waiver for Specific Types of Discharges (Resolution R3-2019-0089) since 2009. According to the information provided, the proposed aquifer storage and recovery (ASR) project meets the conditions of *Water Quality Order 2012-0010, General Waste Discharge Requirements for Aquifer Storage and Recovery Projects that Inject Drinking Water into Groundwater* (General Permit). This letter serves as a notice of applicability for enrollment in the General Permit. This letter serves as a notice of applicability for enrollment in the General Permit. This letter also includes site-specific requirements and facility information (Attachment 1), contains your monitoring and reporting program requirements (Attachment 2), and figures (Attachment 3).

DR. JEAN-PIERRE WOLFF, CHAIR | MATTHEW T. KEELING, EXECUTIVE OFFICER

MPWMD enrollment in the General Waiver for Specific Types of Discharges is terminated, except for enforcement purposes. MPWMD is responsible for compliance with the General Waiver for Specific Types of Discharges prior to the date of this letter.

MPWMD must comply with the following:

1. **General Permit** – MPWMD must comply with all conditions and requirements of the General Permit. As described in the General Permit, ongoing operation, maintenance, monitoring, and reporting are required. A copy of the General Permit is available electronically at the following link:

https://www.waterboards.ca.gov/board_decisions/adopted_orders/water_quality/2012/wqo2012_0010_with%20signed%20mrp.pdf

2. **Monitoring and Reporting Program** – MPWMD must comply with the requirements of Monitoring and Reporting Program R3-2022-0018 (Attachment 2). Per the Monitoring and Reporting Program, you are required to submit quarterly reports. These quarterly reports will be due by the **1st day of the third month after the quarter**. Your first quarterly report for the January-March quarter is due on **June 1, 2022**.

In addition to the quarterly reports, annual reports are required on March 1. Your first annual report is due on **March 1, 2023** and every year afterwards.

MPWMD is required to submit all reports in a searchable PDF format and laboratory data in EDF format electronically via GeoTracker (see Attachment 2 for instructions). Each monitoring report must include the transmittal sheet found at the link below as the cover page.

https://www.waterboards.ca.gov/centralcoast/water_issues/programs/wastewater_permitting/docs/transmittal_sheet.pdf

3. **Fees** – MPWMD paid an application fee on of \$2,625 for coverage in the General Permit on November 20, 2020. The application fee will be prorated according to the notice of applicability's effective date and the remainder will be applied to next year's annual fee.

MPWMD must pay an annual fee to maintain coverage in the General Permit. Annual fees are determined by the State Water Resources Control Board's fee program and cover the state fiscal year of July 1 through June 30. Your current annual fee is \$3,326. A copy of the current state fee schedule is available electronically at the following link:

https://www.waterboards.ca.gov/resources/fees/water_quality/

Your facility currently is assigned a threat and complexity rating of 3C.

4. **Notification** – The Central Coast Water Board will be notified of your enrollment at a regularly scheduled public meeting on April 21-22, 2022. Details about that meeting are available on our website at:

http://www.waterboards.ca.gov/centralcoast/board_info/agendas/

5. **Future Discharge Modification** – Pursuant to California Water Code section 13260, you must inform Central Coast Water Board staff at least 120 days prior to modifying your discharge. If there are any significant changes in either treatment or disposal methodologies, or the volume or character of the treated wastewater, you must notify Central Coast Water Board staff immediately of such changes.
6. **Responsible Party** – MPWMD is responsible for the management and disposal of wastewater in compliance with the conditions of the General Permit. Any noncompliance with this General Permit constitutes a violation of the California Water Code and subjects MPWMD to enforcement action, and/or termination of enrollment in this General Permit.

If you have any questions, please contact **Monique Gaido at (805) 549-3150 or by email at Monique.Gaido@waterboards.ca.gov**, or Jennifer Epp at Jennifer.Epp@waterboards.ca.gov.

Sincerely,

Jennifer Epp Digitally signed by Jennifer Epp
Date: 2022.02.04 16:20:11 -08'00'
Water Boards

for Matthew T. Keeling
Executive Officer

Attachments:

1. Site-specific Requirements and Facility Information
2. Monitoring and Reporting Program No. R3-2022-0018
3. Figures

cc:

Jonathan Lear, MPWMD, jlear@mpwmd.net
Robert Marks, Pueblo Water Resources, rmarks@pueblo-water.com
Chris Cook, California American Water, chris.cook@amwater.com
Sharon Denker, Sharon.denker@waterboards.ca.gov
Monique Gaido, Monique.gaido@waterboards.ca.gov
James Bishop, james.bishop@waterboards.ca.gov
Jennifer Epp, Jennifer.epp@waterboards.ca.gov
WDR Program, RB3-WDR@waterboards.ca.gov

ECM/CIWQS Place = CW-654817

GeoTracker No. = GT-WDR100033662

Rev 7/16/2021

ECM Subject Name = MPWMD – ENROLLMENT IN GENERAL WDR FOR AQUIFER STORAGE AND RECOVERY PROJECTS

R:\RB3\Shared\WDR\WDR Facilities\Monterey Co\ Waived Discharges\MPWMD ASR\ASR General Order enrollment 2021\MPWMD_NOA_ASR_final_signed.docx

ATTACHMENT 1

SITE-SPECIFIC LIMITS, REQUIREMENTS, AND FACILITY INFORMATION

1. PROJECT DESCRIPTION AND FACILITY INFORMATION

- A. The Monterey Peninsula Water Management District (MPWMD) has collaborated with California American Water Company since 1996 on this aquifer storage and recovery (ASR) program. From 1996 to 1999 MPWMD injected water into the Paso Robles Aquifer at the Mission Memorial Cemetery but determined that the Paso Robles Aquifer could not support injection at the scale necessary for the Peninsula. In 2001 MPWMD drilled the Santa Margarita Test Injection Well and began injection into the Santa Margarita Sandstone (see Figure 1). MPWMD owns the Santa Margarita site with two injection wells (ASR-1 and -2) and is responsible for all injection activities. California American Water owns the Seaside Middle School site with two injection wells (ASR-3 and -4) and is responsible for recovering, treating, and supplying water to customers in the service area.

The goal of this project is to continue replenishing local groundwater resources in wet months and reducing groundwater extraction in the Carmel River Valley during dry months. The injectate source water is Carmel River Water extracted and treated to drinking water standards by California American Water, pursuant to the requirements in the State Water Resources Control Board Division of Drinking Water permit. Extraction of Carmel River water is subject to the requirements of the State Water Board Division of Water Rights and can only occur between December 1 and May 31 when hydrologic conditions meet the requirements of the water rights permit. Facility and ownership information are shown in Table 1.

