San Gorgonio Pass Water Agency

DATE: September 16, 2024

TO: Board of Directors

FROM: Lance Eckhart, General Manager

BY: Matthew Howard, Operations Manager

SUBJECT: JOINT FUNDING AGREEMENT BETWEEN SAN GORGONIO PASS WATER AGENCY AND THE UNITED STATES GEOLOGICAL SURVEY FOR THE ANNUAL EXTENSION OF THE COOPERATIVE WATER RESOURCES PROGRAM

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 Agency and the United States Geological Survey (USGS) for the fiscal year 2024-2025 (FY 2024-25), 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 (JFA) between the USGS and the 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 Agency's ability to understand and manage the basin(s). The extension of this program for FY 2024-25 will be crucial to the Agency's ongoing basin management efforts. Groundwater monitoring is 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.

2. Water-Quality Monitoring
    - USGS staff will collect water quality samples at selected wells to supplement regional monitoring efforts and maintain the regional water-quality monitoring program.

3. Electrical Resistivity Tomography Survey
    - The USGS will perform an electrical resistivity tomography (ERT) survey on our newly acquired Brookside West property. The ERT survey will more precisely locate mapped strands of the Beaumont Plain Fault Zone that cut through the Brookside West property. This method will also provide a reconnaissance to help determine the location of find-grained material that may affect the downward movement of recharging water. The data collected from this ERT survey and data interpretations will be published in the interpretive USGS report described in Task 5.

4. Burnt Canyon Stream gage Installation and Monitoring
    - USGS staff will repair, install, and monitor the Upper Burnt Canyon and Lower Burnt Canyon stream gages, both of which were destroyed during the 2020 Apple Fire. Access to the gages has recently been restored following road clearing and excavation efforts. Both gages will be repaired and calibrated to monitor water flow and report data every 15 minutes using telemetry equipment. After repairs, USGS staff will visit each gage quarterly to take check measurements. These gages are essential for tracking the diversion of water from the East and South Forks of the Whitewater River into Banning Canyon.

5. 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 Agency service area. This report will include an analysis of the gravity and ERT results and the 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 JFA for FY 2024-25.

USGS-SGPWA Task	Agency Funds	USGS Funds	Total Funds
Task 1: Water-Level Monitoring	**$112,576**	$26,039	$138,615
Task 2: Water-Quality Monitoring	**$79,682**	$11,198	$90,881

Task 3: Electrical Resistivity Tomography Survey	**$89,829**	$19,651	$109,480
Task 4: Repair and Replace Burnt Canyon Gage Sites	**$26,990**	$9,660	$36,650
Task 5: Data Documentation, Reporting, Interpretation, and Publications	**$25,541**	$6,385	$31,927
Total:	***$334,619***	*$72,933*	*$407,552*

The USGS has procured Cooperative Matching Funds (CMF) of $72,933 to augment the total cost of this year's program. There is an increase in USGS matching funds of ~$33,000 over last year and an increase of ~$109,000 in the Agency portion compared to the previous year. Comparison of this year's USGS program costs to the 2023-2024 program results in a 53.5% increase in overall costs. The increase in costs from the previous fiscal year is due to the new scope items outlined in Tasks 3 and Task 4. The costs for Task 3 related to the ERT survey on Brookside West can be used as a local cost share match for our recently awarded United States Bureau of Reclamation grant award.

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 5. Following the signing of the attached letter, matching funds will be secured, and the USGS will execute the Joint Funding Agreement.

The 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 Agency is a member of the Yucaipa Basin GSA and will benefit from these planned activities that will support our County Line Road Project in the Yucaipa Basin. The cost-share methodology was determined by the percentage of the Yucaipa Basin surface area within the SBVMWD and Agency service areas, which are 84% and 16%, respectively.

These activities include technical outreach and planning to all stakeholders in the Yucaipa Basin, water quality data collection and monitoring, and an evaluation of the fate and transport of SWP recharge within the Yucaipa Basin. The Agency will be cost-sharing specific tasks outlined in the table below:

USGS-SBVMWD Yucaipa Basin Task	**Total Cost**	**San Bernardino Valley Share (84%)**	**Pass Agency Share (16%)**
Task 1. Technical Outreach and Planning	$43,367	$36,428	**$6,939**
Task 4. Water Quality Data for the Yucaipa Basin	$25,923	$21,775	**$4,148**

Task 5. Evaluation of fate and transport of SWP recharge water in the Yucaipa Basin	$45,067	$37,856	**$7,211**
TOTAL:	$114,357	$96,059	**$18,298**

The USGS and the Agency have maintained a collaborative and productive partnership for the past twenty-nine 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.
- The USGS provides federal matching funds to cover a portion of the project costs, helping to support collaborative research and data collection efforts.

