

San Gorgonio Pass Water Agency

DATE: September 11, 2023

TO: Board of Directors

FROM: Lance Eckhart, General Manager

BY: Lance Eckhart, General Manager

SUBJECT: CONSIDER JOINT FUNDING AND COST-SHARING AGREEMENTS BETWEEN THE UNITED STATES GEOLOGICAL SURVEY COOPERATIVE WATER RESOURCES PROGRAM AND ACTIVITIES IN THE YUCAIPA BASIN

RECOMMENDATION

Staff recommends the Board approve the execution of a Joint Funding Agreement regarding the annual extension of the Cooperative Water Resources Program between the Pass Agency and the United States Geological Survey (USGS) for the fiscal year 2023-2024 (FY 2023-24), and to enter into a cost-sharing agreement with the San Bernardino Valley Municipal Water District funding USGS activities related to the Yucaipa Basin.

PREVIOUS CONSIDERATION

- Board of Directors: A cooperative Joint Funding Agreement between the USGS and the Pass Agency has been considered annually and approved by the Board since 1995.

BACKGROUND

Since 1995, the Pass Agency and the USGS have cooperated on scientific investigations and data collection throughout the Pass Agency service area. The program has served and continues to serve, as an integral part of the Pass Agency's ability to understand and manage the basin(s). The extension of this program for FY 2023-24 will be crucial to the Pass Agency's ongoing basin management efforts. Groundwater monitoring, testing, and other scientific efforts are fundamental to the support and management of the Beaumont Bain Watermaster, the San Gorgonio Pass Subbasin Groundwater Sustainability Agency, and the Yucaipa Basin Groundwater Sustainability Agency.

The elements of this cooperative agreement consist of:

1. Groundwater-Level Monitoring
 - USGS staff will monitor water levels at selected wells to supplement regional monitoring efforts and maintain the regional water level monitoring program. Water level and water quality information can be found on the [National Water Information System](#).

2. Water-Quality Monitoring
 - USGS staff will collect and analyze water quality samples at selected wells to supplement regional monitoring efforts and maintain the regional water-quality monitoring program. Water level and water quality information can be found on the [National Water Information System](#).

3. Gravity Survey
 - Work will consist of performing a gravity study to attempt to determine the exact location of subsurface faults that are located on the Danny Thomas Ranch property. The gravity survey will identify the location of the faults on the property to ensure that future proposed recharge facility (aquifer storage and recovery) projects and plans will not be affected. The data collected from this gravity survey and data interpretations will be published in the proposed interpretive USGS report described in Task 4.

4. Data Documentation, Reporting, Interpretation, and Publications
 - Data documentation, reporting, interpretation, and publications work will consist of updating the existing [project web page](#) with current data from Tasks 1, 2, and 3. Work will also consist of developing an interpretive report that describes the hydrogeologic conditions and characteristics of the SGPWA service area. This report will include an analysis of changes in groundwater levels and groundwater quality data over the course of the cooperative program between the USGS and SGPWA since 1995. This is expected to be a multi-year activity, with an anticipated draft of the interpretive report available in 2026.

ANALYSIS

Below is a list of tasks and funds associated with the USGS Joint Funding Agreement (JFA) for FY 2023-24.

<u>USGS-SGPWA Task</u>	<u>Agency Funds</u>	<u>USGS Funds</u>	<u>Total Funds</u>
Task 1: Water-Level Monitoring	\$87,140	\$20,210	\$107,350
Task 2: Water-Quality Monitoring	\$77,383	\$10,660	\$88,043
Task 3: Gravity Survey	\$38,724	\$3,825	\$42,549
Task 4: Data Documentation, Reporting, Interpretation, and Publications	\$22,029	\$5,507	\$27,536
Total:	\$225,276	\$40,202	\$265,478

The USGS has procured Cooperative Matching Funds (CMF) of \$40,202 to augment the total cost of this year's program. There is an increase in USGS matching funds of ~\$14,000 over last year and an increase of ~\$82,000 in the Pass Agency portion compared to the previous year. The increase in costs from FY 2022-2023 is due to the new expanded scope items outlined in Tasks 3 and Task 4.

A letter specifying work and expected matching funds from the USGS is attached (Attachment 1). Signing this letter will commit parties to specified work associated with Tasks 1 through 4. Following the signing of the attached letter, matching funds will be secured, and the USGS will execute the JFA.

The Pass Agency is also participating in the USGS JFA through the San Bernardino Valley Municipal Water District (SBVMWD) in support of the USGS activities in the Yucaipa Basin for the Yucaipa Basin Groundwater Sustainability Agency (GSA). The Pass Agency is a member of the Yucaipa Basin GSA and will benefit from these planned activities that will support our County Line Recharge Project in the Yucaipa Basin. The cost-share methodology was determined by the percentage of the Yucaipa Basin surface area within the SBVMWD and Pass Agency service areas, which are 84% and 16%, respectively.

These activities include water quality monitoring, an evaluation of the fate and transport of State Water Project recharge within the Yucaipa Basin, and the evaluation of installing a new nested well near our County Line Recharge Project. The Pass Agency will be cost-sharing specific tasks outlined in the table below:

USGS-SBVMWD Yucaipa Basin Task	San Bernardino Valley Share (84%)	Pass Agency Share (16%)	USGS Funds	Total Cost
Task 1b. Technical Outreach and Planning for the Yucaipa Basin	\$9,054	\$1,725	\$2,695	\$13,474
Task 4. Water Quality Data for the Yucaipa Basin	\$192,326	\$36,634	\$26,773	\$255,733
Task 5. Evaluation of fate and transport of recharge water in the Yucaipa Basin	\$37,675	\$7,176	\$11,213	\$56,064
Task 6. Evaluate a new USGS monitoring well site in the Yucaipa Basin	\$4,988	\$950	\$1,485	\$7,423
TOTAL:	\$244,043	\$46,485	\$42,166	\$332,694

The USGS and the Pass Agency have maintained a collaborative and productive partnership for the past twenty-eight years. Over this period, the USGS has consistently assisted in the development and execution of groundwater quality and groundwater level monitoring, groundwater model studies, and investigations, aligning with SGPWA's mission and goals. The USGS cooperative water resources program continues to evolve. It will continue to provide sound groundwater data collection, interpretation, and investigations supporting the Pass Agency's current projects throughout our service area.

As per SGPWA's procurement policy, a sole source contract may be considered when the required services are considered proprietary and specifically desired to maintain cost-effective system consistency. The USGS meets these requirements for the following reasons:

- Has been working in the region for decades and specifically for the Agency for almost 30 years.
- Is considered “best in class” regarding data collection and interpretation and develops scientific standards that are globally adopted.
- Acts as a primary data repository for high-quality scientific data, studies, models, and other products that maintain and grow the “body of knowledge.”
- Impartiality and objectivity: Public agencies can trust that the findings and recommendations provided by the USGS will be free from bias and political influence, enhancing the credibility of the results.
- The USGS utilizes state-of-the-art equipment and technology utilizing rigorous peer-reviewed standards, ensuring the scientific efforts can be trusted.
- Is publicly accountable as a federal agency and operates with high transparency.

Considering the investment in the long-term development and ongoing costs of this program, that the USGS is a federal organization with similar organizational goals, and to maintain system consistency, Staff has determined that the unique expertise, specialized knowledge, and established local presence possessed by the USGS are not readily available from other entities.

FISCAL IMPACT

The fiscal impact for the Pass Agency for both the USGS Pass Agency JFA and cost-share activities in Yucaipa Basin would be **\$271,761**, with the USGS providing \$40,202 in Cooperative Matching Funds for a total of \$311,963 for FY 2023-24.

The Agency has budgeted \$250,000 in the FY 2023-24 General Fund Budget for USGS Pass Agency JFA. The cost-share activities in the Yucaipa Basin will contribute to the Agency's planned recharge efforts and will utilize funds allocated for Local Recharge Feasibility Studies funds in the FY 2023-2024 General Fund Budget.

ACTION

Authorize the General Manager to execute the cooperative program Joint Funding Agreement with the United States Geological Survey for the FY 2023-2024 for \$265,478 (*USGS credit of \$40,202 will be applied to this amount*) and to enter into the cost-sharing agreement with SBVMWD for the USGS Yucaipa Basin activities for \$46,485.

ATTACHMENT

1. U.S. Geological Survey Joint Funding Agreement with SGPWA for Water Resource Investigations, Agreement #24ZGJFA21000063
2. SBVMWD and Pass Agency Cost Sharing Letter Agreement for the Fiscal Year 2023-2024 USGS Water Resources Investigations for the Yucaipa Basin
3. U.S. Geological Survey Joint Funding Agreement with SBVMWD for Water Resource Investigations, Agreement #23ZGJFA21000080



United States Department of the Interior

U.S. GEOLOGICAL SURVEY
California Water Science Center
6000 J Street, Placer Hall
Sacramento, CA 95819

August 30, 2024

Lance Eckhart, PG, CHG
General Manager/Chief Hydrogeologist
San Geronio Pass Water Agency
1210 Beaumont Ave.
Beaumont CA 92223

Dear Mr. Eckhart:

This letter confirms discussions between our respective staffs, concerning the cooperative program between the San Geronio Pass Water Agency (SGPWA) and the U.S. Geological Survey (USGS) during the period October 1, 2023, to October 31, 2024.

The work proposed under the enclosed Joint Funding Agreement (JFA) is a continuation of the cooperative basin-wide monitoring network and study to identify, characterize and evaluate potential aquifer storage and recovery (ASR) sites in the San Geronio Pass area. The work consists of four main tasks: (Task 1) basin-wide groundwater-level monitoring; (Task 2) basin-wide groundwater-quality monitoring; (Task 3) a gravity survey to identify local faults; and (Task 4) report writing and data documentation. A description of these tasks is included as an attachment to this letter.

The proposed funding for this agreement \$265,478. Of this total, the USGS will contribute \$40,202, subject to the availability of Cooperative Matching Funds, and the SGPWA will contribute \$225,276.

Enclosed is a digital version of Joint Funding Agreement (JFA) 24ZGJFA21000063, signed by our agency, for your approval. If you are in agreement with this proposed program, please return a fully executed JFA to our office via email, iarios@usgs.gov. Work performed with funds from this agreement will be conducted on a fixed-price basis. Billing for this agreement will be rendered quarterly. The USGS is required to have an agreement in place prior to any work being performed on a project. We request that a fully executed JFA be returned prior to October 1, 2023.

If you have any questions concerning this program, please contact Meghan Dick at (619) 225-6154 or Christina Stamos at (619) 225-6141 in our San Diego Office. If you have any administrative questions, please contact Irene Rios at (619) 225-6156.

Sincerely,

Anke Mueller-Solger
Director, USGS California Water Science Center

Enclosures

cc: Meghan Dick, USGS CAWSC
Christina Stamos, USGS CAWSC
Allen H. Christensen, USGS CAWSC

Form 9-1366
(May 2018)

**U.S. DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY**

JOINT FUNDING AGREEMENT

FOR

WATER RESOURCES INVESTIGATIONS

Customer #: 5000000967
Agreement #: 24ZGJFA210000063
Project #: ZG00AOY
TIN #: 95-2216065
Fixed Cost
Agreement YES

THIS AGREEMENT is entered into as of the, 30th day of August, 2023 by the U.S. GEOLOGICAL SURVEY, UNITED STATES DEPARTMENT OF THE INTERIOR, party of the first part, and the San Gorgonio Pass Water Agency, party of the second part.

1. The parties hereto agree that subject to availability of appropriations and in accordance with their respective authorities there shall be maintained in cooperation Water Resource Investigations (per attachment) herein called the program. The USGS legal authority is 43 USC 36C; 43 USC 50; and 43 USC 50b.
2. The following amounts shall be contributed to cover all of the cost of the necessary field and analytical work directly related to this program. 2(b) includes In-Kind Services in the amount of \$0.00
 - (a) by the party of the first part during the period

Amount	Date	to	Date
\$40,202.00	October 1, 2023		October 31, 2024
 - (b) by the party of the second part during the period

Amount	Date	to	Date
\$225,276.00	October 1,2023		October 31, 2024
 - (c) Contributions are provided by the party of the first part through other USGS regional or national programs, in the amount of: \$0.00

Description of the USGS regional/national program:
N/A
 - (d) Additional or reduced amounts by each party during the above period or succeeding periods as may be determined by mutual agreement and set forth in an exchange of letters between the parties.
 - (e) The performance period may be changed by mutual agreement and set forth in an exchange of letters between the parties.
3. The costs of this program may be paid by either party in conformity with the laws and regulations respectively governing each party.
4. The field and analytical work pertaining to this program shall be under the direction of or subject to periodic review by an authorized representative of the party of the first part.
5. The areas to be included in the program shall be determined by mutual agreement between the parties hereto or their authorized representatives. The methods employed in the field and office shall be those adopted by the party of the first part to insure the required standards of accuracy subject to modification by mutual agreement.
6. During the course of this program, all field and analytical work of either party pertaining to this program shall be open to the inspection of the other party, and if the work is not being carried on in a mutually satisfactory manner, either party may terminate this agreement upon 60 days written notice to the other party.