On October 18, 2021, MPWMD submitted the *Technical Report for Notice of Intent. SWRCB Water Quality Order 2012-0010, Monterey Peninsula ASR Project* (Technical Report) describing the history of the ASR project, well construction details, groundwater modeling, injectate water quality, native groundwater quality, and the proposed project plan.

Table 1. Facility and ownership information for the MPWMD aquifer storage and recovery program

Facility Name	Monterey Peninsula Water Management District ASR Program
Owner and Permittee	Monterey Peninsula Water Management District
Facility Physical Address	1910 and 2111 General Jim Moore Blvd, Seaside, CA 93955
Owner of Facility	Monterey Peninsula Water Management District
Operator of Facility	Monterey Peninsula Water Management District
Legally Responsible Official of Owner	Jonathan Lear
Owner Mailing Address	5 Harris Ct, Bldg G, Monterey, CA 93942
Employee Contact for Owner	Jonathan Lear, Facility Operator
Employee Contact Phone	(831) 227-6001
Employee Contact Email	jlear@mpwmd.net

B. ASR Program Schedule: When Carmel River flow rates exceed fisheries bypass flow requirements, California American Water is permitted to divert excess Carmel River water from December 1 until May 31. California American Water treats the water to potable drinking water standards and conveys the water through its distribution system to the ASR wells for injection to the Seaside Groundwater Basin. From June 1 to November 30 the groundwater is recovered when needed to offset dry season water needs.

C. ASR Sampling Schedule: The ASR wells are equipped with dedicated transducers to monitor water levels and flow continuously. During periods of no injection, the MPWMD performs quarterly aquifer monitoring at the offsite Paralta Test Well and PCA-E deep monitoring well and the onsite monitoring wells, SM MW-1 and SMS Deep. During periods of injection, the MPWMD monitors injected water quality at one active injection well, rotating among active wells. During periods of groundwater extraction, recovered groundwater quality is monitored at all of the active ASR wells and the Paralta Well which receives significant volumes of injectate. Sampling schedule and constituents are detailed in the Monitoring and Reporting Program for this project in Attachment 2.

D. Geochemical Sampling and Testing: Disinfection by products and mercury have been detected in groundwater following the injection of

chlorinated water. Common disinfection by products include haloacetic acids and total trihalomethane compounds, both of which are present below Maximum Contaminant Levels (MCLs) in the injectate. Following injection, total trihalomethane compounds and mercury concentrations in groundwater have exceeded the MCL of 2 and 80 micrograms per liter ($\mu\text{g/L}$), respectively. Groundwater data indicate mercury detections are correlated to higher turbidity and the MCL exceedance appears to be an isolated incident. Mercury has been added to the list of sampling constituents for regular testing and MPWMD has developed a testing protocol to respond to any future exceedance of the MCL.

According to the Technical Report, MPWMD concludes that total trihalomethane concentrations often increase in a localized area after injection activities cease, usually reaching a peak concentration between 30 and 90 days after injection and degrading naturally over several months. Since 2004 MPWMD has monitored injection/extraction wells and onsite monitoring wells monthly for disinfection by products following periods of injection to characterize total trihalomethane compounds ingrowth and degradation patterns. Although degradation rates may be variable and appear to favor anoxic or reducing conditions, there is no evidence of persistent or increasing concentrations following this initial period of ingrowth. Total trihalomethane compounds concentrations often remain below MCLs following injection and always show natural degradation following the ingrowth period. MPWMD has studied the conditions for many years and manages the localized short-term events through monitoring such that the situation does not pose a public health threat.

The Division of Drinking Water extraction permit¹ currently regulates extraction from ASR-1 and ASR-3. Applications for ASR-2 and ASR-4 are pending at the time of this notice of applicability adoption. The Division of Drinking Water permit requires two samples for disinfection by products below MCLs seven days apart prior to recovering groundwater into the potable water treatment system. If any constituent is found to exceed MCLs, stored groundwater cannot be recovered for subsequent treatment and reuse until two consecutive samples meet all drinking water MCLs. Sampling and reporting protocols are in place to closely monitor this condition.

¹ Amendment to the Domestic Water Supply Permit Issued to California American Company – Monterey District Public Water System No. 2710004. Original Permit No. 79-007 issued February 9, 1979. Permit Amendment No. 17, effective August 2, 2011. Included as Attachment A of the October 2021 Technical Report.

2. SITE-SPECIFIC REQUIREMENTS AND LIMITS

- A. Injection Rate Limits:** Carmel River diversion permits limit activities to the period starting December 1 and ending May 31 when threshold flows are exceeded. Combined maximum annual injection rates for ASR wells 1 and 2 are 2,426 acre-feet per year (afy). Combined maximum annual injection rates for ASR wells 3 and 4 are 2,900 afy. These limits are based on the engineering report and the water rights agreement.
- B. Groundwater Limitations:** MPWMD must manage the operation to comply with the *Water Quality Control Plan for the Central Coastal Basin*² (Basin Plan). Specifically, MPWMD must comply with section 3.3.4, Objectives for Groundwater, which currently includes:
- i. General objectives for tastes and odors and radioactivity for all groundwaters.
 - ii. Objectives for municipal/domestic supply including organic chemicals, inorganic chemicals, and radio nucleotides, which are established at the drinking water Maximum Contaminant Levels (MCLs) as defined in California Code of Regulations, title 22, division 4, chapter 153.

3. GROUNDWATER BASIN AND AQUIFER TARGET INJECTION ZONE

- A. Groundwater Basin:** Injection will occur into the Seaside Groundwater Basin, basin number 3-4.08 in the Monterey Peninsula Hydrologic Area 309.50, per the numbering convention of the Department of Water Resources.
- B. Aquifer Target Injection Zone:** Treated surface water will be injected into the Seaside Groundwater Basin. The Seaside Groundwater Basin consists of a sedimentary sequence divided into three hydrostratigraphic units which is underlain by the Monterey Shale unit which is not water bearing. The sedimentary sequence consists of the Aromas Sand/Older Dunes, the Paso Robles aquifer, and the underlying Santa Margarita Sandstone aquifer. The target aquifer zone is the Santa Margarita Sandstone aquifer, at 500 to 700 feet below ground surface (bgs), and approximately 300 feet thick. The uppermost Aromas Sand is mostly unsaturated, the Paso Robles aquifer is up to 600 feet thick in some areas but has variable well yields, and the Santa Margarita Sandstone aquifer consists of fine-to-coarse marine sands with high production yields and specific capacity on the order

² The 2019 edition of the Water Quality Control Plan for the Central Coastal Basin can be accessed on the Internet via the following webpage:
https://www.waterboards.ca.gov/centralcoast/publications_forms/publications/basin_plan/docs/2019_basin_plan_r3_complete_webaccess.pdf

of 50 gallons per minute per foot of drawdown.³ Injection/extraction well locations, construction information and proposed injection rates are shown in Table 2. Injection/extraction well locations are shown in Attachment 3, Figure 2.