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 to the Agency for both the USGS Agency JFA and cost-share activities in Yucaipa Basin would be $352,917, with $73,933 being matched by the USGS for a total of $425,850 for FY 2024-25.

The Agency budgeted $300,000 for USGS services in the FY 2024-25 General Fund Budget. However, the actual cost exceeds this amount by $52,917 due to tasks in the JFA that were identified after the budget was approved; specifically, Task 3, the Electrical Resistivity Tomography (ERT) Survey for Brookside West and Task 4, gage repairs. It should be noted that Task 3 can be as counted as part of the local cost-share for the USBR grant awarded to the Agency for the design of Brookside West. Task 4 involves repairing the Burnt Canyon Stream Gages to monitor Whitewater River diversions into Banning Canyon, which only recently became accessible for repairs and monitoring. To cover this overage, staff will utilize unspent funds within the budget category.

AGENCY'S STRATEGIC PLAN APPLICATION

Contracting with the USGS with the annual extension of the cooperative water resources program is consistent with the Agency's Mission Statement to support the region's quality of life through sustainable water management and with the following strategies:

- Align with the current and future water landscape, supporting the region's long-term needs by diversifying the local supply portfolio and advancing water sustainability.
- Serve the public with dedication, determination, transparency, collaboration, and a commitment to expanding knowledge.
- Maintain, foster and expand collaboration with local, regional, state and federal partners to develop strategic solutions to water supply challenges and opportunities.
- Engage and educate the public in a meaningful way that generates a greater understanding of the agency's role in water supply reliability and the importance of sustainability.

ACTION

Authorize the General Manager to execute the cooperative program Joint Funding Agreement with the United States Geological Survey for the FY 2024-2025 for $407,552, and to enter into the cost-sharing agreement with SBVMWD for the USGS Yucaipa Basin activities for $18,298.

ATTACHMENTS

1. U.S. Geological Survey Joint Funding Agreement with SGPWA for Water Resource Investigations, Agreement # 24ZGJFA21000088
2. SBVMWD and Pass Agency Cost Sharing Letter Agreement for the Fiscal Year 2024-2025 USGS Water Resources Investigations for the Yucaipa Basin
3. U.S. Geological Survey Joint Funding Agreement with SBVMWD for Water Resource Investigations, Agreement # 25ZGJFA21000060

United States Department of the Interior

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

September 4, 2024

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

Dear Mr. Eckhart:

This letter confirms discussions between our respective staff, concerning the cooperative program between the San Gorgonio Pass Water Agency (SGPWA) and the U.S. Geological Survey (USGS) during the period October 1, 2024, to October 31, 2025.

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 Gorgonio Pass area. The work consists of five main tasks: (1) groundwater-level monitoring; (2) groundwater-quality monitoring; (3) electrical resistivity tomography survey; (4) Burnt Canyon stream gage installation and monitoring; and (5) data documentation, reporting, interpretation, and publications. A description of these tasks is included as an attachment to this letter.

The proposed funding for this agreement $407,552. Of this total, the USGS will contribute $72,933, subject to the availability of Cooperative Matching Funds, and the SGPWA will contribute $334,619.

Enclosed is a digital version of Joint Funding Agreement 24ZGJFA21000088, 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 to Jesposito@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, 2024.

If you have any questions concerning this program, please contact Meghan Dick at (619) 225-6154 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
Geoff Cromwell, USGS CAWSC
Allen H. Christensen, USGS CAWSC

Form 9-1366
(May 2018)

U.S. Department of the Interior
U.S. Geological Survey
Joint Funding Agreement
FOR
Water Resource Investigations

Customer #: 6000000967
Agreement #: 24ZGJFA21000088
Project #: ZG00AOY
TIN #:

Fixed Cost Agreement YES[X] NO[ ]

THIS AGREEMENT is entered into as of the January 1, 2024, by the U.S. GEOLOGICAL SURVEY, California Water Science Center, 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 the availability of appropriations and in accordance with their respective authorities there shall be maintained in cooperation for negotiated deliverables (see attached), 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) include In-Kind-Services in the amount of $0.00

(a) $72,933 by the party of the first part during the period January 1, 2024 to October 31, 2025

(b) $334,619 by the party of the second part during the period January 1, 2024 to October 31, 2025

(c) Contributions are provided by the party of the first part through other USGS regional or national programs, in the amount of: $0

Description of the USGS regional/national program:

(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.

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://www.usgs.gov/office-of-science-quality-and-integrity/fundamental-science-practices).