9-1366 (Continuation) Customer #: 5000000967 Agreement #: 24ZGJFA21000063

- 7. The original records resulting from this program will be deposited in the office of origin of those records. Upon request, copies of the original records will be provided to the office of the other party.
- 8. The maps, records or reports resulting from this program shall be made available to the public as promptly as possible. The maps, records or reports normally will be published by the party of the first part. However, the party of the second part reserves the right to publish the results of this program, and if already published by the party of the first part shall, upon request, be furnished by the party of the first part, at cost, impressions suitable for purposes of reproduction similar to that for which the original copy was prepared. The maps, records or reports published by either party shall contain a statement of the cooperative relations between the parties.

The Parties acknowledge that scientific information and data developed as a result of the Scope of Work (SOW) are subject to applicable USGS review, approval, and release requirements, which are available on the USGS Fundamental Science Practices website (<https://www2.usgs.gov/fsp/>).

- 9. Billing for this agreement will be rendered.

QUARTERLY

Invoices not paid within 60 days from the billing date will bear Interest, Penalties, and Administrative cost at the annual rate pursuant the Debt Collection Act of 1982, (codified at 31 U.S.C. § 3717) established by the U.S. Treasury.

<p align="center">U.S. Geological Survey United States Department of the Interior</p> <p align="center"><u>USGS Point of Contact</u></p> <p>Name: Irene Rios, Budget Analyst Address: 4165 Spruance Rd., Ste 200 San Diego, CA 92101 Telephone: 619-225-6156 Email: iaros@usgs.gov</p>	<p align="center">San Geronio Pass Water Agency</p> <p align="center"><u>Customer Point of Contact</u></p> <p>Name: Lance Eckhart, General Manager Address: 1210 Beaumont Ave., Beaumont, CA 92223 Telephone: 951-845-2577 Email: leckhart@sgpwa.co</p>
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Signatures and Date m

Signature: _____ Date: _____ Signature: _____ Date: _____

Name: Anke Mueller-Solger	Name: Lance Eckhart
Title: Director, USGS California Water Science Center	Title: General Manager, San Geronio Pass WA

San Gorgonio Pass Water Agency Cooperative Program: Progress, Plans, and Costs

Task 1 – Groundwater-Level Monitoring

Progress

A basin-wide groundwater-level monitoring network was established in the San Gorgonio Pass area in Federal Fiscal Year 1997 (FFY97) to evaluate existing hydrologic conditions and to monitor the effects of pumping and artificial recharge on the groundwater system. A key component of the network is collecting data from the multiple-well monitoring sites, which provide information on groundwater-level changes and potential vertical gradients within aquifers. During FFY23, continuous (hourly) groundwater-level data were collected, analyzed, reviewed, and approved from 27 wells. Continuous measurements were discontinued at 9 wells and those wells were moved to quarterly discrete monitoring. Additionally, semi-annual discrete groundwater-level measurements were taken at all accessible wells (up to 85 of the 112 on the network; table 2) in the groundwater-level network in the spring and fall.

Plans

In FFY24, U.S. Geological Survey (USGS) personnel will collect discrete measurements at 27 wells quarterly (fig. 1; table 2). Transducers are installed in 18 of those wells for continuous monitoring. Wells with transducers will be downloaded, reviewed, and approved quarterly and the data will be available through the USGS National Water Information System (NWIS) online database. Transducer data from sites 11, 12, and 13 will be reevaluated to determine the value of the continuous data and continuous monitoring may be discontinued at those sites during the final quarterly visit in FFY24.

USGS personnel will also be accompanied by SGPWA personnel in the spring and fall and will attempt to measure discrete groundwater levels at 85 wells. Data collected as part of the groundwater-level network will be reviewed, approved, and will be available through USGS NWIS online database; links to these wells are provided in table 2.

Total cost for the above work is \$107,350. Of this total, the SGPWA will contribute \$87,140 and subject to the availability of Cooperative Matching Funds, the USGS will contribute \$20,210, as reflected in the summary funding table 1.

Task 1, FFY 2024 cost for groundwater -level monitoring \$107,350

Task 2 – Groundwater-Quality Monitoring

Progress

Since FFY21, the sample interval of each well in the groundwater-quality network was increased from every three years to four years. This ensures that each site will be sampled on a regular basis and help maintain reasonable costs compared to previous years. The groundwater-quality network currently has a total of 49 wells.

In FFY23, the USGS sampled 13 wells. Groundwater samples were collected and analyzed for major ions, nutrients, selected trace elements, and stable isotopes of oxygen and hydrogen. Samples collected

from selected wells also were analyzed for chromium-3 and chromium-6 redox species, based on the concentration of dissolved chromium from the previous years' sampling results. Complete results for all samples collected as part of the groundwater-quality monitoring network are available through the USGS NWIS online database. USGS NWIS links to individual wells are provided in table 3.

Plans

The current groundwater-quality monitoring network includes 49 wells (fig. 2; table 3). During FFY24, the USGS plans to sample 11 groundwater-quality network wells. Sampling protocol will also include quality assurance samples (replicates and blank samples). The samples collected will be analyzed for major ions, nutrients, selected trace elements, stable isotopes of oxygen and hydrogen, and chromium speciation. All data collected will be entered into the USGS NWIS database with appropriate quality-control measures and will be available through the USGS NWIS online database.

Total cost for Task 2 is \$88,043. Of this total, the SGPWA will contribute \$77,383 and subject to the availability of Cooperative Matching Funds, the USGS will contribute \$10,660, as reflected in the summary funding table 1.

Task 2, FFY 2024 cost for groundwater -quality monitoring \$88,043

Task 3 – Gravity Survey

Plans

A large parcel of land located northwest of the city of Beaumont west of the Cherry Valley area, was donated for public use as a regional park (fig. 2, inset). The redevelopment plans for the site include a recharge pond to be used for future ASR activity, where the SGPWA can turn out water from the California State Water Project pipeline that is located along Cherry Valley Boulevard. The USGS Quaternary Fault and Fold Database of the United States (<https://www.usgs.gov/programs/earthquake-hazards/faults#data>) shows two fault splays of the San Gorgonio Pass Fault Zone trending southeast to northwest through the area. The SGPWA is interested in obtaining a more precise location for the southern fault and this task is to perform a north-south gravity survey line through the property. The complete Bouguer anomaly will be computed from the gravity data and used to identify a more precise location for the fault and any other existing subsurface structures. Data collected from the gravity survey will be published as a data release in ScienceBase and the resulting interpretations will be presented as part of the proposed interpretive USGS report described in task 4.

Total cost for Task 3 is \$42,549. Of this total, the SGPWA will contribute \$38,724 and subject to the availability of Cooperative Matching Funds, the USGS will contribute \$3,825, as reflected in the summary funding table 1.

Task 3, FFY 2024 cost for gravity survey \$42,549

Task 4 – Data Documentation, Reporting, Interpretation, and Publications

Plans

Reporting will include updating the project web page with updates on study activities and it will continue to be a centralized location to access the groundwater -level and groundwater-quality data collected as part of the study (tasks 1 and 2). Data from the gravity survey collected for task 3 will be published in a data release on ScienceBase (<https://www.sciencebase.gov>). An interpretive report describing the physical and hydrogeologic characteristics of the SGPWA service area, gravity results and groundwater chemistry within the basin will be prepared and published as a USGS Scientific Investigation Report. The report will include analysis of changes in groundwater-level and

groundwater-quality data collected over the lifetime of the partnership between the USGS and the SGPWA to evaluate how changes in groundwater levels and quality have been affected by ongoing aquifer recharge activities and continued groundwater withdrawals. This task is expected to be a multi-year activity and a draft review copy of the report is expected to be available by the end of FFY26.

Total cost for Task 4 is \$27,536. Of this total, the SGPWA will contribute \$22,029 and subject to the availability of Cooperative Matching Funds, the USGS will contribute \$5,507, as reflected in the summary funding table 1.

Task 4, FFY 2024 cost for reporting \$27,536

Figures

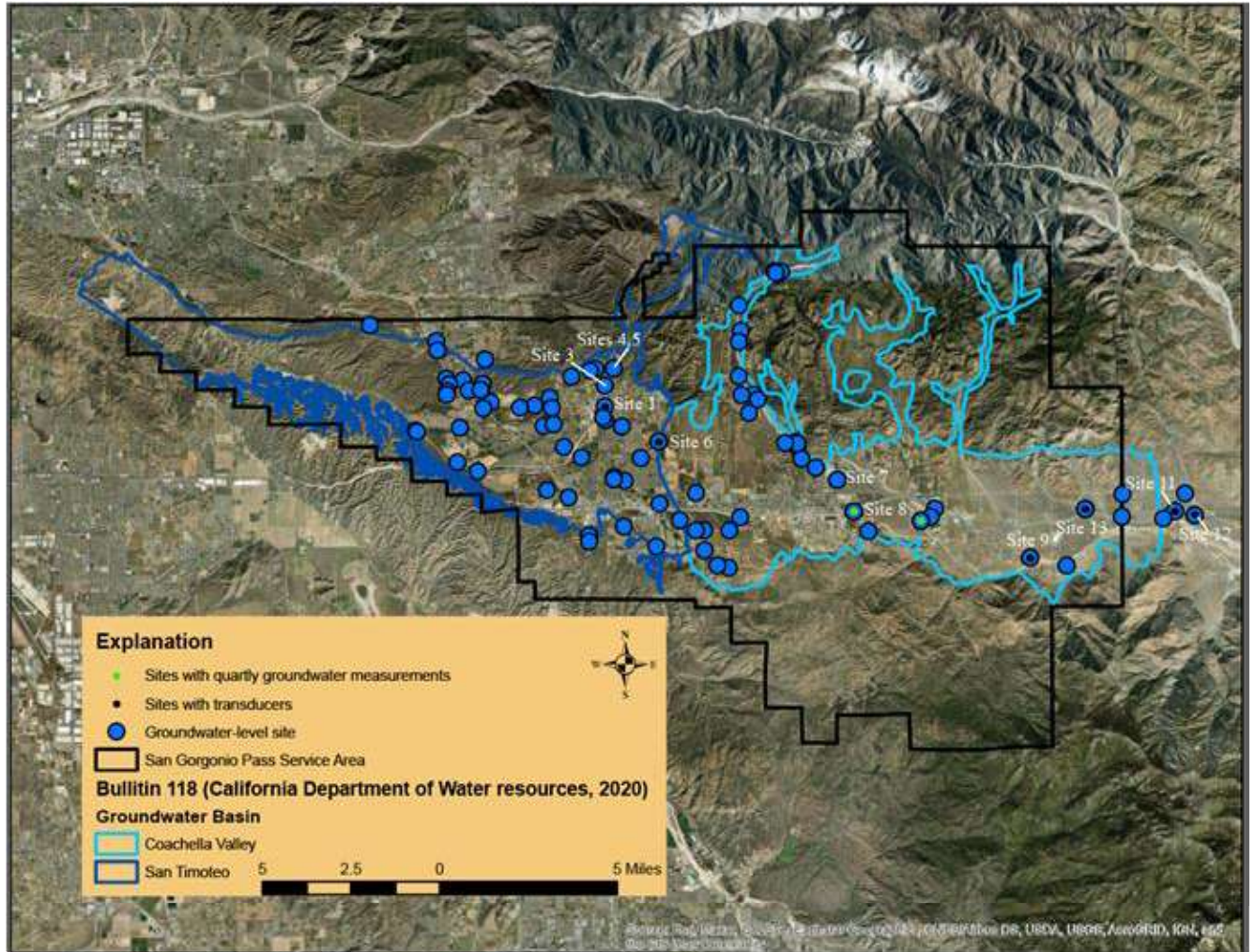


Figure 1. Groundwater-level sites for federal fiscal year 2024.