Historic groundwater elevation data show Seaside Groundwater Basin groundwater flow is to the northwest in non-pumping conditions and a prominent chronic water level depression exists in the project area with groundwater elevations as low as -30 feet above mean sea level. These conditions suggest depletions in storage within the aquifer system.

Table 2. MPWMD proposed injection well location, well depth, screened intervals, and injection rate

Well name	Latitude	Longitude	Well depth (ft)	Screened interval depths (ft)	Injection Rate (GPM)
ASR-1	36.61970	-121.81744	720	480-590, 610-700	1,500
ASR-2	36.62010	-121.81662	790	540-650, 670-770	1,750
ASR-3	36.62346	-121.81700	960	700-780, 800-840, 860-940	1,250
ASR-4	36.62449	-121.81665	1,010	750-830, 860-920, 930-990	1,700

4. INJECTATE WATER QUALITY AND SOURCE

A. Water Treatment: MPWMD’s primary water source is treated surface water from California American Water. MPWMD obtains the treated water from the California American Water’s treatment plant located at the Begonia Iron and Manganese Removal Plant, located on Dorris Drive, in Carmel Valley. Treatment of injectate water to drinking water standards is subject to the requirements of a Division of Drinking Water permit and is the responsibility of the California American Water. Water quality data for

³ Technical Report for Notice of Intent, SWRCB Water Quality Order 2012-0010, Monterey Peninsula ASR Project, October 2021.

California American Water is shown in Table 3.

B. Injectate Water Quality: According to the information provided, all of the treated water quality constituents of concern (as shown in Table 3) meet primary state and federal drinking water standards. The Basin Plan does not designate Basin-specific water quality objectives for the Seaside Groundwater Basin.

5. NATIVE GROUNDWATER QUALITY

Based on sampling conducted before injection activities began in 2001, native groundwater quality at ASR-1 and ASR-3 complies with drinking water standards for all constituents except for total dissolved solids and electrical conductivity. These constituents exceeded the recommended concentrations for drinking water. The Basin Plan does not specify basin-specific water quality objectives for the Seaside Groundwater Basin. Native groundwater quality for select constituents and applicable groundwater limits are shown in Table 3.

Table 3. Groundwater Limitations, Anticipated Injectate Water Quality, and Native Groundwater Quality

Constituent	Units	Groundwater Limitations	Average Injectate Concentration ^a	Native Ground-water ASR-1 ^b	Native Ground-water ASR-3 ^b
Arsenic	µg/L	10 ^c	0.27	ND	4.00
Boron	mg/L	0.75 ^d	ND	0.014	ND
Chloride	mg/L	106 ^e	31.1	120	107
Specific Conductance	µmhos/cm	900 ^f	517	1,015	954
Iron	µg/L	300 ^g	13	120	21
Manganese	µg/L	50 ^g	1.1	40	27
Nitrate as N	mg/L	10 ^c	0.28	ND	1.00
Sodium	mg/L	69 ^e	46	88	102
Sulfate	mg/L	250 ^g	74	95	56
Total Dissolved Solids	mg/L	500 ^g	311	618	575
Haloacetic acids ^h	µg/L	60 ^c	14.6	NT	0.0
Trihalomethanes ⁱ	µg/L	80 ^c	30.5	NT	0.0

µg/L = micrograms per liter
 mg/L = milligrams per liter
 µmhos/cm = micromhos/centimeter
 ND = non-detect
 NT = not tested

- a. California American Water injectate water quality data are reported for sampling conducted at the injection well heads ASR-1 and ASR-3 over the past ten years.
- b. Native groundwater data are reported for ASR-1 and ASR-3 injection well sampling conducted prior to ASR testing activities which began in 2001.
- c. US EPA and California Primary Maximum Contaminant Levels.
- d. Central Coast Basin Plan Table 3-2 Water Quality Objectives for Agricultural Use.
- e. Central Coast Basin Plan Table 3-1. Guidelines for Interpretation of Quality of Water for Irrigation, Specific ion toxicity from foliar absorption.
- f. California Code of Regulations, Title 22, Div 4, Chapter 15, Article 16 Recommended consumer acceptance contaminant levels.
- g. California Code of Regulations, Title 22, Div 4, Chapter 15, Article 16 Secondary Drinking Water Standards.
- h. Haloacetic acids include bromoacetic acid, chloroacetic acid, dibromoacetic acid, dichloroacetic acid, and trichloroacetic acid.
- i. Trihalomethanes include bromodichloromethane, bromoform, chloroform, and dibromochloromethane.

6. GROUNDWATER QUALITY MONITORING WELLS

To verify that injection water is not impairing groundwater quality, MPWMD will monitor groundwater quality at two onsite monitoring wells located in close proximity to the injection wells (near-field wells) and at two offsite wells (far-field wells). Water quality monitoring wells are listed in Table 4. MPWMD will monitor groundwater quality at these locations continuously on a quarterly schedule for field and supplemental constituents. PCA-East is a far-field monitoring well intended to show that injection activities have no effect on outlying areas of the aquifer.

7. AREA OF HYDRAULIC INFLUENCE

- A.** The area of hydrologic influence from injection was evaluated using the calibrated groundwater flow model of the Seaside Groundwater Basin aquifer system developed by Montgomery & Associates for the Pure Water Monterey indirect potable reuse aquifer replenishment project (Attachment 3, Figure 4). The extent of hydrologic influence will depend on the duration, volume, and frequency of injection. Montgomery & Associates used the model to simulate a 33-year period using historical Carmel River flow records from 1987 through 2008. Particle tracking pathlines were developed using the maximum injection volume of 3,020 af (Water Year 2020) and historical Carmel River hydrology from (Water Year 1998).

Model-predicted water-level increases at the end of the simulated injection season range from approximately 10 feet at the western boundary of the basin to approximately 20 feet at the coastline, and up to 50 feet in the

vicinity of the ASR injection wells. All water levels remain below sea level except those near the ASR injection wells. All water levels remain at least 25 feet below ground surface.

Model-predicted travel distances of the injected water shows a maximum distance of 700 feet downgradient from the ASR-1 and ASR-2 sites and a distance approximately 650 feet upgradient of these wells (Attachment 3, Figure 4). Similarly, the maximum predicted travel distance of injected water from the ASR-3 and ASR-4 wells is 720 feet in the downgradient direction and 450 feet in the upgradient direction. The area of hydrologic influence will be monitored using the MPWMD's monitoring wells for groundwater elevations listed in Table 4. The model predicted a large percentage of injected water will be captured by the Paralta well and a small percentage by the Ord Grove well. No other private agricultural, industrial, or domestic water supply wells exist within this area.