Form 9-1366
(May 2018)

U.S. Department of the Interior
U.S. Geological Survey
Joint Funding Agreement
FOR
Water Resource Investigations

Customer #: 6000000967
Agreement #: 24ZGJFA21000088
Project #: ZG00AOY
TIN #:

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.

USGS Technical Point of Contact

Name:	Meghan Dick Hydrologist
Address:	4165 Spruance Road Suite 200 San Diego, CA 92101-0821
Telephone:	(619) 225-6154
Fax:	(n/a)
Email:	mdick@usgs.gov

Customer Technical Point of Contact

Name:	Lance Eckhart General Manager
Address:	1210 Beaumont Ave Beaumont, CA 92223
Telephone:	(951) 845-2577
Fax:	(n/a)
Email:	leckhart@sgpwa.com

USGS Billing Point of Contact

Name:	Irene Rios Budget Analyst
Address:	4165 Spruance Road Suite 200 San Diego, CA 92101-0821
Telephone:	(619) 225-6156
Fax:	(619) 225-6101
Email:	iarios@usgs.gov

Customer Billing Point of Contact

Name:	Lance Eckhart General Manager
Address:	1210 Beaumont Ave Beaumont, CA 92223
Telephone:	(951) 845-2577
Fax:	(n/a)
Email:	leckhart@sgpwa.com

U.S. Geological Survey
United States
Department of Interior

Signature

By_____ **Date:** _____

Name: Anke Mueller-Solger

Title: Director, USGS California Water Science Center

San Gorgonio Pass Water Agency

Signatures

By_____ **Date:** _____
Name:
Title:

By_____ **Date:** _____
Name:
Title:

By_____ **Date:** _____
Name:
Title:

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 multiple-well monitoring sites, which provide information on groundwater-level changes and potential vertical gradients within aquifers. During FFY24, continuous (hourly) groundwater-level data were collected, analyzed, reviewed, and approved from 18 wells. Additionally, semi-annual discrete groundwater-level measurements were taken at all other 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 FFY25, U.S. Geological Survey (USGS) personnel will collect discrete and continuous groundwater-level measurements at up to 112 wells in the study area. Quarterly discrete groundwater-level measurements will be collected at 20 wells, and semi-annual discrete groundwater-level measurements will be collected at up to 92 wells in spring and fall (fig. 1; table 2). SGPWA personnel will accompany USGS personnel during the collection of semi-annual measurements. Discrete 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. Continuous groundwater-level data will be collected from 11 of the quarterly groundwater-level measurement wells (fig. 1; table 2). Transducers installed in these wells record hourly measurements. In FFY25, continuous monitoring in wells at sites 12 and 13 will be discontinued; in previous years these wells were part of the continuous-monitoring network (fig. 1; table 2). Analysis of the hydrographs for wells at sites 12 and 13 indicate that changes in water levels are adequately recorded with semi-annual discrete measurements. Transducer data will be downloaded, reviewed, and approved quarterly and the data will be available through the USGS National Water Information System (NWIS) online database, links to these wells are provided in table 2.

Total cost for Task 1 is $138,615. Of this total, the SGPWA will contribute $112,576 and subject to the availability of Cooperative Matching Funds, the USGS will contribute $26,039, as reflected in the summary funding table 1.

Task 2 – Groundwater-Quality Monitoring

Progress

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

In FFY24, the USGS sampled 11 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 speciation, 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 National Water Quality Monitoring Council Water Quality Portal (https://www.waterqualitydata.us/). 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 FFY25, the USGS plans to sample 13 wells in the groundwater-quality network (table 3). 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 Aquarius samples database with appropriate quality-control measures and will be made publicly available through the National Water Quality Monitoring Council Water Quality Portal (https://www.waterqualitydata.us/).

Total cost for Task 2 is $90,198. Of this total, the SGPWA will contribute $79,682 and subject to the availability of Cooperative Matching Funds, the USGS will contribute $11,198, as reflected in the summary funding table 1.

Task 3 – Electrical Resistivity Tomography Survey

Plans

SGPWA will be constructing managed aquifer recharge ponds on a 60-acre parcel of land on the southwest corner of the intersection of Brookside Avenue and Beaumont Avenue (fig. 3). In an effort to more precisely locate mapped strands of the Beaumont Plain Fault Zone that cut through this property, the USGS will complete three surface electrical resistivity tomography (ERT) surveys (fig. 3). ERT surveys provide a reliable method to distinguish between differing subsurface lithology types and layering of alluvium where sufficient contrast exists between the electrical properties of the deposits. The Beaumont Plain Fault Zone is a Quaternary fault system with an estimated age of recent surface deformation of less than 15,000 years, which increases the likelihood of identifying disturbed alluvial layering using ERT methods. This method will also provide a reconnaissance to help determine the location of fine-grained material that may affect the downward movement of recharge waters. ERT survey lines 1 and 2 will help identify fault strand location and geometry at the proposed recharge facility. ERT survey line 3 will help locate another strand of the Beaumont Plain Fault Zone southwest of the facility. The data collected during these surveys will be published in a data release and be available in the USGS ScienceBase Catalog. The interpretation of the data will be published with the comprehensive report being developed as part of the overall cooperative agreement.