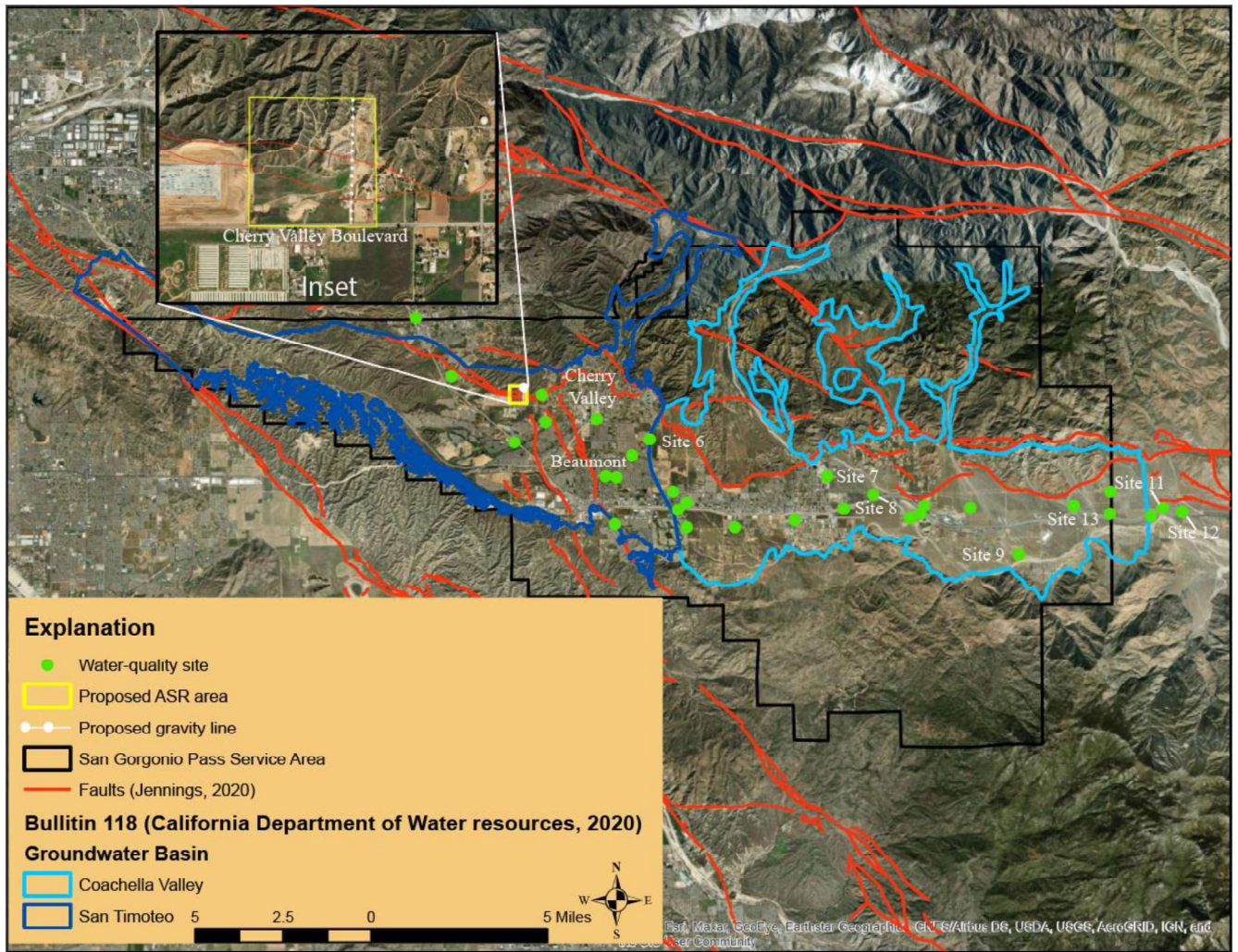


Figure 2. Groundwater-quality sites for federal fiscal year 2024 and the proposed gravity line at the planned ASR site (see inset).

Table 1. FFY24 Summary Funding

Program element	USGS	SGPWA	Total
Task 1 Groundwater-Level Monitoring	\$20,210	\$87,140	\$107,350
Task 2 Groundwater-Quality Monitoring	\$10,660	\$77,383	\$88,043
Task 3 Gravity Survey	\$3,825	\$38,724	\$42,549
Task 4 Data Documentation, Reporting, Interpretation, and Publications	\$5,507	\$22,029	\$27,536
Total	\$40,202	\$225,276	\$265,478

Table 2. Water-level network.

Abbreviated State well number		USGS site number	Site name	Measurement schedule	Site with transducer (60-minute interval)	Latitude (NAD83)	Longitude (NAD83)	Link to USGS online data containing site, water-quality, and water-level data
number	USGS site number							
2S/1E-04L1S	340126116532501			Semi-annual		34.0240028	-116.8901306	http://waterdata.usgs.gov/nwis/inventory/?site_no=340126116532501
2S/1E-04L2S	340124116531901			Semi-annual		34.0231917	-116.8884972	http://waterdata.usgs.gov/nwis/inventory/?site_no=340124116531901
2S/1E-04L3S	340126116531301			Semi-annual		34.0237750	-116.8869306	http://waterdata.usgs.gov/nwis/inventory/?site_no=340126116531301
2S/1E-04N1S	340124116532301			Semi-annual		34.0234722	-116.8897500	http://waterdata.usgs.gov/nwis/inventory/?site_no=340124116532301
2S/1E-04P3S	340123116532201			Semi-annual		34.0232778	-116.8894722	http://waterdata.usgs.gov/nwis/inventory/?site_no=340123116532201
2S/1E-08M1S	340035116542701			Semi-annual		34.0099167	-116.9076111	http://waterdata.usgs.gov/nwis/inventory/?site_no=340035116542701
2S/1E-17F2S	335928116542001			Semi-annual		33.9996250	-116.9067000	http://waterdata.usgs.gov/nwis/inventory/?site_no=335928116542001
2S/1E-17M1S	335942116542701			Semi-annual		33.9951111	-116.9076750	http://waterdata.usgs.gov/nwis/inventory/?site_no=335942116542701
2S/1E-20P1S	335851116542701			Semi-annual		33.9808333	-116.9077500	http://waterdata.usgs.gov/nwis/inventory/?site_no=335851116542701
2S/1E-29B1S	335845116535801			Semi-annual		33.9733056	-116.9002806	http://waterdata.usgs.gov/nwis/inventory/?site_no=335845116535801
2S/1E-29G1S	335823116542301			Semi-annual		33.9731944	-116.9063889	http://waterdata.usgs.gov/nwis/inventory/?site_no=335823116542301
2S/1E-29H1S	335817116535401			Semi-annual		33.9712750	-116.8984556	http://waterdata.usgs.gov/nwis/inventory/?site_no=335817116535401
2S/1E-29K2S	335757116541001			Semi-annual		33.9658333	-116.9027778	http://waterdata.usgs.gov/nwis/inventory/?site_no=335757116541001
2S/1E-33J1S	335707116524101			Semi-annual		33.9516917	-116.8788361	http://waterdata.usgs.gov/nwis/inventory/?site_no=335707116524101
2S/1E-33J2S	335715116524701			Semi-annual		33.9539667	-116.8797528	http://waterdata.usgs.gov/nwis/inventory/?site_no=335715116524701
2S/1E-33J4S	335712116524501			Semi-annual		33.9532056	-116.8789861	http://waterdata.usgs.gov/nwis/inventory/?site_no=335712116524501
2S/1E-33K1S	335712116530501			Semi-annual		33.9535278	-116.8849444	http://waterdata.usgs.gov/nwis/inventory/?site_no=335712116530501
2S/1W-19D1S	335916117015601			Semi-annual		33.9878333	-117.0324722	http://waterdata.usgs.gov/nwis/inventory/?site_no=335916117015601
2S/1W-19N1S	335840117015801			Semi-annual		33.9777722	-117.0336194	http://waterdata.usgs.gov/nwis/inventory/?site_no=335840117015801
2S/1W-21L4S	335849116592101			Semi-annual		33.9807500	-116.9899056	http://waterdata.usgs.gov/nwis/inventory/?site_no=335849116592101
2S/1W-22-1S	335902116583701			Semi-annual		33.9840306	-116.9781583	http://waterdata.usgs.gov/nwis/inventory/?site_no=335902116583701
2S/1W-22G3S	335902116580901	Site 4		Semi-annual		33.9841333	-116.9692222	http://waterdata.usgs.gov/nwis/inventory/?site_no=335902116580901
2S/1W-22G4S	335903116580902	Site 4		Semi-annual		33.9841333	-116.9692222	http://waterdata.usgs.gov/nwis/inventory/?site_no=335903116580902
2S/1W-22M1S	335859116584901			Semi-annual		33.9831234	-116.9807959	http://waterdata.usgs.gov/nwis/inventory/?site_no=335859116584901
2S/1W-22P6S	335838116582504	Site 3		Semi-annual		33.9771306	-116.9734972	http://waterdata.usgs.gov/nwis/inventory/?site_no=335838116582504
2S/1W-27L1S	335807116582201	Site 1	X	Quarterly		33.9685472	-116.9735583	http://waterdata.usgs.gov/nwis/inventory/?site_no=335807116582201
2S/1W-27P2S	335746116582301			Semi-annual		33.9628333	-116.9731944	http://waterdata.usgs.gov/nwis/inventory/?site_no=335746116582301
2S/1W-27P3S	335750116582701			Semi-annual		33.9640278	-116.9743889	http://waterdata.usgs.gov/nwis/inventory/?site_no=335750116582701
2S/1W-29G5S	335808117002601			Semi-annual		33.9689044	-117.0080833	http://waterdata.usgs.gov/nwis/inventory/?site_no=335808117002601
2S/1W-29H1S	335820116595901			Semi-annual		33.9721917	-117.0005611	http://waterdata.usgs.gov/nwis/inventory/?site_no=335820116595901
2S/1W-29J2S	335804116595801			Semi-annual		33.9678889	-116.9996389	http://waterdata.usgs.gov/nwis/inventory/?site_no=335804116595801
2S/1W-29M2S	335807117005601			Semi-annual		33.9680712	-117.0153058	http://waterdata.usgs.gov/nwis/inventory/?site_no=335807117005601
2S/1W-30E3S	335813117014301			Semi-annual		33.9702139	-117.0294611	http://waterdata.usgs.gov/nwis/inventory/?site_no=335813117014301
2S/1W-30M2S	335803117015901			Semi-annual		33.9677500	-117.0332500	http://waterdata.usgs.gov/nwis/inventory/?site_no=335803117015901
2S/1W-32B3S	335737117001301			Semi-annual		33.9605000	-117.0036667	http://waterdata.usgs.gov/nwis/inventory/?site_no=335737117001301
2S/1W-33D1S	335741116595201			Semi-annual		33.9611667	-116.9986389	http://waterdata.usgs.gov/nwis/inventory/?site_no=335741116595201
2S/1W-33L1S	335707116593401			Semi-annual		33.9519603	-116.9936379	http://waterdata.usgs.gov/nwis/inventory/?site_no=335707116593401
2S/1W-33R2S	335651116590601			Semi-annual		33.9476139	-116.9850528	http://waterdata.usgs.gov/nwis/inventory/?site_no=335651116590601

Abbreviated State well number	USGS site number	Site name	Measurement schedule	Site with transducer (60-minute interval)	Latitude (NAD83)	Longitude (NAD83)	Link to USGS online data containing site, water-quality, and water-level data
25/1W-34A2S	335740116575001		Semi-annual		33.9603361	-116.9652472	http://waterdata.usgs.gov/nwis/inventory/?site_no=335740116575001
25/1W-35J1S	335714116565001	Site 6	Quarterly	X	33.9541333	-116.9471528	http://waterdata.usgs.gov/nwis/inventory/?site_no=335714116565001
25/1W-35J2S	335714116565002	Site 6	Quarterly	X	33.9541333	-116.9471528	http://waterdata.usgs.gov/nwis/inventory/?site_no=335714116565002
25/1W-35J3S	335714116565003	Site 6	Quarterly	X	33.9541333	-116.9471528	http://waterdata.usgs.gov/nwis/inventory/?site_no=335714116565003
25/1W-35J4S	335714116565004	Site 6	Quarterly		33.9541333	-116.9471528	http://waterdata.usgs.gov/nwis/inventory/?site_no=335714116565004
25/1W-35P1S	335650116572101		Semi-annual		33.9473611	-116.9559722	http://waterdata.usgs.gov/nwis/inventory/?site_no=335650116572101
25/2W-14J2S	335943117032001		Semi-annual		33.9952667	-117.0563778	http://waterdata.usgs.gov/nwis/inventory/?site_no=335943117032001
25/2W-14R1S	335930117032101		Semi-annual		33.9915222	-117.0558556	http://waterdata.usgs.gov/nwis/inventory/?site_no=335930117032101
25/2W-16A1S	340006117051801		Semi-annual		34.0017833	-117.0890306	http://waterdata.usgs.gov/nwis/inventory/?site_no=340006117051801
25/2W-24K2S	335846117023201		Semi-annual		33.9793361	-117.0430972	http://waterdata.usgs.gov/nwis/inventory/?site_no=335846117023201
25/2W-24M2S	335847117030201		Semi-annual		33.9799194	-117.0514083	http://waterdata.usgs.gov/nwis/inventory/?site_no=335847117030201
25/2W-24N2S	335840117025701		Semi-annual		33.9776611	-117.0501250	http://waterdata.usgs.gov/nwis/inventory/?site_no=335840117025701
25/2W-25B1S	335830117022201		Semi-annual		33.9751583	-117.0404222	http://waterdata.usgs.gov/nwis/inventory/?site_no=335830117022201
25/2W-25B5S	335831117020401		Semi-annual		33.9753611	-117.0345000	http://waterdata.usgs.gov/nwis/inventory/?site_no=335831117020401
25/2W-25D1S	335829117030101		Semi-annual		33.9748333	-117.0511083	http://waterdata.usgs.gov/nwis/inventory/?site_no=335829117030101
25/2W-25D2S	335824117030101		Semi-annual		33.9733583	-117.0512250	http://waterdata.usgs.gov/nwis/inventory/?site_no=335824117030101
25/2W-35D5S	335731117035601		Semi-annual		33.9586271	-117.0664195	http://waterdata.usgs.gov/nwis/inventory/?site_no=335731117035601
25/2W-35D6S	335729117035401		Semi-annual		33.9581750	-117.0657639	http://waterdata.usgs.gov/nwis/inventory/?site_no=335729117035401
25/2W-36C1S	335735117023401		Semi-annual		33.9598214	-117.0446962	http://waterdata.usgs.gov/nwis/inventory/?site_no=335735117023401
35/1E-03C2S	335636116520901		Semi-annual		33.9433694	-116.8699750	http://waterdata.usgs.gov/nwis/inventory/?site_no=335636116520901
35/1E-03J1S	335618116513401	Site 7	Semi-annual		33.9383583	-116.8594722	http://waterdata.usgs.gov/nwis/inventory/?site_no=335618116513401
35/1E-03J2S	335618116513402	Site 7	Semi-annual		33.9383583	-116.8594722	http://waterdata.usgs.gov/nwis/inventory/?site_no=335618116513402
35/1E-04A1S	335649116523401		Semi-annual		33.9469472	-116.8769917	http://waterdata.usgs.gov/nwis/inventory/?site_no=335649116523401
35/1E-06N1S	335558116554001		Semi-annual		33.9330306	-116.9288139	http://waterdata.usgs.gov/nwis/inventory/?site_no=335558116554001
35/1E-08M1S	335523116542301		Semi-annual		33.9230917	-116.9071472	http://waterdata.usgs.gov/nwis/inventory/?site_no=335523116542301
35/1E-11F1S	335531116510401	Site10	Quarterly		33.9253000	-116.8513444	http://waterdata.usgs.gov/nwis/inventory/?site_no=335531116510401
35/1E-11F2S	335531116510402	Site10	Quarterly		33.9253000	-116.8513444	http://waterdata.usgs.gov/nwis/inventory/?site_no=335531116510402
35/1E-11F3S	335531116510403	Site10	Quarterly		33.9253000	-116.8513444	http://waterdata.usgs.gov/nwis/inventory/?site_no=335531116510403
35/1E-11F4S	335531116510404	Site10	Quarterly		33.9253000	-116.8513444	http://waterdata.usgs.gov/nwis/inventory/?site_no=335531116510404
35/1E-14A1S	335502116503601		Semi-annual		33.9172380	-116.8441867	http://waterdata.usgs.gov/nwis/inventory/?site_no=335502116503601
35/1E-18A1S	335504116544201		Semi-annual		33.9176306	-116.9124500	http://waterdata.usgs.gov/nwis/inventory/?site_no=335504116544201
35/1E-18C1S	335504116552601		Semi-annual		33.9177083	-116.9247944	http://waterdata.usgs.gov/nwis/inventory/?site_no=335504116552601
35/1E-18D1S	335504116554101		Semi-annual		33.9176889	-116.9289250	http://waterdata.usgs.gov/nwis/inventory/?site_no=335504116554101
35/1E-18L1S	335434116552601		Semi-annual		33.9095528	-116.9246167	http://waterdata.usgs.gov/nwis/inventory/?site_no=335434116552601
35/1E-19A1S	335408116544601		Semi-annual		33.9023611	-116.9127778	http://waterdata.usgs.gov/nwis/inventory/?site_no=335408116544601
35/1E-19B1S	335412116550401		Semi-annual		33.9033639	-116.9182500	http://waterdata.usgs.gov/nwis/inventory/?site_no=335412116550401
35/1W-02M1S	335616116574901		Semi-annual		33.9380000	-116.9637222	http://waterdata.usgs.gov/nwis/inventory/?site_no=335616116574901
35/1W-03K1S	335623116581701		Semi-annual		33.9397333	-116.9690917	http://waterdata.usgs.gov/nwis/inventory/?site_no=335623116581701
35/1W-03K2S	335621116581701		Semi-annual		33.9386806	-116.9690972	http://waterdata.usgs.gov/nwis/inventory/?site_no=335621116581701