- B.** Monterey One Water's Pure Water Monterey Groundwater Replenishment Project injects advanced treated recycled water into the Santa Margarita aquifer via four injection wells that are located approximately 1000 feet upgradient (southeast) of the MPWMD ASR-1 and ASR-2. Pure Water Monterey is regulated by the Central Coast Water Board in coordination with the Division of Drinking Water. Pure Water Monterey currently injects 3,500 acre-feet per year of recycled water and will be increasing injection volume to 4,100 AFY in spring of 2022. Pure Water Monterey plans to further increase the volume of injected recycled water to 5,750 AFY at some point within the next five years.

Due to the variable nature of injection volumes associated with the ASR project, the increase in volume anticipated for Pure Water Monterey, and the interaction between injected Carmel River and recycled water in the aquifer, groundwater gradient and direction, transport rates, and radius of hydraulic influence are expected to be highly variable.

- C.** The State Water Resource Control Board's GeoTracker database was reviewed to confirm that no possible contaminating activities are known in the area of hydraulic influence for this project. The database does not show any site cleanup investigations, spill reports, landfills, or leaking underground storage tanks in the area.

Table 4. Aquifer Monitoring Wells for Groundwater Quality and Elevations

Well Name	Latitude	Longitude	Distance from Injection Well (ft)	Aquifer Zone Completed	Purpose
SM MW-1	36.61984	-121.81719	90 (ASR-1)	Tsm	Elevation & Quality
Paralta Test	36.62155	-121.81783	650 (ASR-2)	Qtp & Tsm	Elevation & Quality
Ord Terrace (shallow)	36.61889	-121.82513	2,550 (ASR-2)	Tsm	Elevation
SMS (Shallow)	36.62351	-121.81697	25 (ASR-3)	QTP	Elevation
SMS (Deep)	36.62351	-121.81706	25 (ASR-3)	Tsm	Elevation & Quality
FO-7 (Shallow)	36.62508	-121.80454	3,700 (ASR-3)	Qtp	Elevation
FO-7 (Deep)	36.62508	-121.80454	3,700 (ASR-3)	Tsm	Elevation
FO-8 (Deep)	36.63629	-121.80181	6,450 (ASR-3)	Tsm	Elevation
FO-9 (deep)	36.63798	-121.82756	6,130 (ASR-3)	Tsm	Elevation
PCA East (Shallow)	36.62556	-121.83796	6,200 (ASR-3)	Qtp	Elevation
PCA East (Deep)	36.62556	-121.83796	6,200 (ASR-3)	Tsm	Elevation & Quality

QTP – Quaternary/Tertiary-age Paso Robles Formation aquifer
 Tsm – Tertiary-age Santa Margarita Sandstone aquifer

**CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL COAST REGION
895 Aerovista Place, Suite 101
San Luis Obispo, California 93401**

**ATTACHMENT 2
MONITORING AND REPORTING PROGRAM NO. R3-2022-0018**

**for
MONTEREY PENINSULA WATER MANAGEMENT DISTRICT'S
AQUIFER STORAGE AND RECOVERY PROJECT
MONTEREY COUNTY**

This Monitoring and Reporting Program (MRP) describes requirements for monitoring an aquifer storage and recovery project operated by the Monterey Peninsula Water Management District (MPWMD). This MRP is issued pursuant to Water Code section 13267. The MPWMD must not implement any changes to this MRP unless and until a revised MRP is issued by the Central Coast Water Quality Control Board (Central Coast Water Board).

1. SUPPLEMENTAL MONITORING AND REPORTING FOR ASR PROJECT

On October 18, 2021, Monterey Peninsula Water Management District submitted the *Technical Report for Notice of Intent, SWRCB Water Quality Order 2012-0010, Monterey Peninsula ASR Project* (Technical Report) which describes a water quality monitoring and reporting program for the ASR program. The Central Coast Water Board has reviewed and approves the proposed sampling and analysis plan submitted by the MPWMD. MPWMD must at all times comply with this monitoring and reporting program and with the Technical Report.

2. SAMPLING AND ANALYSIS

The October 2021 Technical Report included an updated Sampling and Analysis Plan which satisfies the requirements of *Water Quality Order 2012-0010, General Waste Discharge Requirements for Aquifer Storage and Recovery Projects that Inject Drinking Water into Groundwater* (General Permit). Two additional water quality sampling locations were added to the monitoring plan proposed in the Technical Report, namely monitoring wells SM MW-1 and SMS-Deep, as shown below in Table 7.

All samples must be representative of the volume and nature of the injected potable water or matrix of materials sampled. The name of the sampler, sample type (grab or composite), time, date, location, bottle type, and any preservative used for each sample must be recorded on the sample chain of custody form. The chain of custody form must also contain all custody information including date, time, and to whom the samples were relinquished. If composite samples are collected, the basis for sampling (time or flow

weighted) must be approved by the Central Coast Water Board. Unless otherwise specified, quarterly sampling will begin within a week after injection activities commence and coincide with Division of Drinking Water sampling requirements when possible.

Field instruments (such as those used to test pH, dissolved oxygen, and electrical conductivity) may be used provided that they are operated by a State Water Board California Environmental Laboratory Accreditation Program (ELAP) certified laboratory, or each of the following requirements are met:

1. The operator is trained in the proper use of the instrument;
2. The instruments are field calibrated prior to each use;
3. Instruments are serviced and/or calibrated by the manufacturer at the recommended frequency; and
4. Field calibration reports are submitted as described in the “Reporting” section of this MRP.

3. INJECTION/EXTRACTION WELL MONITORING

Injection/extraction wells must be monitored when water is being injected into the aquifer and when water is extracted from the aquifer. Monitoring of the injection wells must include the parameters shown in Table 1. Injection wells to be monitored are shown in Table 2.

Table 1. Injection Well Monitoring

Parameter	Units	Type of Sample	Sampling Frequency
Well Operational Status	N/A	Recorded	Daily
Daily Average Injection Rate	gpd	Meter	Continuous
Injected Water, cumulative total for year to date	ac•ft/yr	Meter	Continuous
Extracted Water, cumulative total for year to date	ac•ft/yr	Meter	Continuous

Parameters must be reported for each well associated with the ASR project.

Injection activity must be recorded daily.

N/A = not applicable

gpd = gallons per day

ac•ft/yr = acre-feet per year

Table 2. Proposed Injection and Extraction Wells to be Monitored

Well Name	State Well ID^a	Latitude	Longitude	Well Depth (feet)	Screened Interval Depth (feet)
ASR-1	15S/1E-23A4	36.61970	-121.81744	720	480-590, 610-700
ASR-2	15S/1E-24D1	36.62010	-121.81662	790	540-650, 670-770
ASR-3	15S/1E-13N3	36.62346	-121.81700	960	700-780, 800-840, 860-940
ASR-4	15S/1E-13M1	36.62449	-121.81665	1,010	750-830, 860-920, 930-990
Paralta^b	15S/1E-14R2	36.62150	-121.81781	820	440-560, 630-810

^a These wells have not been assigned State Well IDs, but MPWMD has followed the State Well ID convention to create these alternate IDs.