Total cost for Task 3 is $109,480. Of this total, the SGPWA will contribute $89,829 and subject to the availability of Cooperative Matching Funds, the USGS will contribute $19,651, as reflected in the summary funding table 1.

Task 4 Burnt Canyon Streamgage installation and monitoring

Plans

Technicians from the USGS Redlands Field Office will inspect and repair gaging stations at Upper and Lower Burnt Canyon (fig. 2). These gages are critical to understanding the importation of diverted flow from the East and South Forks of the Whitewater River into the San Gorgonio River watershed. As part of this task, the Upper Burnt Canyon gage will be rated for flow and telemetry equipment will be installed to report flow at 15-minute intervals to NWIS. Due to weather related access issues, the Upper Burnt Canyon gage will be considered a seasonal gage. This data will be published during the period of April 1 to November 1 each year. The Lower Burnt Canyon gage was destroyed during recent flood events and needs to be replaced. The USGS will replace the weir, provide a flow rating, and telemetry equipment will be installed to report flow at 15-minute intervals. The Lower Burnt Canyon gage will be a year-round gage. For both gages a check measurement will be made annually to ensure rating accuracy within 10 percent. In addition, four routine visits will be made each year, weather and access permitting. Current estimates are based on recent field reports from SGPWA staff. This task requires a pre-installation field inspection of gaging sites and the results of the field inspection may change the costs of this task.

Total cost for Task 4 is $36,650. Of this total, the SGPWA will contribute $26,990 and subject to the availability of Cooperative Matching Funds, the USGS will contribute $9,660, as reflected in the summary funding table 1.

Task 5 – Data Documentation, Reporting, Interpretation, and Publications

Plans

The project web page will be updated on study activities and 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). An interpretive report describing the physical and hydrogeologic characteristics of the SGPWA study area, including gravity and ERT results, and historical change in groundwater levels and water chemistry within the basin will be prepared and published as a USGS interpretive report. This report is expected to be a multi-year activity and a preliminary copy of the report is expected to be available for cooperative review by the end of FFY26. During FFY25 work will include preparing preliminary interpretations of the ERT survey results and Cherry Valley gravity survey results, and initial analyses of historical changes in groundwater levels and groundwater quality.

Total cost for Task 5 is $31,927. Of this total, the SGPWA will contribute $25,541 and subject to the availability of Cooperative Matching Funds, the USGS will contribute $6,385, as reflected in the summary funding table 1.