Abbreviated State well number	USGS site number	Site name	Measurement schedule	Site with transducer (60-minute interval)	Latitude (NAD83)	Longitude (NAD83)	Link to USGS online data containing site, water-quality, and water-level data
35/1W-05R3S	335603117000401		Semi-annual		33.9341829	-117.0019714	http://waterdata.usgs.gov/nwis/inventory/?site_no=335603117000401
35/1W-09C4S	335552116592801		Semi-annual		33.9311667	-116.9913056	http://waterdata.usgs.gov/nwis/inventory/?site_no=335552116592801
35/1W-10R3S	335509116575101		Semi-annual		33.9192167	-116.9641806	http://waterdata.usgs.gov/nwis/inventory/?site_no=335509116575101
35/1W-12E1S	335543116564801		Semi-annual		33.9286111	-116.9466667	http://waterdata.usgs.gov/nwis/inventory/?site_no=335543116564801
35/1W-12L1S	335519116561701		Semi-annual		33.9218944	-116.9367528	http://waterdata.usgs.gov/nwis/inventory/?site_no=335519116561701
35/1W-14J2S	335440116565101		Semi-annual		33.9111276	-116.9483578	http://waterdata.usgs.gov/nwis/inventory/?site_no=335440116565101
35/1W-15D5S	335456116585001		Semi-annual		33.9155721	-116.9814147	http://waterdata.usgs.gov/nwis/inventory/?site_no=335456116585001
35/1W-15E1S	335447116585201		Semi-annual		33.9131444	-116.9812250	http://waterdata.usgs.gov/nwis/inventory/?site_no=335447116585201
35/2E-07G2S	335535116483801		Semi-annual		33.9264042	-116.8114075	http://waterdata.usgs.gov/nwis/inventory/?site_no=335535116483801
35/2E-07K1S	335523116484601		Semi-annual		33.9231111	-116.8135000	http://waterdata.usgs.gov/nwis/inventory/?site_no=335523116484601
35/2E-07P1S	335513116490601	Site 8	Quarterly		33.9214639	-116.8184500	http://waterdata.usgs.gov/nwis/inventory/?site_no=335513116490601
35/2E-07P2S	335513116490602	Site 8	Quarterly		33.9214639	-116.8184500	http://waterdata.usgs.gov/nwis/inventory/?site_no=335513116490602
35/2E-07P3S	335513116490603	Site 8	Quarterly		33.9214639	-116.8184500	http://waterdata.usgs.gov/nwis/inventory/?site_no=335513116490603
35/2E-07P4S	335513116490604	Site 8	Quarterly		33.9214639	-116.8184500	http://waterdata.usgs.gov/nwis/inventory/?site_no=335513116490604
35/2E-11H1S	335534116441501	Site 13	Quarterly	X	33.9261500	-116.7377194	http://waterdata.usgs.gov/nwis/inventory/?site_no=335534116441501
35/2E-11H2S	335534116441502	Site 13	Quarterly	X	33.9261500	-116.7377194	http://waterdata.usgs.gov/nwis/inventory/?site_no=335534116441502
35/2E-11H3S	335534116441503	Site 13	Quarterly	X	33.9261500	-116.7377194	http://waterdata.usgs.gov/nwis/inventory/?site_no=335534116441503
35/2E-15P1S	335423116455301	Site 9	Quarterly	X	33.9063778	-116.7648500	http://waterdata.usgs.gov/nwis/inventory/?site_no=335423116455301
35/2E-15P2S	335423116455302	Site 9	Quarterly	X	33.9063778	-116.7648500	http://waterdata.usgs.gov/nwis/inventory/?site_no=335423116455302
35/2E-15P3S	335423116455303	Site 9	Quarterly	X	33.9063778	-116.7648500	http://waterdata.usgs.gov/nwis/inventory/?site_no=335423116455303
35/2E-23C1S	335411116444601		Semi-annual		33.9030717	-116.7469608	http://waterdata.usgs.gov/nwis/inventory/?site_no=335411116444601
35/2W-01C1S	335645117024201		Semi-annual		33.9456333	-117.0459722	http://waterdata.usgs.gov/nwis/inventory/?site_no=335645117024201
35/2W-01H1S	335631117020601		Semi-annual		33.9419583	-117.0359472	http://waterdata.usgs.gov/nwis/inventory/?site_no=335631117020601
35/3E-07D1S	335556116431001		Semi-annual		33.9322222	-116.7194444	http://waterdata.usgs.gov/nwis/inventory/?site_no=335556116431001
35/3E-07M1S	335522116430701		Semi-annual		33.9230705	-116.7107378	http://waterdata.usgs.gov/nwis/inventory/?site_no=335522116430701
35/3E-08A1S	335557116411901		Semi-annual		33.9324444	-116.6887222	http://waterdata.usgs.gov/nwis/inventory/?site_no=335557116411901
35/3E-08L1S	335530116413701	Site 12	Quarterly	X	33.9251639	-116.6936389	http://waterdata.usgs.gov/nwis/inventory/?site_no=335530116413701
35/3E-08L2S	335530116413702	Site 12	Quarterly	X	33.9251639	-116.6936389	http://waterdata.usgs.gov/nwis/inventory/?site_no=335530116413702
35/3E-08L3S	335530116413703	Site 12	Quarterly	X	33.9251639	-116.6936389	http://waterdata.usgs.gov/nwis/inventory/?site_no=335530116413703
35/3E-08L4S	335530116413704	Site 12	Quarterly	X	33.9251639	-116.6936389	http://waterdata.usgs.gov/nwis/inventory/?site_no=335530116413704
35/3E-08M1S	335522116415201		Semi-annual		33.9222222	-116.6993889	http://waterdata.usgs.gov/nwis/inventory/?site_no=335522116415201
35/3E-09M1S	335525116410201	Site 11	Quarterly	X	33.9236083	-116.6840083	http://waterdata.usgs.gov/nwis/inventory/?site_no=335525116410201
35/3E-09M2S	335525116410202	Site 11	Quarterly	X	33.9236083	-116.6840083	http://waterdata.usgs.gov/nwis/inventory/?site_no=335525116410202
35/3E-09M3S	335525116410203	Site 11	Quarterly	X	33.9236083	-116.6840083	http://waterdata.usgs.gov/nwis/inventory/?site_no=335525116410203
35/3E-09M4S	335525116410204	Site 11	Quarterly	X	33.9236083	-116.6840083	http://waterdata.usgs.gov/nwis/inventory/?site_no=335525116410204

Table 3. Water-quality network.

Abbreviated State well number	USGS site number	Well Type	Site name	Sampling year					Latitude (NAD83)	Longitude (NAD83)	Link to USGS online data containing site, water-quality, and water-level data
				2024	2025	2026	2027	2028			
2S/1W-27P1S	335743116582401	Production well		X				X	33.9621250	-116.9734444	http://waterdata.usgs.gov/nwis/inventory/?site_no=335743116582401
2S/1W-29H1S	335820116595901	Production well			X				33.9721917	-117.0005611	http://waterdata.usgs.gov/nwis/inventory/?site_no=335820116595901
2S/1W-32M1S	335709117004701	Production well			X				33.9526139	-117.0140528	http://waterdata.usgs.gov/nwis/inventory/?site_no=335709117004701
2S/1W-33D2S	335741116595201	Production well				X			33.9611667	-116.9986389	http://waterdata.usgs.gov/nwis/inventory/?site_no=335741116595201
2S/1W-35J1S	335714116565001	SGPWA monitoring well	Site 6			X			33.9541333	-116.9471528	http://waterdata.usgs.gov/nwis/inventory/?site_no=335714116565001
2S/1W-35J2S	335714116565002	SGPWA monitoring well	Site 6			X			33.9541333	-116.9471528	http://waterdata.usgs.gov/nwis/inventory/?site_no=335714116565002
2S/1W-35J3S	335714116565003	SGPWA monitoring well	Site 6			X			33.9541333	-116.9471528	http://waterdata.usgs.gov/nwis/inventory/?site_no=335714116565003
2S/1W-35P1S	335650116572101	Production well				X			33.9473611	-116.9559722	http://waterdata.usgs.gov/nwis/inventory/?site_no=335650116572101
2S/2W-14C1S	340014117034301	Production well			X				34.0038972	-117.0627167	http://waterdata.usgs.gov/nwis/inventory/?site_no=340014117034301
2S/2W-24L1S	335848117024301	Production well			X				33.9799417	-117.0451889	http://waterdata.usgs.gov/nwis/inventory/?site_no=335848117024301
3S/1F-03I1S	335618116513401	SGPWA monitoring well				X			33.9383583	-116.8594777	http://waterdata.usgs.gov/nwis/inventory/?site_no=335618116513401
3S/1E-07E2S	335540116553901	Production well		X			X		33.9278361	-116.9289833	http://waterdata.usgs.gov/nwis/inventory/?site_no=335540116553901
3S/1E-10N1S	335515116522801	Production well		X					33.9206944	-116.8755833	http://waterdata.usgs.gov/nwis/inventory/?site_no=335515116522801
3S/1E-11F1S	335531116510401	SGPWA monitoring well	Site 10		X				33.9253000	-116.8513444	http://waterdata.usgs.gov/nwis/inventory/?site_no=335531116510401
3S/1E-11F2S	335531116510402	SGPWA monitoring well	Site 10		X				33.9253000	-116.8513444	http://waterdata.usgs.gov/nwis/inventory/?site_no=335531116510402
3S/1E-11F3S	335531116510403	SGPWA monitoring well	Site 10		X				33.9253000	-116.8513444	http://waterdata.usgs.gov/nwis/inventory/?site_no=335531116510403
3S/1E-11F4S	335531116510404	SGPWA monitoring well	Site 10		X				33.9253000	-116.8513444	http://waterdata.usgs.gov/nwis/inventory/?site_no=335531116510404
3S/1E-12D1S	335552116500901	Production well			X				33.9311264	-116.8366863	http://waterdata.usgs.gov/nwis/inventory/?site_no=335552116500901
3S/1E-17C1S	335504116541501	Production well		X			X		33.9177528	-116.9050389	http://waterdata.usgs.gov/nwis/inventory/?site_no=335504116541501
3S/1E-18D1S	335504116554101	Production well			X				33.9176889	-116.9289250	http://waterdata.usgs.gov/nwis/inventory/?site_no=335504116554101
3S/1W-02M1S	335616116574901	Production well		X			X		33.9380000	-116.9637222	http://waterdata.usgs.gov/nwis/inventory/?site_no=335616116574901
3S/1W-03K2S	335621116581701	Production well			X				33.9386806	-116.9690972	http://waterdata.usgs.gov/nwis/inventory/?site_no=335621116581701
3S/1W-10R4S	335509116575201	Production well			X				33.9192222	-116.9644167	http://waterdata.usgs.gov/nwis/inventory/?site_no=335509116575201
3S/1W-12B2S	335556116560701	Production well		X			X		33.9321750	-116.9356194	http://waterdata.usgs.gov/nwis/inventory/?site_no=335556116560701
3S/1W-12K1S	335530116555901	Production well			X				33.9250028	-116.9332583	http://waterdata.usgs.gov/nwis/inventory/?site_no=335530116555901
3S/2E-07G2S	335535116483801	Production well		X			X		33.9264042	-116.8114075	http://waterdata.usgs.gov/nwis/inventory/?site_no=335535116483801
3S/2E-07K1S	335523116484601	Production well			X		X		33.9231111	-116.8135000	http://waterdata.usgs.gov/nwis/inventory/?site_no=335523116484601
3S/2E-07P1S	335513116490601	SGPWA monitoring well	Site 8		X				33.9214639	-116.8184500	http://waterdata.usgs.gov/nwis/inventory/?site_no=335513116490601
3S/2E-07P2S	335513116490602	SGPWA monitoring well	Site 8		X				33.9214639	-116.8184500	http://waterdata.usgs.gov/nwis/inventory/?site_no=335513116490602
3S/2E-07P3S	335513116490603	SGPWA monitoring well	Site 8		X				33.9214639	-116.8184500	http://waterdata.usgs.gov/nwis/inventory/?site_no=335513116490603
3S/2E-07P4S	335513116490604	SGPWA monitoring well	Site 8		X				33.9214639	-116.8184500	http://waterdata.usgs.gov/nwis/inventory/?site_no=335513116490604
3S/2E-09E1S	335532116471701	Production well				X			33.9256944	-116.7887500	http://waterdata.usgs.gov/nwis/inventory/?site_no=335532116471701
3S/2E-11H1	335534116441501	SGPWA monitoring well	Site 13			X			33.9261500	-116.7377194	http://waterdata.usgs.gov/nwis/inventory/?site_no=335534116441501
3S/2E-11H2	335534116441502	SGPWA monitoring well	Site 13			X			33.9261500	-116.7377194	http://waterdata.usgs.gov/nwis/inventory/?site_no=335534116441502
3S/2E-11H3	335534116441503	SGPWA monitoring well	Site 13			X			33.9261500	-116.7377194	http://waterdata.usgs.gov/nwis/inventory/?site_no=335534116441503
3S/2E-15P1S	335423116455301	SGPWA monitoring well	Site 9	X			X		33.9063778	-116.7648500	http://waterdata.usgs.gov/nwis/inventory/?site_no=335423116455301
3S/2E-15P2S	335423116455302	SGPWA monitoring well	Site 9	X			X		33.9063778	-116.7648500	http://waterdata.usgs.gov/nwis/inventory/?site_no=335423116455302
3S/2E-15P3S	335423116455303	SGPWA monitoring well	Site 9	X			X		33.9063778	-116.7648500	http://waterdata.usgs.gov/nwis/inventory/?site_no=335423116455303
3S/3E-07D1S	335556116431001	Production well			X				33.9322222	-116.7194444	http://waterdata.usgs.gov/nwis/inventory/?site_no=335556116431001
3S/3E-07M1S	335522116430701	Production well				X			33.9230705	-116.7197378	http://waterdata.usgs.gov/nwis/inventory/?site_no=335522116430701
3S/3E-08L1S	335530116413701	SGPWA monitoring well	Site 12				X		33.9251639	-116.6936389	http://waterdata.usgs.gov/nwis/inventory/?site_no=335530116413701