^b This well is not an injection well. Groundwater modelling shows the largest percentage of injectate is extracted at this well.

4. INJECTED WATER MONITORING

Injected water quality must be monitored at the wellhead inflow line when water is being injected into the aquifer. Monitoring of the injection wells must include the constituents and frequencies shown in Table 3. When multiple injection wells are active, MPWMD will sample the injectate at one of the active injection locations and rotate sampling among the active injection wells. Because mercury and disinfection byproducts have been observed during and after injection events, mercury, haloacetic acids and total trihalomethanes have been added to the list of testing constituents.

Table 3. Injection Water Monitoring

Constituent/Parameter	Units	Type of Sample	Sampling Frequency ^a
Dissolved Oxygen	mg/L	Meter	Quarterly
ORP	mV	Meter	Quarterly
pH	pH units	Meter	Quarterly
Specific Conductance	µmhos/cm	Meter	Quarterly
Arsenic (dissolved)	µg/L	Grab	Quarterly
Iron (dissolved)	µg/L	Grab	Quarterly
Manganese (dissolved)	µg/L	Grab	Quarterly
Mercury	µg/L	Grab	Quarterly
Nitrate (as Nitrogen)	mg/L	Grab	Quarterly
Total Dissolved Solids	mg/L	Grab	Quarterly
Haloacetic acids	µg/L	Grab	Quarterly
Total Trihalomethanes	µg/L	Grab	Quarterly

^a Injected water sampling is not required for any monitoring period during which injection did not occur. When multiple injection locations are active, only one location must be tested.

mg/ L = milligrams per liter

ORP = oxidation-reduction potential

mV = millivolts

µg/L = micrograms per liter

5. EXTRACTION WELL MONITORING

MPWMD’s injection wells also serve as extraction wells during periods of groundwater recovery. An extraction well must be monitored if either of the following conditions apply:

1. An extraction well was used for injection the previous calendar year
2. An extraction well is pumping a substantial amount of previously injected water

Monitoring of each extraction well must include the constituents and parameters shown in Table 4. After four sampling events consistent with the frequencies described in this MRP, MPWMD may request annual extraction well monitoring.

Table 4. Extraction Well Monitoring

Constituent/Parameter	Units	Type of Sample	Sampling Frequency ^c
Well Activity ^a	N/A	Recorded	Daily
Daily Average Pumping Rate	gpd	Meter	Continuous
Extracted Water/Year ^b	ac•ft/yr	Meter	Continuous
Specific Conductance	µmhos/cm	Meter	Quarterly ^d
pH	pH units	Grab	Quarterly ^d
Arsenic (dissolved)	µg/L	Grab	Quarterly ^d
Iron (dissolved)	µg/L	Grab	Quarterly ^d
Manganese (dissolved)	µg/L	Grab	Quarterly ^d
Mercury	µg/L	Grab	Quarterly ^d
Nitrate (as Nitrogen)	mg/L	Grab	Quarterly ^d
Total Dissolved Solids	mg/L	Grab	Quarterly ^d
Haloacetic acids	µg/L	Grab	Quarterly ^d
Total Trihalomethanes	µg/L	Grab	Quarterly ^d

µmhos/cm = micromhos per centimeter

- ^a - Well Activity must be reported for all wells associated with the ASR project. Injection/extraction activity must be recorded on a daily basis.
- ^b - Extracted Water/Year represents the total amount of water extracted from a well for the calendar year.
- ^c - Extracted water sampling is not required for any quarter during which extraction did not occur.
- ^d - After four quarterly sampling events are completed, regardless of whether they occur in consecutive quarters, MPWMD may request an alternate sampling schedule.

6. AQUIFER MONITORING FOR GROUNDWATER ELEVATIONS

MPWMD proposes to monitor groundwater elevations in the Paso Robles aquifer (QTp) and the Santa Margarita aquifer (Tsm) at the well locations shown in Table 5. Groundwater elevation monitoring parameters are shown in Table 6. Depth to groundwater must be measured to the nearest 0.01 feet and groundwater elevation must be calculated based on the surveyed elevation of the wellhead and the measured depth to groundwater. Elevation must be reported relative to NAVD88.

Table 5. Groundwater Elevation Monitoring Wells

Monitoring Well Name	Latitude	Longitude	Injection Well Name	Distance from Injection Well (ft)	Aquifer Zone
SM MW-1	36.61984	-121.81719	ASR-1	90	Tsm
Paralta Test	36.62155	-121.81783	ASR-2	650	QTp Tsm
Ord Terrace (Shallow)	36.61889	-121.82513	ASR-2	2,550	QTp
SMS (Shallow)	36.62351	-121.81697	ASR-3	25	QTp
SMS (Deep)	36.62351	-121.81706	ASR-3	25	Tsm
FO-7 (Deep)	36.62508	-121.80454	ASR-3	3,700	Tsm
FO-8 (Deep)	36.63629	-121.80181	ASR-3	6,450	Tsm
FO-9 (Deep)	36.63798	-121.82756	ASR-3	6,130	Tsm
PCA East (Deep)	36.62556	-121.83796	ASR-3	6,200	Tsm

QTp – Quaternary/Tertiary-age Paso Robles Formation aquifer
Tsm – Tertiary-age Santa Margarita Sandstone aquifer

Table 6. Groundwater Elevation Monitoring Parameters

Parameter	Units	Type of Sample
Monitoring Well Name	–	Recorded
Groundwater Depth ^a	Feet	Measured
Groundwater Elevation	Feet NAVD88	Calculated
Groundwater Gradient and Direction	Feet/feet	Calculated

^a Depth reported relative to ground surface elevation.

7. GROUNDWATER QUALITY

To verify that injection water isn't impairing groundwater quality, MPWMD will monitor groundwater quality at designated monitoring wells both inside the hydrologic area of influence and outside, based on the groundwater elevation data. The groundwater quality monitoring wells are shown in Table 7. Sampling constituents are listed in Table 8.

All aquifer monitoring samples must be collected using approved EPA methods. Groundwater elevations must be measured to determine injection-related drawup and radius of hydraulic influence for the injection wells as well as regional groundwater gradient and direction of flow. Wells injecting simultaneously may mutually affect water

level changes at any given monitoring well and results will reflect the combined injection of the active wells.