Figures

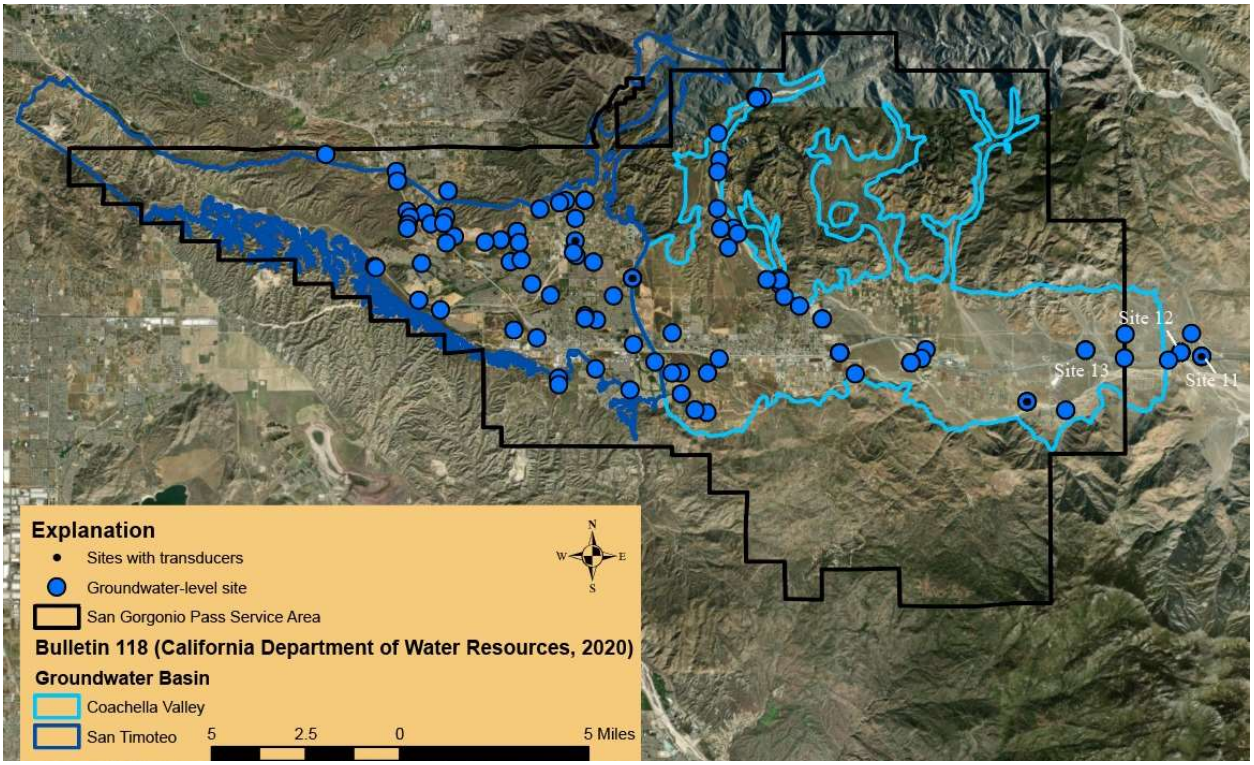


Figure 1. Groundwater-level monitoring-network

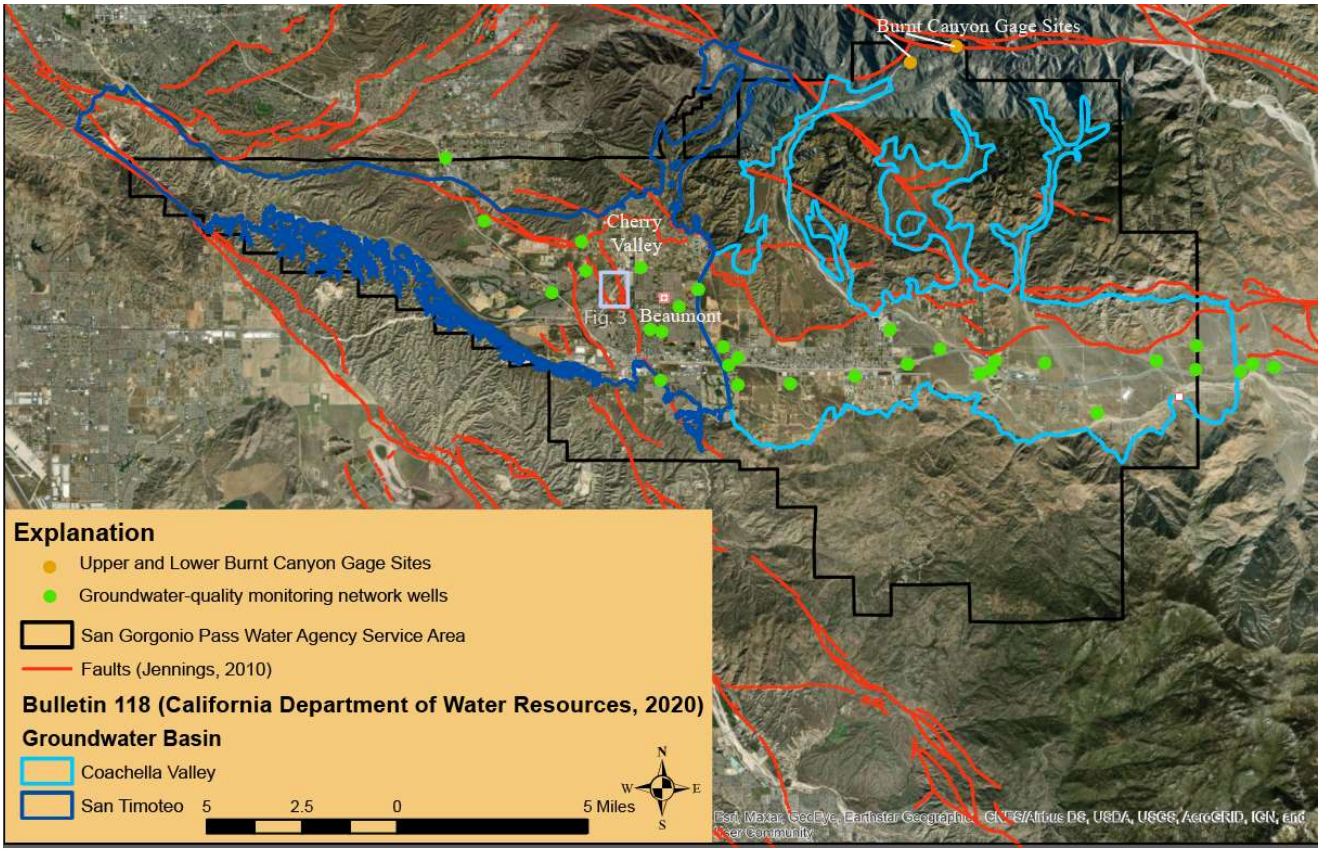


Figure 2. Groundwater-quality monitoring-network

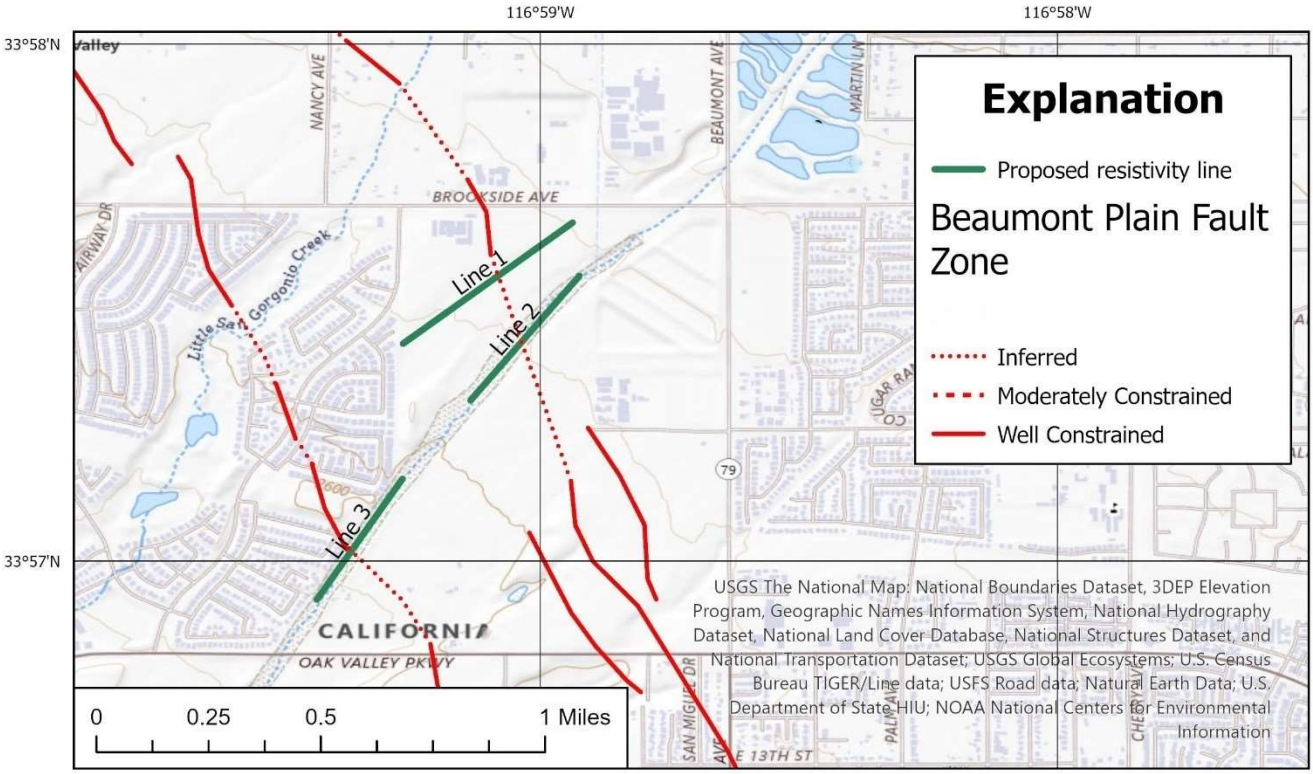


Figure 3. Electrical resistivity tomography survey line locations. Faults from U.S. Geological Survey and California Geological Survey (2024)

Tables

Table 1. FFY25 Summary Funding

Program Element	USGS	SGPWA	Total
Task 1 Groundwater-Level Monitoring	$26,039	$112,576	$138,615
Task 2 Groundwater-Quality Monitoring	$11,198	$79,682	$90,881
Task 3 Electrical Resistivity Tomography Survey	$19,651	$89,829	$109,480
Task 4 Repair and Replace Burnt Canyon Gage Sites	$9,660	$26,990	$36,650
Task 5 Data Documentation, Reporting, Interpretation, and Publications	$6,385	$25,541	$31,927
Total	**$72,933**	**$334,619**	**$407,552**