Abbreviated State well number	USGS site number	Well Type	Site name	Sampling year	Latitude (NAD83)	Longitude (NAD83)	Link to USGS online data containing site, water quality, and water level data
35/3E-08L2S	335530116413702	SGPWA monitoring well	Site 12	X	33.9251639	-116.6936389	http://waterdata.usgs.gov/nwis/inventory/?site_no=335530116413702
35/3E-08L3S	335530116413703	SGPWA monitoring well	Site 12	X	33.9251639	-116.6936389	http://waterdata.usgs.gov/nwis/inventory/?site_no=335530116413703
35/3E-08L4S	335530116413704	SGPWA monitoring well	Site 13	X	33.9251639	-116.6936389	http://waterdata.usgs.gov/nwis/inventory/?site_no=335530116413704
35/3E-08M1S	335522116415201	Production well					
35/3E-09M1S	335525116410201	SGPWA monitoring well	Site 11	X	33.9222222	-116.6993889	http://waterdata.usgs.gov/nwis/inventory/?site_no=335522116415201
35/3E-09M2S	335525116410202	SGPWA monitoring well	Site 11	X	33.9236083	-116.6840083	http://waterdata.usgs.gov/nwis/inventory/?site_no=335525116410202
35/3E-09M3S	335525116410203	SGPWA monitoring well	Site 11	X	33.9236083	-116.6840083	http://waterdata.usgs.gov/nwis/inventory/?site_no=335525116410203
35/3E-09M4S	335525116410204	SGPWA monitoring well	Site 11	X	33.9236083	-116.6840083	http://waterdata.usgs.gov/nwis/inventory/?site_no=335525116410204



Heather P. Dyer
San Bernardino Valley Municipal Water District
380 East Vanderbilt Way
San Bernardino, CA 92408

Lance Eckhart
San Gorgonio Pass Water Agency
1210 Beaumont Avenue
Beaumont, CA 92223

Re: Cost Sharing Letter Agreement for the Fiscal Year 2023-2024 USGS Water Resources Investigations for the Yucaipa Basin

San Bernardino Valley Municipal Water District (“San Bernardino Valley”) and the San Gorgonio Pass Water Agency (“Pass Agency”) have a long history of cooperative efforts to serve their respective services areas, including sharing capacity and delivery in the East Branch Extension of the California Aqueduct. The Yucaipa Basin straddles the service areas of San Bernardino Valley and Pass Agency, with 84% of the Basin’s area in the former and 16% in the latter. As the source of imported water for their respective portions of the Basin – that is State Water Contractors, both agencies play a very strategic role in regional water management and groundwater sustainability. In that regard, both agencies helped in forming the Yucaipa Sustainable Groundwater Management Agency in 2017 and together, contributes 12% of the funding.

Historically, San Bernardino Valley has paid for United States Geological Survey (USGS) scientific studies to improve optimal water management for the groundwater basins in its service area, including the San Bernardino, Rialto-Colton, and Yucaipa Basins. Going forward, San Bernardino Valley and Pass Agency have agreed to share the USGS costs for the Yucaipa Basin. The proposed cost share is based on the percentage of the Basin’s surface area within the San Bernardino Valley and the Pass Agency. This Cost Sharing Letter Agreement (“Agreement”) sets forth the understanding between the two agencies regarding the scope of work and associated costs of the Fiscal Year 2023-2024 Water Resources Investigations with the USGS.

San Bernardino Valley and Pass Agency hereby agree to share the USGS Fiscal Year 2023-2024 Joint Funding Agreement costs pertaining to the Yucaipa Basin as provided in the project budget and according to the provisions set forth below. The scope of work shall consist of that work referenced in the attached USGS’s Joint Funding Agreement 23ZGJFA21000080. Work performed under the Agreement will be conducted on a fixed-price basis and billing rendered by USGS to San Bernardino Valley on a quarterly basis.



Yucaipa Basin Project Budget

Item	Total Cooperator Cost	San Bernardino Valley Share (84%) *	Pass Agency Share (16%) *
Task 1b. Technical Outreach and Planning for the Yucaipa Basin	\$10,779	\$9,054	\$1,725
Task 4. Water Quality Data for the Yucaipa Basin	\$228,960	\$192,326	\$36,634
Task 5. Evaluation of fate and transport of recharge water in the Yucaipa Basin	\$44,851	\$37,675	\$7,176
Task 6. Evaluate a new USGS monitoring well site in the Yucaipa Basin	\$5,938	\$4,988	\$950
TOTAL	\$290,528	\$244,043	\$46,485

*Values are rounded to the nearest thousand.

I. Effective Date and Term

This Agreement shall be effective on the date of full execution of this Agreement by both San Bernardino Valley and Pass Agency (“Effective Date”). The term of this Agreement shall be from October 1, 2023 to June 30, 2024.

2. General Provisions

(a) Indemnification

Each Party ("Indemnitors") hereby agrees to defend, indemnify, and hold free and harmless the other Parties ("Indemnitees") from and against any and all liability, expense, including defense costs and legal fees, and claims for damages of any nature whatsoever, arising from or connected with Indemnitors' activities under this Agreement.

(b) Notices

Correspondence to be given to any Party may be sent by first-class mail, addressed, and delivered as set forth below in the address blocks for each Party.

(c) Representation of Authority

Each Party represents to the other that it has the authority to enter into this Agreement and that the individual signing this Agreement on behalf of their respective Parties has the authority to execute this Agreement and to bind their respective Parties to the terms and conditions of this Agreement.



(d) Counterparts

This Agreement may be executed in several counterparts, all or any of which shall be regarded for all purposes as one original and shall constitute and be but one and the same instrument.

(e) Invoicing

San Bernardino Valley will administer the contract with USGS and be responsible for all payments to USGS. Upon execution of this Agreement, San Bernardino Valley will invoice the Pass Agency for its full Pass Agency Share as set forth herein. The Pass Agency shall submit payment of its Pass Agency Share to San Bernardino Valley within 45 days after receipt of said invoice. San Bernardino Valley will prepare a final disposition of USGS invoices for Pass Agency review no later than 45 days after performance of the USGS tasks as set forth herein. In the event the amount paid by the Pass Agency exceeds the total amount owed for the Pass Agency Share under the USGS invoices, San Bernardino Valley shall refund the amount of the overpayment to the Pass Agency within 45 days after the date of the final USGS invoices.

(f) Coordination and Cooperation

The Parties acknowledge that they are entering into an Agreement in which the cooperation of all Parties will be required, including the need to periodically meet, confer, coordinate, and collaborate with USGS.

BY SIGNING BELOW, THE PARTIES AGREE TO BE BOUND BY THE PROVISIONS OF THIS AGREEMENT

SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT

By: _____
 Heather P. Dyer, CEO/General Manager

Dated: _____

SAN GORGONIO PASS WATER AGENCY



By: _____
Lance Eckhart, General Manager

Dated: _____

DRAFT



United States Department of the Interior

U.S. GEOLOGICAL SURVEY
California Water Science Center
6000 J Street, Placer Hall
California State University
Sacramento, California 95819-6129
Phone: (916) 278-3000 Fax: (916) 278-3070
<https://www.usgs.gov/centers/ca-water/>

August 21, 2023

Ms. Heather Dyer, CEO/General Manager
San Bernardino Valley Municipal Water District
380 East Vanderbilt Way
San Bernardino, California 92408

Subject: Proposed USGS program for October 1, 2023 – June 30, 2024

Dear Ms. Dyer,

This letter confirms discussions between our respective staffs describing proposed work for the October 1, 2023, through June 30, 2024 agreement period, as part of our cooperative water-resources program between the San Bernardino Valley Municipal Water District (SBVMWD) and the United States Geological Survey (USGS). This 9-month agreement period spans parts of Federal Fiscal Years 2023 and 2024 and is aligned with SBVMWD fiscal years ending June 30.

The cooperative program outlined in this agreement focuses on optimal water management of the Upper Santa Ana Valley Groundwater Basins (USAVGB, namely the San Bernardino Basin Area, Rialto-Colton Basin Area, and the Riverside-Arlington Basin Area), with specific tasks for the Yucaipa Basin to support the Basin's Groundwater Sustainability Plan. Six topical tasks are included: Technical outreach and planning (Task 1); Data collection and maintenance in the USAVGB (Task 2); Evaluation of artificial recharge activities in the USAVGB (Task 3); Data collection in the Yucaipa Basin (Task 4); Fate and transport of artificial recharge water in the Yucaipa Basin (Task 5); New U.S. Geological Survey monitoring-well site in the Yucaipa Basin (Task 6); and Products (Task 7).

This letter provides details of the work that are proposed for each of the 7 tasks during the 9-month agreement period. Proposed funding for each task and subtask is summarized in the attached table. Program accomplishments for the previous agreement are documented in a separate letter. This letter, however, does provide brief descriptions of how the proposed work fits within the long-term study plan for each component of the program.

1. Technical outreach and planning

In the 2023–24 program year, technical outreach will be provided, as requested by SBVMWD, to SBVMWD and partner agencies in the USAVGB (subtask 1a) and the Yucaipa Basin (subtask 1b).

1a. Technical outreach and planning for the USAVGB

Technical outreach will be provided as requested by SBVMWD, to SBVMWD, water agencies in the USAVGB, and the general public. The USGS will provide technical guidance and support to help identify optimal water-management objectives and technical issues in achieving optimal management. This technical outreach is expected to include attendance at up to six workshops and (or) technical

Ms. Heather Dyer, CEO/General Manager, San Bernardino Valley Municipal Water District

meetings, giving presentations, individual briefings of agencies, technical review of proposed plans, and maintenance and updating the Bunker Hill project web page (<http://ca.water.usgs.gov/sanbern>).