Prior to sampling wells, the groundwater elevations must be measured as described in Table 8 below, and the wells must be purged of at least three well casing volumes until temperature, pH, and electrical conductivity have stabilized. Use of low flow or passive sampling methods that do not require well purging are acceptable if described in the approved Sampling and Analysis Plan. Samples must be filtered using a 0.45-micron filter for dissolved constituents such as metals. Groundwater monitoring must include the constituents and frequencies described in Table 8. Groundwater quality monitoring must be conducted in accordance with this schedule for each quarter that injection has occurred.

As an additional verification that injection water is not impairing local groundwater quality, MPWMD will monitor groundwater quality quarterly during periods of no injection at the Paralta Test Well and the PCA-East Well.

Table 7. Aquifer Monitoring Wells for Groundwater Quality

Monitoring Well Name	Latitude	Longitude	Injection Well Name	Distance from Nearest Injection Well (ft)	Aquifer Zone
SM MW-1	36.61984	-121.81710	ASR-1, ASR-2	90	Tsm
Paralta Test	36.62155	-121.81783	ASR-1, ASR-2	650	QTp Tsm
SMS (Deep)	36.62351	-121.81706	ASR-3, ASR-4	25	Tsm
PCA East (Deep)	36.62556	-121.83796	ASR-3, ASR-4	6,200	Tsm

QTp – Quaternary/Tertiary-age Paso Robles Formation aquifer

Tsm – Tertiary-age Santa Margarita Sandstone aquifer

Table 8. Aquifer Monitoring Parameters and Constituents for Groundwater Quality

Constituent/Parameter	Units	Type of Sample	Sampling Frequency ^a
Groundwater Depth ^b	Feet	Measuring Tape	Quarterly
Groundwater Elevation ^c	Feet NAVD88	Recorded	Quarterly
Specific Conductance	µmhos/cm	Meter	Quarterly
Dissolved Oxygen	mg/L	Meter	Quarterly
ORP	mV	Meter	Quarterly
pH	pH units	Meter	Quarterly
Arsenic	µg/L	Grab	Quarterly
Iron	µg/L	Grab	Quarterly
Manganese	µg/L	Grab	Quarterly
Mercury	µg/L	Grab	Quarterly
Nitrate (as Nitrogen)	mg/L	Grab	Quarterly
Total Dissolved Solids	mg/L	Grab	Quarterly
Haloacetic acids	µg/L	Grab	Quarterly
Trihalomethanes	µg/L	Grab	Quarterly

^a Sampling and reporting shall continue for three quarters after injection activities cease.

^b Groundwater depth shall be measured to the nearest 0.01 foot and reported relative as depth below ground surface.

^c Elevation calculated using measured depth data and reported relative to mean sea level.

8. REPORTING

In reporting monitoring data, MPWMD must arrange the data in tabular form so that the date, sample type (e.g., source water, injection well, extraction well, etc.), and reported analytical result for each sample are readily discernible. The data must be summarized in such a manner to clearly illustrate compliance with the General Permit, notice of applicability, and Basin Plan. The results of any monitoring done more frequently than required at the locations specified in this MRP must be reported in the next scheduled monitoring report.

As required by the California Business and Professions Code sections 6735, 7835, and 7835.1, all groundwater monitoring reports must be prepared under the supervision of a registered professional engineer or geologist and signed by the registered professional.

A letter transmitting monitoring reports must accompany each report. The letter must summarize the numbers and severity of violations found during the reporting period, and actions taken or planned to correct the violations and prevent future violations. The transmittal letter must contain the following penalty of perjury statement and must be signed by the Administrator or the Administrator's authorized agent:

“I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.”

The transmittal letter can be accessed via the following website:

https://www.waterboards.ca.gov/centralcoast/water_issues/programs/wastewater_permiiting/docs/transmittal_sheet.pdf

A. QUARTERLY MONITORING REPORT

The MPWMD must **submit quarterly monitoring reports** for the first year of operation and annually thereafter. The monitoring period and corresponding report due date are described in Table 9. Quarterly monitoring reports must be submitted to the Central Coast Water Board by the **1st day of the third month after the quarter**. Quarterly reporting must occur in accordance with Table 9.

Table 9. Quarterly Reporting Schedule

Report	Monitoring Period	Report Due Date
First Quarter	January 1 to March 31	June 1
Second Quarter	April 1 to June 30	September 1
Third Quarter	July 1 to September 31	December 1
Fourth Quarter	October 1 to December 31	March 1

The quarterly monitoring report must include the following:

1. A discussion of compliance with the general order and a description of any violations.
2. A discussion of the status (dates of injection, extraction, storage, and idle time) for all extraction/injection wells associated with the ASR project.
3. A narrative description of all preparatory, monitoring, sampling, and analytical testing activities for the injection, extraction, and groundwater monitoring. The narrative must be sufficiently detailed to verify compliance with the General Permit, the notice of applicability, this MRP, and the Standard Provisions and Reporting Requirements. The narrative must be supported by field logs for each

monitoring well documenting depth to groundwater; parameters measured before, during, and after purging; method of purging; calculation of casing volume; and total volume of water purged.

4. Calculation of groundwater elevations, an assessment of groundwater flow direction and gradient on the date of measurement, comparison of previous flow direction and gradient data, and discussion of seasonal trends, if any.
5. Calculation of maximum groundwater drawup and maximum hydraulic radius of influence for the injection wells.
6. Results of groundwater monitoring (analytical results tabulated with reporting limits for nondetectable results).
7. A narrative discussion of the analytical results for all groundwater locations monitored including spatial and temporal trends, with reference to summary data tables, graphs, and appended analytical reports (as applicable).
8. A comparison of monitoring data to the groundwater limitations presented in the notice of applicability and an explanation of any violation of those requirements. Any other violation of the General Permit with explanation and corrective action to prevent future violations.
9. Summary data tables of historical and current groundwater elevations and analytical results.
10. A scaled map showing relevant structures and features of the facility, the locations of monitoring wells and any other sampling stations, and groundwater elevation contours referenced to NAVD88.
11. Copies of laboratory analytical report(s) for groundwater monitoring.
12. The Central Coast Water Board executive officer may modify the reporting requirements by issuing a revised MRP at any time.

B. ANNUAL MONITORING REPORT

The annual monitoring report must be submitted to the Central Coast Water Board by **March 1** each year, in accordance with Table 10.

Table 10. Annual Reporting Schedule

Report	Monitoring Period	Report Due Date
Annual Report	January 1 to December 31	March 1

The first year's annual monitoring report must summarize the first four quarters of reporting. Each annual monitoring report after the first year must include all the components that are required of quarterly monitoring reports. In addition, all annual reports must include the following:

1. Water Quality and Public Health Goal Report

The annual water quality report and public health goal report published during the calendar year (if required by the Division of Drinking Water).

2. Data Tables and Graphs

Tabular and graphical summaries of all monitoring data collected during the year.