Table 2. Groundwater-level monitoring network

Abbreviated State well number	USGS site number	Site name	Measurement schedule	Site with transducer (hourly interval)	Link to USGS online data containing site, water-quality, and water-level data
2S/1E-04L1S	340126116532501		Semi-annual		http://waterdata.usgs.gov/nwis/inventory/?site_no=340126116532501
2S/1E-04L2S	340124116531901		Semi-annual		http://waterdata.usgs.gov/nwis/inventory/?site_no=340124116531901
2S/1E-04L3S	340126116531301		Semi-annual		http://waterdata.usgs.gov/nwis/inventory/?site_no=340126116531301
2S/1E-04N1S	340124116532301		Semi-annual		http://waterdata.usgs.gov/nwis/inventory/?site_no=340124116532301
2S/1E-04P3S	340123116532201		Semi-annual		http://waterdata.usgs.gov/nwis/inventory/?site_no=340123116532201
2S/1E-08M1S	340035116542701		Semi-annual		http://waterdata.usgs.gov/nwis/inventory/?site_no=340035116542701
2S/1E-17F2S	335928116542001		Semi-annual		http://waterdata.usgs.gov/nwis/inventory/?site_no=335928116542001
2S/1E-17M1S	335942116542701		Semi-annual		http://waterdata.usgs.gov/nwis/inventory/?site_no=335942116542701
2S/1E-20P1S	335851116542701		Semi-annual		http://waterdata.usgs.gov/nwis/inventory/?site_no=335851116542701
2S/1E-29B1S	335845116535801		Semi-annual		http://waterdata.usgs.gov/nwis/inventory/?site_no=335845116535801
2S/1E-29G1S	335823116542301		Semi-annual		http://waterdata.usgs.gov/nwis/inventory/?site_no=335823116542301
2S/1E-29H1S	335817116535401		Semi-annual		http://waterdata.usgs.gov/nwis/inventory/?site_no=335817116535401
2S/1E-29K2S	335757116541001		Semi-annual		http://waterdata.usgs.gov/nwis/inventory/?site_no=335757116541001
2S/1E-33J1S	335707116524101		Semi-annual		http://waterdata.usgs.gov/nwis/inventory/?site_no=335707116524101
2S/1E-33J2S	335715116524701		Semi-annual		http://waterdata.usgs.gov/nwis/inventory/?site_no=335715116524701
2S/1E-33J4S	335712116524501		Semi-annual		http://waterdata.usgs.gov/nwis/inventory/?site_no=335712116524501
2S/1E-33K1S	335712116530501		Semi-annual		http://waterdata.usgs.gov/nwis/inventory/?site_no=335712116530501
2S/1W-19D1S	335916117015601		Semi-annual		http://waterdata.usgs.gov/nwis/inventory/?site_no=335916117015601
2S/1W-19N1S	335840117015801		Semi-annual		http://waterdata.usgs.gov/nwis/inventory/?site_no=335840117015801
2S/1W-21L4S	335849116592101		Semi-annual		http://waterdata.usgs.gov/nwis/inventory/?site_no=335849116592101
2S/1W-22-1S	335902116583701		Semi-annual		http://waterdata.usgs.gov/nwis/inventory/?site_no=335902116583701
2S/1W-22G3S	335902116580901	Site 4	Semi-annual		http://waterdata.usgs.gov/nwis/inventory/?site_no=335902116580901
2S/1W-22G4S	335903116580902	Site 4	Semi-annual		http://waterdata.usgs.gov/nwis/inventory/?site_no=335903116580902
2S/1W-22M1S	335859116584901		Semi-annual		http://waterdata.usgs.gov/nwis/inventory/?site_no=335859116584901
2S/1W-22P6S	335838116582504	Site 3	Semi-annual		http://waterdata.usgs.gov/nwis/inventory/?site_no=335838116582504
2S/1W-27L1S	335807116582201	Site 1	Quarterly	X	http://waterdata.usgs.gov/nwis/inventory/?site_no=335807116582201
2S/1W-27P2S	335746116582301		Semi-annual		http://waterdata.usgs.gov/nwis/inventory/?site_no=335746116582301
2S/1W-27P3S	335750116582701		Semi-annual		http://waterdata.usgs.gov/nwis/inventory/?site_no=335750116582701
2S/1W-29G5S	335808117002601		Semi-annual		http://waterdata.usgs.gov/nwis/inventory/?site_no=335808117002601
2S/1W-29H1S	335820116595901		Semi-annual		http://waterdata.usgs.gov/nwis/inventory/?site_no=335820116595901
2S/1W-29J2S	335804116595801		Semi-annual		http://waterdata.usgs.gov/nwis/inventory/?site_no=335804116595801
2S/1W-29M2S	335807117005601		Semi-annual		http://waterdata.usgs.gov/nwis/inventory/?site_no=335807117005601
2S/1W-30E3S	335813117014301		Semi-annual		http://waterdata.usgs.gov/nwis/inventory/?site_no=335813117014301
2S/1W-30M2S	335803117015901		Semi-annual		http://waterdata.usgs.gov/nwis/inventory/?site_no=335803117015901
2S/1W-32B3S	335737117001301		Semi-annual		http://waterdata.usgs.gov/nwis/inventory/?site_no=335737117001301
2S/1W-33D1S	335741116595201		Semi-annual		http://waterdata.usgs.gov/nwis/inventory/?site_no=335741116595201
2S/1W-33L1S	335707116593401		Semi-annual		http://waterdata.usgs.gov/nwis/inventory/?site_no=335707116593401
2S/1W-33R2S	335651116590601		Semi-annual		http://waterdata.usgs.gov/nwis/inventory/?site_no=335651116590601
2S/1W-34A2S	335740116575001		Semi-annual		http://waterdata.usgs.gov/nwis/inventory/?site_no=335740116575001
2S/1W-35J1S	335714116565001	Site 6	Quarterly	X	http://waterdata.usgs.gov/nwis/inventory/?site_no=335714116565001
2S/1W-35J2S	335714116565002	Site 6	Quarterly	X	http://waterdata.usgs.gov/nwis/inventory/?site_no=335714116565002