Deliverables: Written summary of technical outreach provided each quarter; and a preliminary workplan for optimal water management in the USAVGB.

1b. Technical outreach and planning for the Yucaipa Basin

Technical outreach will be provided as requested by SBVMWD, to SBVMWD, the Yucaipa groundwater sustainability agency (GSA), its member agencies, and the general public. The USGS will provide the necessary technical guidance and support to help ensure success as the GSA continues to learn about the hydrogeology of the basin and develops and implements sustainable water management plans. This technical outreach may include attendance at meetings, giving presentations, individual briefings of agencies, completing publication of information products, maintenance and updating the project web page, technical review of proposed plans, and technical support for the USGS Yucaipa Integrated Hydrologic Model (YIHM).

Deliverables: Written summary of technical outreach provided each quarter.

2. Data collection and maintenance in the USAVGB

In the 2023–24 program year, the USGS will validate existing USGS surface-water monitoring equipment and surface-water data, validate USGS multiple-depth, monitoring-well sites and groundwater data, identify locations for new surface water and groundwater monitoring sites, and collect new water-quality data. The USGS surface water and groundwater monitoring sites provide valuable data that are used to better understand and to manage the USAVGB, including changes in water levels and water quality; calculations of changes in basin storage; estimates of runoff and recharge; and interaction of surface water and groundwater. These data also are used to calibrate the various groundwater-flow and solute-transport models and are used in multiple studies and by multiple water agencies. Specific subtasks include: assessment of surface-water monitoring sites and data (subtask 2a); assessment of groundwater monitoring sites and data (subtask 2b); and collection of new water quality data (subtask 2c). Work to be performed for each subtask is described below. Funds for all subtasks are included as a single amount in the attached table.

2a. Assessment of surface-water monitoring sites and data

An assessment of the quality of 31 surface-water monitoring sites within, and upstream of, the USAVGB and their records, will be conducted in order to evaluate the quality of USGS surface-water data. Surface-water data from all USGS surface-water monitoring sites will be used to evaluate and characterize historical changes in surface-water flow within watersheds that transect the USAVGB, and may be used to identify potential issues with monitoring equipment. The potential for two new instantaneous surface-water monitoring sites will be evaluated: the two potential sites are along Mill Creek and along the Santa Ana River downstream of the RIX facility. The work described above will be conducted in coordination with staff at the USGS Redlands Field Office.

Deliverables: Written summary of work performed each quarter. Written summary of historical surface-water flow within watersheds that transect the USAVGB. Written summary and scope of work for the installation and monitoring of two new instantaneous surface-water monitoring sites along Mill Creek and the Santa Ana River. Cost estimates for any potential repairs to monitoring equipment will be provided.

2b. Assessment of groundwater monitoring sites and data

An assessment of the quality of selected multiple-depth, monitoring-well sites in the Bunker Hill and Rialto-Colton basins, and their records, will be conducted. The well sites will be rehabilitated, as

Ms. Heather Dyer, CEO/General Manager, San Bernardino Valley Municipal Water District

needed. This assessment and rehabilitation of USGS multiple-depth, monitoring-well sites is a continuation of work from the 2022–23 program year. Six well sites are in the Bunker Hill basin (SBSH, SBEP, SBMP, SBCC, SBRV, and SBCM; <https://ca.water.usgs.gov/sanbern>) and 18 well sites are in the Rialto-Colton basin (El Verde Reservoir, Linden Ponds, Apple St, Cedar Ave, Vineyard Ave, Fontana Landfill, Airport, Easton Reservoir, RCNE, RCSW, Rialto Ave, Cesar Chavez Park, Fogg 1, Fogg 2, CRCR, Lilac Park, RHSW, and RCZ6). The assessment will include written descriptions and photographs of each site documenting the physical condition of the site infrastructure. Documentation of the physical condition of each site will be used to evaluate whether any of the sites should be rehabilitated in future program years.

Groundwater-level data from all USGS multiple-depth, monitoring-well sites will be used to evaluate and characterize historical changes in groundwater levels within and between basins that comprise the USAVGB. Potential locations for up to two new multiple-depth, monitoring-well sites in the USAVGB will be evaluated.

Deliverables: Written summary of work performed each quarter. Written inventory, assessment, and description of suggested repairs or rehabilitation for multiple-depth, monitoring-well sites in the Bunker Hill and Rialto-Colton basins. Written summary of historical changes in groundwater-levels for the groundwater basins that comprise the USAVGB. Written summary and scope of work for the location, drilling, and construction of up to two new multiple-depth, monitoring-well sites in the USAVGB.

2c. Collection of new water-quality data

New water quality data will be collected from selected surface-water monitoring sites and selected multiple-depth, monitoring-well sites in the USAVGB. New water-quality data are necessary to evaluate present conditions of the hydrologic system in order to evaluate the effects of anthropogenic changes on the surface-water and groundwater system, such as an increase or decrease in pumping and changes to the rate and location of artificial aquifer recharge, interaction of surface water and groundwater, and the presence of emerging contaminants. Water-quality sites will be selected in coordination with SBVMWD. Surface-water monitoring sites will be chosen to target the presence of emerging contaminants; multiple-depth, monitoring-well sites will be chosen to refine the hydrogeologic understanding of existing and potential areas for artificial aquifer recharge, to extend long-term records of chemical data, and to better understand vertical groundwater flow in selected areas.

Water samples will be collected from up to six surface-water monitoring sites and up to 18 total wells from 4 multiple-depth, monitoring-well sites in the USAVGB. Laboratory analyses will be performed to measure major and minor ions, trace elements, nutrients, stable isotopes of oxygen and hydrogen, tritium, and carbon-14. The surface water samples will also be analyzed for the presence and concentration of per- and polyfluoroalkyl substances (PFAS). The analytical results will be archived in the USGS National Water Information Systems (NWIS) database, which is a publicly available, permanent archive; and a summary of the results will be presented to SBVMWD at the end of the program year.

Deliverables: Written summary of work performed each quarter. Analytical results for all samples will be archived in the NWIS database, and a written summary of water quality results will be provided to SBVMWD.

3. Evaluation of artificial recharge activities in the USAVGB

The purpose of this task is to improve the regional hydrogeologic understanding to support existing and potential artificial recharge activities in the USAVGB and provide additional information on which to base

Ms. Heather Dyer, CEO/General Manager, San Bernardino Valley Municipal Water District

optimal water management decisions. Specific subtasks include: analysis of the distribution of hydrogeologic facies (subtask 3a); evaluation of vertical groundwater flow (subtask 3b); and evaluation of horizontal groundwater flow (subtask 3c). Results from the three subtasks can be used independently, and collectively to refine the regional hydrogeologic characterization and support the application of artificial recharge water at existing and future locations. Work to be performed for each subtask is described below. Funds for all subtasks are included as a single amount in the attached table.

3a. Analysis of the distribution of hydrogeologic facies

Interferometric synthetic aperture radar (InSAR) analyses will be used in conjunction with borehole lithology data to determine the type and distribution of near-surface hydrogeologic facies in the USAVGB. This information can be used to determine preferred locations for artificial aquifer recharge. InSAR analyses are used to identify deformation of the land surface, and the location of faults that restrict groundwater flow, the location of recharge, and suggests the aerial distribution of fine-grained materials. Hydrogeologic facies interpretations of previous InSAR analyses (Lu and Danskin, 2001; Brandt and others, 2022) will be verified with borehole lithology data compiled from publicly available datasets, and correlated with analyses of groundwater hydrographs and artificial recharge locations.

Deliverables: Written summary of work performed each quarter. Preliminary map of the distribution of near-surface hydrogeologic facies in the USAVGB and the location of existing and proposed artificial recharge locations

3b. Evaluation of vertical groundwater flow

The subsurface hydrogeology and hydraulic pressures determine vertical groundwater-flow gradients in the aquifer. Groundwater may flow up to shallow parts of the aquifer from deeper down, or vice versa. The vertical direction of groundwater flow may vary in different parts of a groundwater basin, and the vertical gradient may change over time due to anthropogenic influences (such as pumping or artificial aquifer recharge). Hydrographs from USGS multiple-depth, monitoring-well sites will be used to characterize vertical groundwater-flow gradients in the USAVGB and help identify potential areas for artificial aquifer recharge.

Deliverables: Written summary of work performed each quarter. Written summary of vertical groundwater flow from USGS multiple-depth, monitoring-well sites in the USAVGB with respect to the location of existing and proposed artificial recharge locations.

3c. Evaluation of horizontal groundwater flow

Analyses of the rate and direction of horizontal groundwater flow can be used to evaluate the presence of geologic structures (such as faults and folds) that may inhibit groundwater flow, evaluate surface water and groundwater interactions along stream channels, and evaluate anthropogenic effects on the groundwater system such as pumping and artificial aquifer recharge. In this subtask, contour maps of groundwater-level elevations will be constructed for the shallow and deep aquifer system to determine the direction of groundwater-flow within and across groundwater basins that comprise the USAVGB. The contour maps will also be used to estimate gaining and losing reaches of the Santa Ana River and to identify depressions from groundwater pumping and the effects of existing artificial recharge locations.

Deliverables: Written summary of work performed each quarter. Preliminary contour map of present-day groundwater-level elevations in the USAVGB. Written summary of horizontal groundwater flow with respect to areas of natural recharge, existing and proposed artificial recharge, groundwater pumping, gaining and losing reaches of the Santa Ana River.

Ms. Heather Dyer, CEO/General Manager, San Bernardino Valley Municipal Water District

4. Water-quality data collection in the Yucaipa Basin

New water-quality data will be collected from selected wells in the Yucaipa Basin. This data will be used to support the interpretive work in Task 5 to provide better estimates of groundwater flow paths and travel time of groundwater recharge in different parts of the basin. Water-quality samples will be collected from the 4 USGS monitoring-well sites in the Yucaipa Basin (YVWC, YVDA, YVEP, and YV6E) and 13 selected production wells. The USGS monitoring-well sites and the 13 production wells have historical water-quality data with the most recent samples collected in the 2010s. The new samples collected at these wells will extend the time-series of data and provide a present-day snapshot of water quality in the Yucaipa Basin. The water-quality data from these wells with historical data will be used in an interpretive report evaluating the flow rate and direction of artificially recharged water in the Yucaipa Basin, and sources and timing of local groundwater recharge (Task 5).

Laboratory analyses will be performed to measure major and minor ions, trace elements, nutrients, stable isotopes of nitrogen, oxygen and hydrogen, tritium, and carbon-14. The analytical results will be archived in the USGS National Water Information Systems (NWIS) database (<https://waterdata.usgs.gov/nwis/>), which is a publicly available, permanent archive; and a summary of the results will be presented to SBVMWD at the end of the program year.

Deliverables: Written summary of work performed each quarter. Analytical results for all samples will be archived in the NWIS database. A summary presentation will be given summarizing the analytical results.

5. Evaluate the fate and transport of artificial recharge water and local sources of groundwater recharge in the Yucaipa Basin

The purpose of this task is to better understand the groundwater chemistry and the hydrogeology of the Yucaipa Basin by investigating groundwater chemical signatures from USGS monitoring-well sites and selected production wells with historical water-quality data and new water-quality data collected as part of Task 2. The work in this task will provide better estimates of groundwater flow paths and travel time of groundwater recharge in different parts of the basin, especially the fate and transport of artificial groundwater recharge at the Wilson Creek and Oak Glen Creek spreading basins. The work will also help to better understand the sources of groundwater recharge in the Yucaipa Basin, to and to better understand historical changes in groundwater chemistry with respect to nitrate contamination and local sources of groundwater recharge that may have contributed to increased nitrate concentrations in the basin. The results from this task will improve the conceptual and quantitative understanding of groundwater flow in the Yucaipa Basin and can be used to improve numerical simulations of groundwater flow in the YIHM. This work will include an evaluation of the groundwater flow paths of artificial recharge water at the Wilson Creek and Oak Glen Creek spreading basins from 2014 through present-day; part of which was originally prepared as a separate report, but is better suited as an addition to this product because of the addition of new water-quality data. The deliverable for this task is a scientific journal article. In the 2023–24 program year, a draft of the scientific journal article will be provided to SBVMWD for review. Final publication of the journal article is anticipated to occur during the 2024 25–program year (funds for the 2024 25–program year are not included in the attached table).

Deliverables: Written summary of work performed each quarter. Draft scientific journal article for SBVMWD review.

6. New U.S. Geological Survey monitoring-well site in the Yucaipa Basin

Artificial recharge at the potential County Line Road recharge sites is designed to support sustainable groundwater management in the Yucaipa Basin. Effective monitoring of groundwater levels and water quality in wells near the recharge sites is important to track the fate and transport of the water within the

Ms. Heather Dyer, CEO/General Manager, San Bernardino Valley Municipal Water District

groundwater system. A new USGS monitoring-well site, YVCL (Yucaipa Valley County Line), at the potential recharge sites will offer an opportunity to monitor groundwater-levels in real-time, collect regular water-quality samples, and track the flow of artificially recharged water at discrete depths below land surface. YVCL would be constructed and monitored in a fashion similar to the other four USGS monitoring-well sites in the Yucaipa Basin. YVCL would likely have a shallow piezometer at the water table, a deep piezometer below the pumping zone, and at least two piezometers at selected depths in between. Each piezometer will be equipped to transmit groundwater-level readings in real time to the USGS NWIS database. A formal proposal for USGS monitoring-well site, YVCL, will be prepared. The proposal will include the location, scope, and costs for drilling, construction and development of up to five piezometers, and initial water-quality sampling.