3. ASR Project Activity

Projected ASR project activity for the next calendar year.

4. Compliance and Performance Discussion

- A discussion of compliance and corrective actions taken, as well as any planned or proposed actions needed to bring the discharge into full compliance with the General Permit and/or the notice of applicability.
- An evaluation of water treatment facilities' performance, including concentration of the main pollutants (boron, chloride, sulfate, etc.) over time, nuisance conditions, system problems, etc.
- An evaluation of treatment.
- Note any changes or upgrades that were made over the past year (or need to be made) to the treatment plant to improve performance.
- Groundwater elevation contour maps and flow directions.

C. ELECTRONIC SUBMITTAL

The MPWMD must submit all requested information electronically in a searchable PDF format using the transmittal sheet found in the link below as the cover page.

https://www.waterboards.ca.gov/centralcoast/water_issues/programs/wastewater_permitting/docs/transmittal_sheet.pdf

MPWMD must submit all reports/documents and laboratory analytical data (e.g., groundwater data) to the State Water Board's GeoTracker, database consistent with applicable Electronic Submittal of Information (ESI) requirements under a Wastewater System-specific global identification number (GeoTracker No. WDR100033662) over the internet at:

http://www.waterboards.ca.gov/ust/electronic_submittal/index.shtml

Table 11 below summarizes the electronic reporting requirements. For general questions, please contact the GeoTracker Help Desk: Geotracker@waterboards.ca.gov.

Staff may request submittal of some documents on paper, particularly drawings or maps that require a large size to be readable, or in other electronic formats where evaluation of data is required.

Table 11. GeoTracker Electronic Submittal Information (ESI) Data Requirements

Electronic Submittal	Description of Action	Action	Frequency
Reports and Documents	Complete copy of all documents including monitoring reports (in searchable PDF format) and any other associated documents related to the facility.	Upload directly to GeoTracker all monitoring reports (in searchable PDF format) and any other associated documents.	On or before the due dates required by this General Permit and for other documents when requested by Central Coast Water Board staff.
Laboratory Data	All analytical data (including geochemical data) in electronic deliverable format (EDF). This includes all water samples collected when monitoring.	Direct your State Certified Laboratory staff to upload all laboratory data directly to GeoTracker.	On or before the due date of the required monitoring report.
Location Data (Geo XY)	Survey and mark all permanent sampling locations (i.e., monitoring wells, drinking water wells, and permanent injection source water sampling locations). These data points are required prior to laboratory data uploads.	Upload the survey data to the GeoTracker Geo_XY file.	Every time a permanent monitoring point is established.
Depth to groundwater	Monitoring wells must have the depth-to-water information reported.	Upload depth-two-water information to the GeoTracker GEO_WELL file.	On or before the due date of the required monitoring report.
Elevation data (Geo Z)	Survey and mark the elevation at the top of the groundwater well casing for all permanent groundwater wells. These points are required prior to depth-two-water data uploads.	Upload the survey data to the GeoTracker GEO_Z file.	One-time, for all groundwater monitoring wells.

Electronic Submittal	Description of Action	Action	Frequency
Geo Map	Site layout, map of facilities, potable water treatment system, and disposal area(s).	Upload the Site layout PDF to the GeoTracker site plan file.	Year one and every five years thereafter and when the facilities are modified.

9. LEGAL REQUIREMENTS

Water Code section 13267 states, in part:

“In conducting an investigation specified in subdivision (a), the regional board may require that any person who has discharged, discharges, or is suspected of having discharged or discharging, or who proposes to discharge waste within its region, or any citizen or domiciliary, or political agency or entity of this state who has discharged, discharges, or is suspected of having discharged or discharging, or who proposes to discharge, waste outside of its region that could affect the quality of waters within its region shall furnish, under penalty of perjury, technical or monitoring program reports which the regional board requires. The burden, including costs, of these reports shall bear a reasonable relationship to the need for the report and the benefits to be obtained from the reports. In requiring those reports, the regional board shall provide the person with a written explanation with regard to the need for the reports, and shall identify the evidence that supports requiring that person to provide the reports.”

Water Code section 13268 states, in part:

“(a) Any person failing or refusing to furnish technical or monitoring program reports as required by subdivision (b) of section 13267, or failing or refusing to furnish a statement of compliance as required by subdivision (b) of section 13399.2, or falsifying any information provided therein, is guilty of a misdemeanor and may be liable civilly in accordance with subdivision (b).

(b)(1) Civil liability may be administratively imposed by a regional board in accordance with article 2.5 (commencing with section 13323) of chapter 5 for a violation of subdivision (a) in an amount which shall not exceed one thousand dollars (\$1,000) for each day in which the violation occurs.”

The burden and cost of preparing the reports is reasonable and consistent with the intent of the state in maintaining water quality. These reports are necessary to ensure that the MPWMD complies with the notice of applicability and General Permit. Pursuant to Water Code section 13267, the MPWMD must implement this MRP and must submit the monitoring reports described herein.

MPWMD must implement the above monitoring program as of the date of this MRP.
The Central Coast Water Board may rescind or modify the MRP at any time.

Ordered by:

Jennifer Epp  Digitally signed by Jennifer Epp
Date: 2022.02.04 16:20:37 -08'00'
Water Boards

for Matthew T. Keeling
Executive Officer

MG

ECM/CIWQS Place = CW-654817

GeoTracker No. = GT-WDR100033662

ECM Subject Name = Monterey Peninsula WMD NOA Order WQ 2012-0010

R:\RB3\Shared\WDR\WDR Facilities\Monterey Co_Waived Discharges\MPWMD
ASR\ASR General Order enrollment 2021\MPWMD_NOA_ASR_final_signed.docx

ATTACHMENT 3

Figure 1. Site Location Map

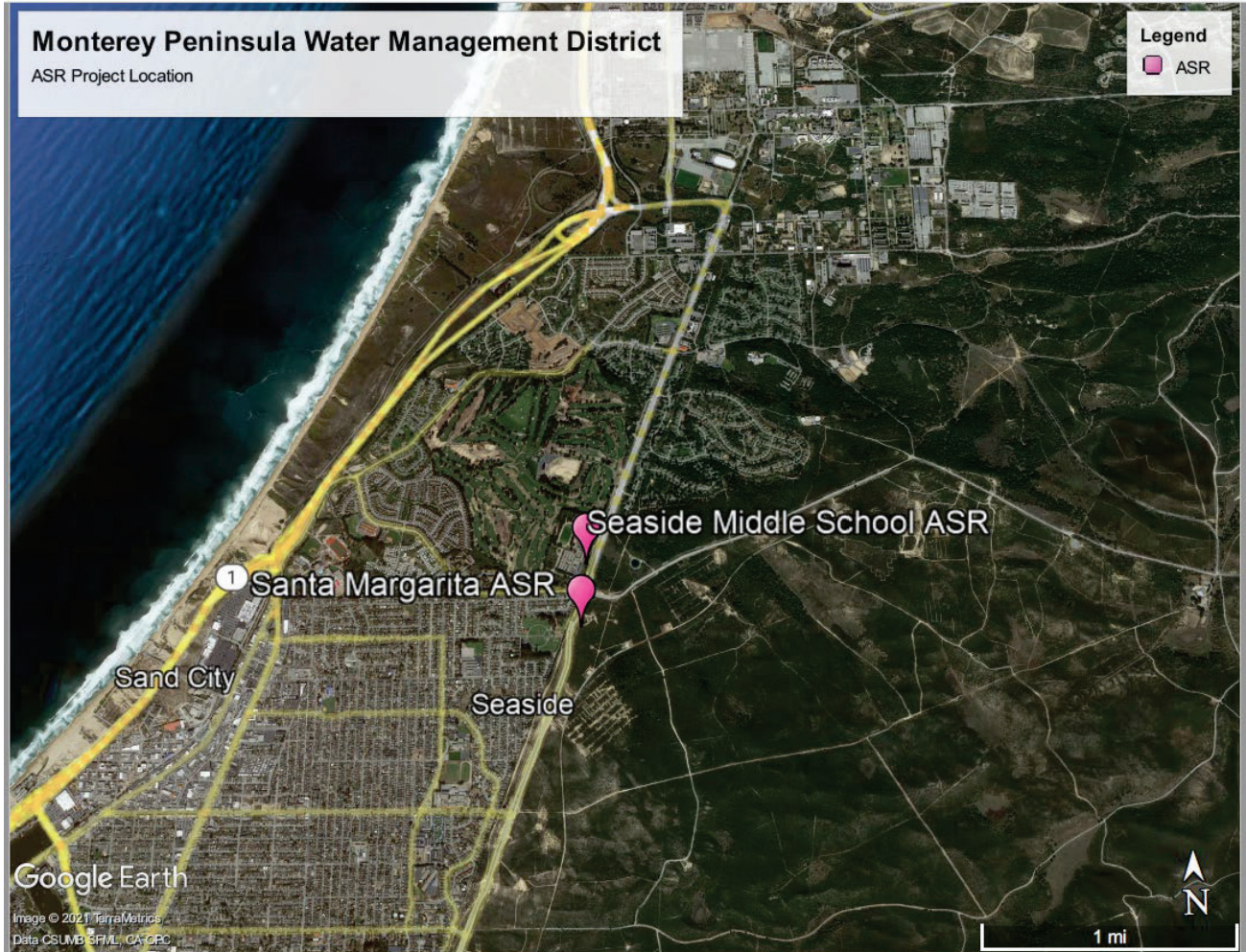


Figure 2. Facility Map showing well locations



Figure 3. Groundwater elevation contours in feet above mean sea level, Spring 2020

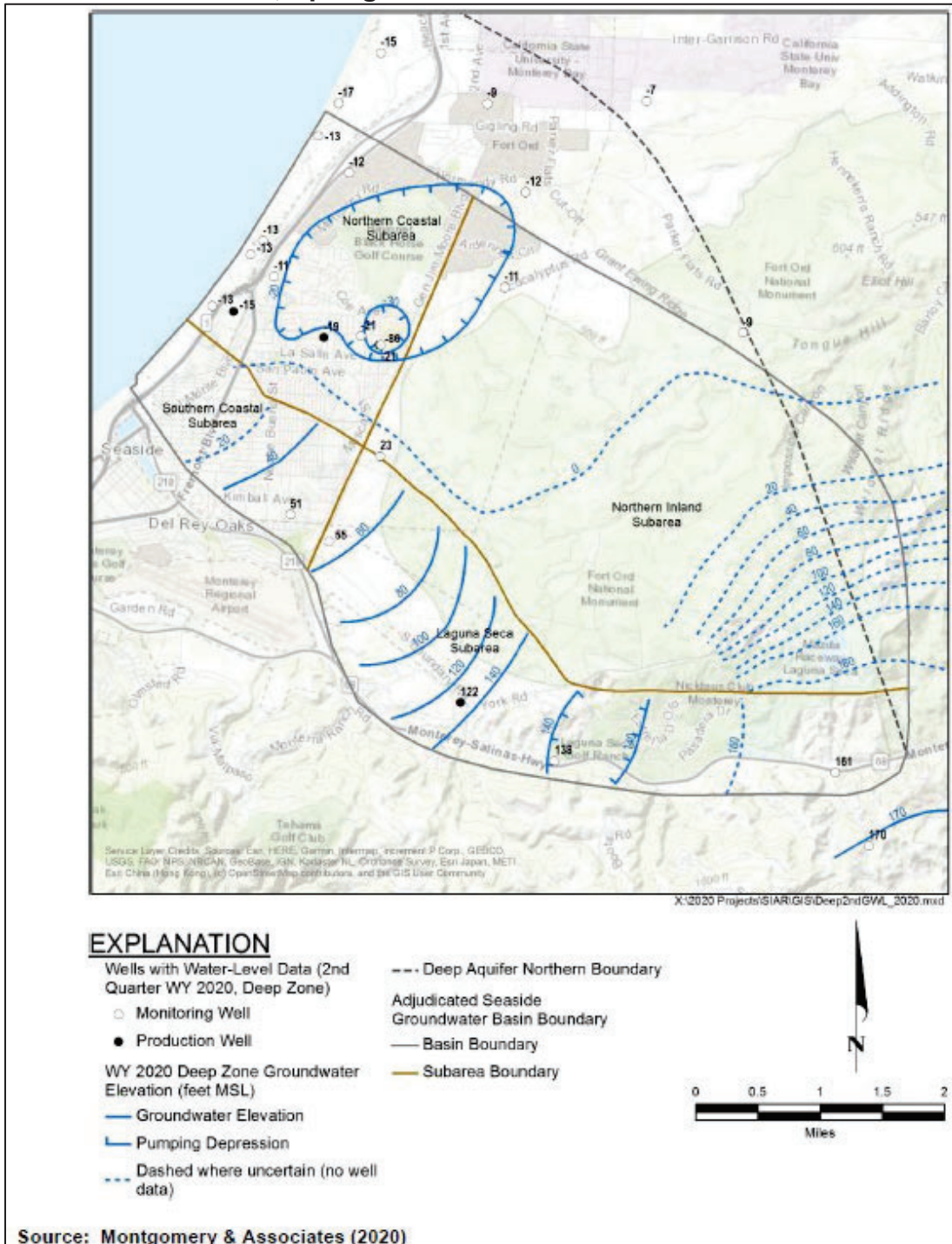


Figure 4. Contours of hydrologic influence