Deliverables: Written summary of work performed each quarter. Written proposal for drilling, construction, development, and water-quality sampling of a new USGS monitoring-well site, YVCL.

7. Products

This task summarizes the anticipated deliverables for the 2023–24 program year; no additional funds are requested for this task. Preliminary summary results for each task and subtask will be presented to SBVMWD at the end of the 2023–24 program year. Written quarterly updates of work performed on each task and subtask will be presented to SBVMWD throughout the program year. Funds for the preparation and publication of interpretive USGS report(s) will be considered in following program years in consultation with SBVMWD. Anticipated deliverables for each task and subtask for the 2023–24 program year are described in each section of work and are summarized below. Included in the deliverables, but not on the list below, is the final publication of two scientific journal articles, one describing the effects of future climate scenarios on estimated groundwater recharge using the YIHM, and one describing the hydrogeology of the USAVGB; these articles were submitted for review during the 2022–2023 program year and final publication is expected this year. No additional funds were requested for completion of these articles.

Task 1: Summary of technical assistance activities for subtasks 1a and 1b, and workplan for optimal water management for the USAVGB.

Task 2: Presentation of preliminary findings on surface water and groundwater data.

Subtask 2a: Summary analysis of proposed surface-water monitoring stations and surface-water flow data for the USAVGB.

Subtask 2b: Summary analysis of multiple-depth, monitoring-well sites and groundwater data for the USAVGB and proposed groundwater subbasins.

Subtask 2c: Surface-water and groundwater quality results archived in the USGS NWIS database, and a summary analysis of results, including surface-water quality from the Santa Ana River and selected tributaries for emerging contaminants.

Task 3: Presentation of preliminary findings on the effectiveness of artificial recharge activities.

Subtask 3a: Preliminary map and summary analysis of the distribution of hydrogeologic facies.

Subtask 3b: Summary analysis of vertical groundwater-flow gradients.

Ms. Heather Dyer, CEO/General Manager, San Bernardino Valley Municipal Water District

Subtask 3c: Preliminary contour map and summary analysis of groundwater-level elevations.

Task 4: Summary analysis of groundwater quality results; all groundwater quality results archived in the USGS NWIS database.

Task 5: Presentation of preliminary findings and draft of a scientific journal article.

Task 6: Written proposal for drilling, construction, development, and water-quality sampling of a new USGS monitoring-well site, YVCL.

Ms. Heather Dyer, CEO/General Manager, San Bernardino Valley Municipal Water District

The proposed program for the October 1, 2023 – June 30, 2024, agreement period, including the 7 tasks and associated subtasks and costs, are as follows:

Task	Funding		
	SBVMWD	USGS	Total
1. Technical outreach and planning			
a. Technical outreach and planning for the USAVGB	\$ 41,698	\$ 10,178	\$ 51,876
b. Technical outreach and planning for the Yucaipa Basin	\$ 10,779	\$ 2,695	\$ 13,474
<i>Subtotal</i>	\$ 52,477	\$ 12,873	\$ 65,350
2. Data collection and maintenance in the USAVGB	\$ 169,362	\$ 26,679	\$ 196,041
3. Evaluation of artificial recharge activities in the USAVGB	\$ 95,646	\$ 23,912	\$ 119,558
4. Water-quality data collection in the Yucaipa Basin	\$ 228,960	\$ 26,773	\$ 255,733
5. Evaluate the fate and transport of artificial recharge water and local sources of groundwater recharge in the Yucaipa Basin	\$ 44,851	\$ 11,213	\$ 56,064
6. New U.S. Geological Survey monitoring-well site in the Yucaipa Basin	\$ 5,938	\$ 1,485	\$ 7,423
7. Products	-	-	-
TOTAL (Tasks 1-7)	\$ 597,234	\$ 102,935	\$ 700,169

Total cost for the proposed investigations program is **\$700,169**. Cost to SBVMWD is **\$597,234**. Subject to the availability of cooperative matching funds, the USGS will provide **\$102,935**. Total cost is for the agreement period October 1, 2023, through June 30, 2024.

Enclosed is a digital version of Joint Funding Agreement’s (JFA’s) 23ZGJFA21000080 for your approval. If you are in agreement with this proposed program, please return a fully executed JFA to our office via email address iaros@usgs.gov. Work performed with funds from this JFA will be conducted on a fixed-price basis. Billing for the agreement will be rendered on a quarterly basis.

Thank you for your long-standing support of our collective efforts to better understand the water resources of the San Bernardino Valley.

Sincerely,

ANKE MUELLER-
SOLGER

Digitally signed by ANKE
MUELLER-SOLGER
Date: 2023.08.21
15:16:06 -07'00'

Anke Mueller-Solger
Director, USGS California Water Science Center

cc: Claudia C. Faunt, Supervisory Hydrologist, Groundwater Availability and Use Program
Wesley Danskin, Research Hydrologist
Geoff Cromwell, Geologist

Form 9-1366
(May 2018)

**U.S. DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY**

JOINT FUNDING AGREEMENT

Customer #: 600000809
 Agreement #: 23ZGJFA21000080
 Project #: ZG00A4X
 TIN #: 95-6005196
 Fixed Cost Agreement YES

FOR

WATER RESOURCES INVESTIGATIONS

THIS AGREEMENT is entered into as of the, 1ST day of OCTOBER, 2023 by the U.S. GEOLOGICAL SURVEY, UNITED STATES DEPARTMENT OF THE INTERIOR, party of the first part, and the San Bernardino Valley Municipal Water District, party of the second part.

1. The parties hereto agree that subject to availability of appropriations and in accordance with their respective authorities there shall be maintained in cooperation for cooperative water resources investigation in the San Bernardino Valley Water District as outlined in the USGS program letter dated August 21, 2023 herein called the program. The USGS legal authority is 43 USC 36C; 43 USC 50; and 43 USC 50b.

2. The following amounts shall be contributed to cover all of the cost of the necessary field and analytical work directly related to this program. 2(b) includes In-Kind Services in the amount of \$0.00

(a) by the party of the first part during the period	Amount	Date	to	Date
	\$102,935.00	October 1, 2023		June 30, 2024
(b) by the party of the second part during the period	Amount	Date	to	Date
	\$597,234.00	October 1, 2023		June 30, 2024

USGS DUNS is 1761-38857

(c) Contributions are provided by the party of the first part through other USGS regional or national programs, in the amount of: \$0.00

Description of the USGS regional/national program:
not applicable

(d) Additional or reduced amounts by each party during the above period or succeeding periods as may be determined by mutual agreement and set forth in an exchange of letters between the parties.

(e) The performance period may be changed by mutual agreement and set forth in an exchange of letters between the parties.

3. The costs of this program may be paid by either party in conformity with the laws and regulations respectively governing each party.

4. The field and analytical work pertaining to this program shall be under the direction of or subject to periodic review by an authorized representative of the party of the first part.

5. The areas to be included in the program shall be determined by mutual agreement between the parties hereto or their authorized representatives. The methods employed in the field and office shall be those adopted by the party of the first part to insure the required standards of accuracy subject to modification by mutual agreement.

6. During the course of this program, all field and analytical work of either party pertaining to this program shall be open to the inspection of the other party, and if the work is not being carried on in a mutually satisfactory manner, either party may terminate this agreement upon 60 days written notice to the other party.

9-1366 (Continuation) Customer #: 600000809 Agreement #: 23ZGJFA21000080

7. The original records resulting from this program will be deposited in the office of origin of those records. Upon request, copies of the original records will be provided to the office of the other party.
8. The maps, records or reports resulting from this program shall be made available to the public as promptly as possible. The maps, records or reports normally will be published by the party of the first part. However, the party of the second part reserves the right to publish the results of this program, and if already published by the party of the first part shall, upon request, be furnished by the party of the first part, at cost, impressions suitable for purposes of reproduction similar to that for which the original copy was prepared. The maps, records or reports published by either party shall contain a statement of the cooperative relations between the parties.
 The Parties acknowledge that scientific information and data developed as a result of the Scope of Work (SOW) are subject to applicable USGS review, approval, and release requirements, which are available on the USGS Fundamental Science Practices website (<https://www2.usgs.gov/fsp/>).
9. Billing for this agreement will be rendered.
 QUARTERLY
 Invoices not paid within 60 days from the billing date will bear Interest, Penalties, and Administrative cost at the annual rate pursuant the Debt Collection Act of 1982, (codified at 31 U.S.C. § 3717) established by the U.S. Treasury.

U.S. Geological Survey United States Department of the Interior <u>USGS Point of Contact</u>	San Bernardino Valley Municipal Water District <u>Customer Point of Contact</u>
Name: Irene Rios, Budget Analyst Address: 4165 Spruance Rd., Suite 200 San Diego, CA 92101 Telephone: 619-225-6156 Email: iaros@usgs.gov	Name: Heather Dyer, CEO/General Manager Address: 380 East Vanderbilt Way San Bernardino, California 92408 Telephone: 909-387-9256 Email: heatherd@sbvmwd.com

Signatures and Date

Signature: ANKE MUELLER-SOLGER <small>Digitally signed by ANKE MUELLER-SOLGER Date: 2023.08.21 15:16:48 -07'00'</small>	Date:	Signature: _____ Date: _____
Name: Anke Mueller-Solger Title: Director, USGS CA Water Science Center	Name: Heather Dyer Title: CEO/General Manager	

USGS Program Letter 2023-2024

BOARD OF DIRECTORS MEETING

SEPTEMBER 11, 2023



Agenda

USGS Program
Letter History



USGS Program
Letter Elements



Yucaipa Basin
Collaboration



Staff
Recommendation



USGS Program History

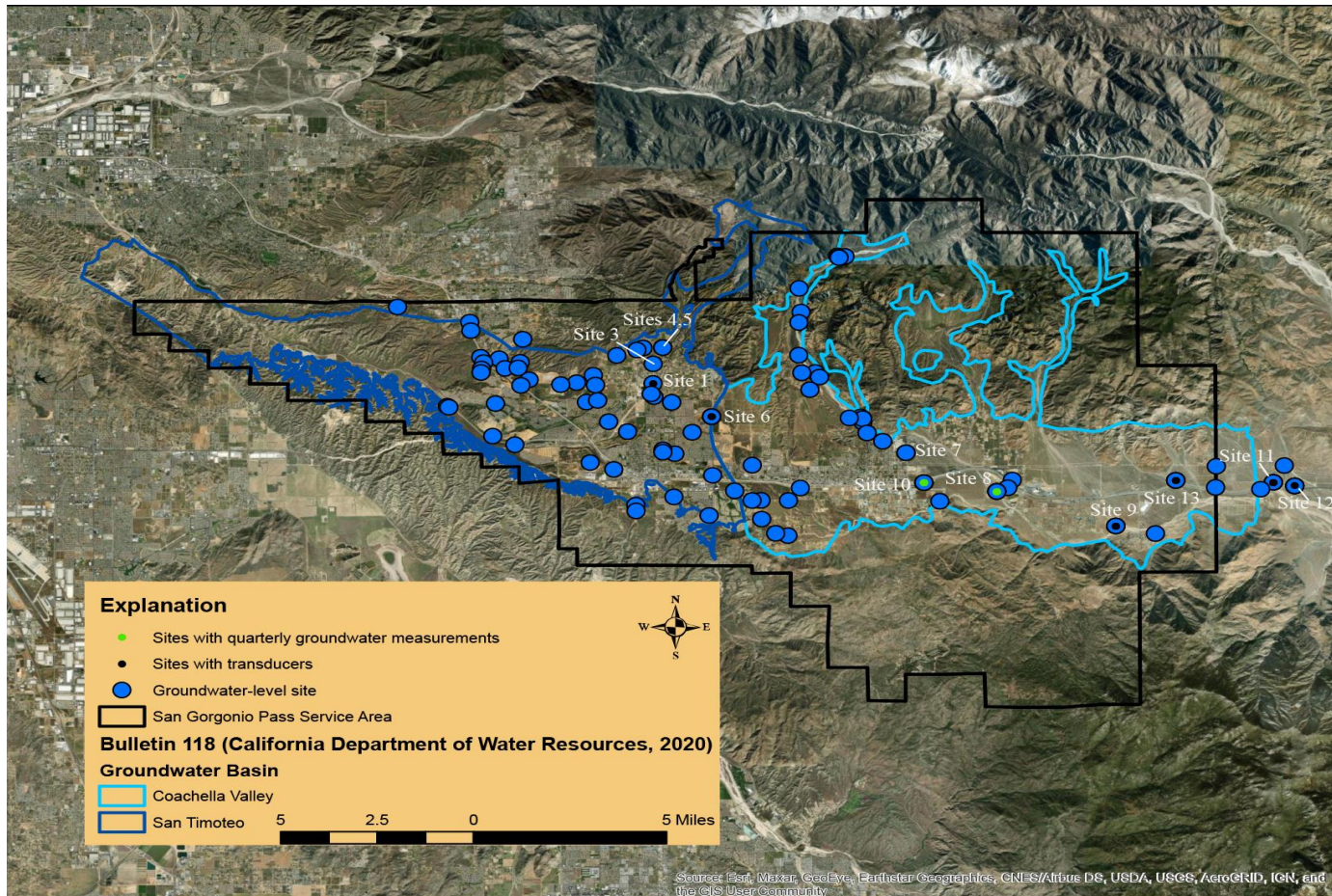
USGS Program Letter has historically been the primary source of hydrologic data collection and water resources investigations

USGS Program in recent years

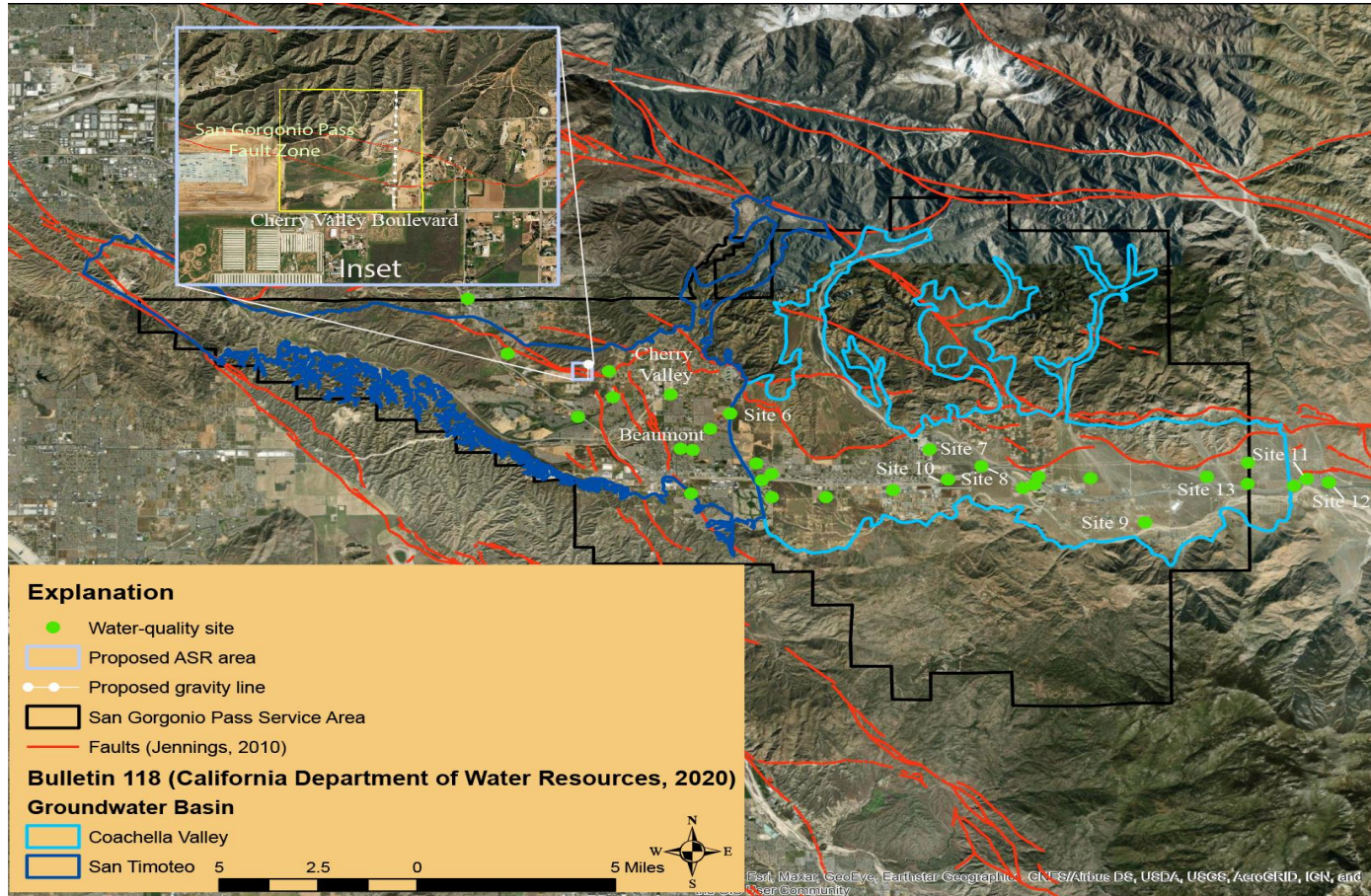
- Water Level and Water Quality Monitoring
- USGS-SGPWA Website Updates
- Calimesa Subarea Data Collection
- Geographic Information System (GIS) Support
- Smaller focused studies for strategic purposes



Task 1 – Groundwater Level Monitoring



Task 2 – Groundwater Quality Monitoring



Task 3 – Gravity Survey

Two fault splays of the San Gorgonio Pass Fault Zone trending across the Danny Thomas Ranch Property

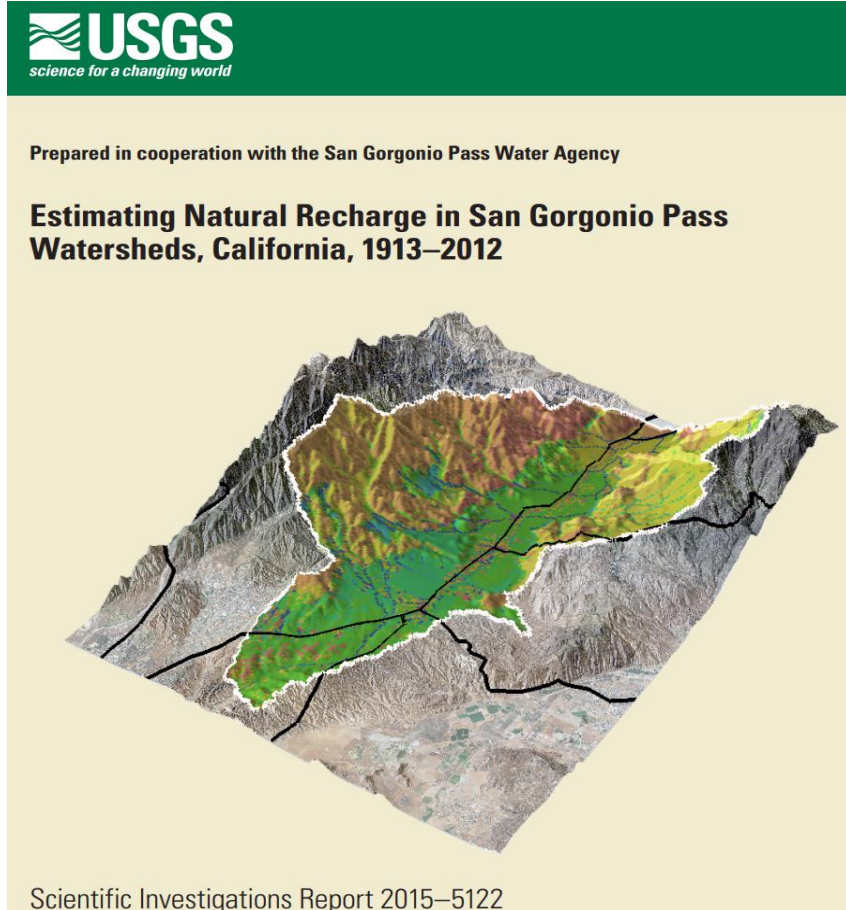
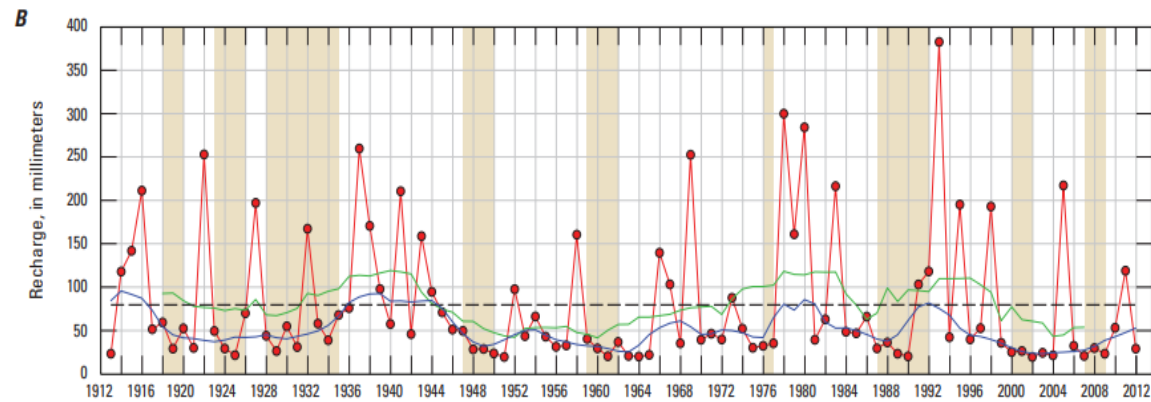
Perform gravity survey at Danny Thomas Ranch to determine if these faults will have an impact on future SWP recharge

Gravity survey will provide precise location for the faults running through the property



Task 4 – Data Interpretation and Publications

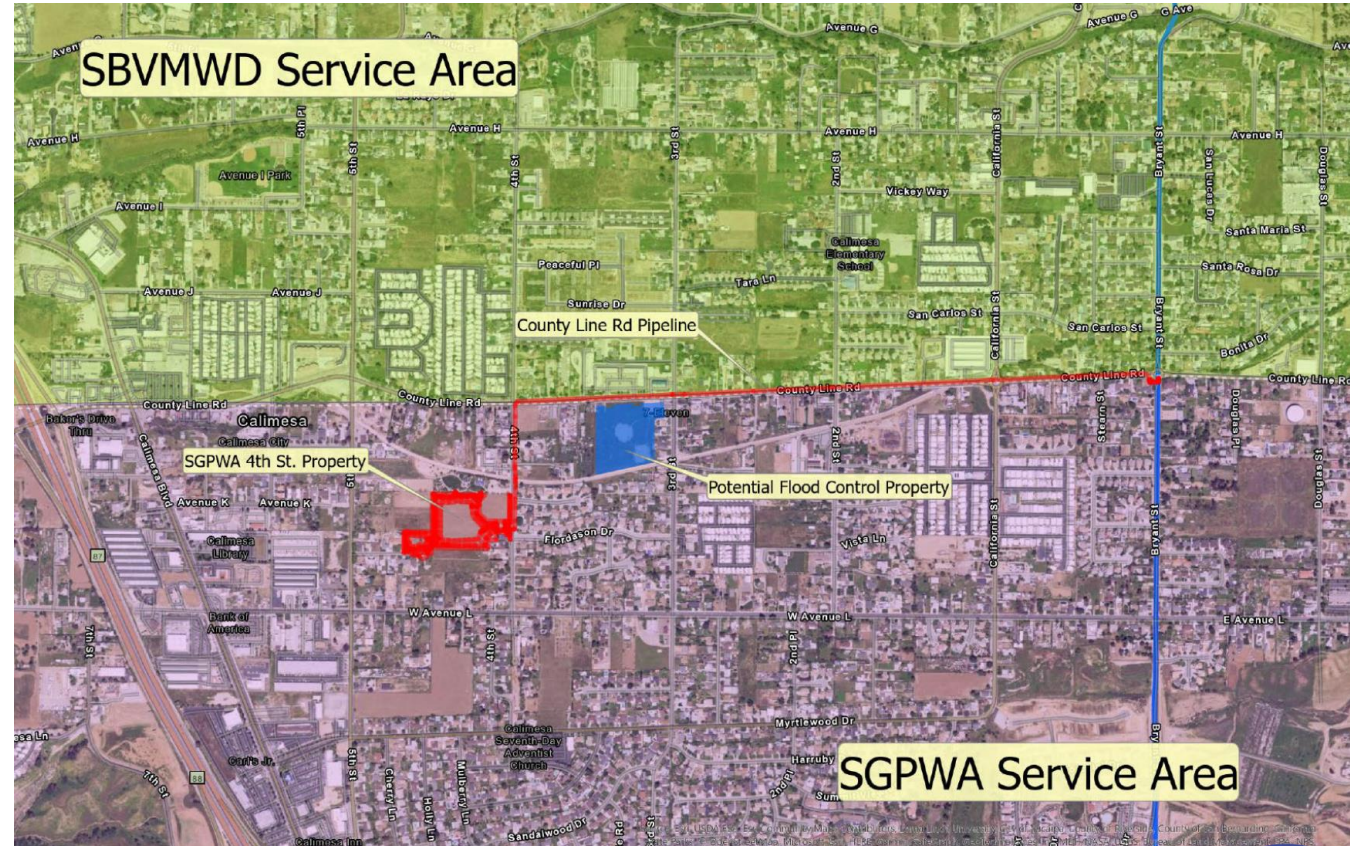
Development of an interpretive report describing the physical and hydrogeologic characteristics, gravity results, and changes in groundwater chemistry of the SGPWA service area since 1995.



Additional USGS Tasks in Yucaipa Basin

Cost-Share Agreement supporting the following tasks in the Yucaipa Basin:

- Technical Outreach and Planning
- Collection of Water Quality Data
- Evaluation of fate and transport of SWP recharge water
- Evaluation of a new USGS monitoring well site near the County Line Recharge Project



Recommendation

Staff requests the Board of Directors authorize the General Manager to execute the cooperative program Joint Funding Agreement with the United States Geological Survey for the FY 2023-2024 for \$265,478, (USGS credit of \$40,202 will be applied to this amount) and to enter into the cost-sharing agreement with SBVMWD for the USGS Yucaipa Basin activities for \$46,485.