2S/1W-35J3S	335714116565003	Site 6	Quarterly	X	http://waterdata.usgs.gov/nwis/inventory/?site_no=335714116565003
2S/1W-35J4S	335714116565004	Site 6	Quarterly		http://waterdata.usgs.gov/nwis/inventory/?site_no=335714116565004
2S/1W-35P1S	335650116572101		Semi-annual		http://waterdata.usgs.gov/nwis/inventory/?site_no=335650116572101
2S/2W-14J2S	335943117032001		Semi-annual		http://waterdata.usgs.gov/nwis/inventory/?site_no=335943117032001
2S/2W-14R1S	335930117032101		Semi-annual		http://waterdata.usgs.gov/nwis/inventory/?site_no=335930117032101
2S/2W-16A1S	340006117051801		Semi-annual		http://waterdata.usgs.gov/nwis/inventory/?site_no=340006117051801
2S/2W-24K2S	335846117023201		Semi-annual		http://waterdata.usgs.gov/nwis/inventory/?site_no=335846117023201
2S/2W-24M2S	335847117030201		Semi-annual		http://waterdata.usgs.gov/nwis/inventory/?site_no=335847117030201
2S/2W-24N2S	335840117025701		Semi-annual		http://waterdata.usgs.gov/nwis/inventory/?site_no=335840117025701
2S/2W-25B1S	335830117022201		Semi-annual		http://waterdata.usgs.gov/nwis/inventory/?site_no=335830117022201
2S/2W-25B5S	335831117020401		Semi-annual		http://waterdata.usgs.gov/nwis/inventory/?site_no=335831117020401
2S/2W-25D1S	335829117030101		Semi-annual		http://waterdata.usgs.gov/nwis/inventory/?site_no=335829117030101
2S/2W-25D2S	335824117030101		Semi-annual		http://waterdata.usgs.gov/nwis/inventory/?site_no=335824117030101
2S/2W-35D5S	335731117035601		Semi-annual		http://waterdata.usgs.gov/nwis/inventory/?site_no=335731117035601
2S/2W-35D6S	335729117035401		Semi-annual		http://waterdata.usgs.gov/nwis/inventory/?site_no=335729117035401
2S/2W-36C1S	335735117023401		Semi-annual		http://waterdata.usgs.gov/nwis/inventory/?site_no=335735117023401
3S/1E-03C2S	335636116520901		Semi-annual		http://waterdata.usgs.gov/nwis/inventory/?site_no=335636116520901
3S/1E-03J1S	335618116513401	Site 7	Semi-annual		http://waterdata.usgs.gov/nwis/inventory/?site_no=335618116513401
3S/1E-03J2S	335618116513402	Site 7	Semi-annual		http://waterdata.usgs.gov/nwis/inventory/?site_no=335618116513402
3S/1E-04A1S	335649116523401		Semi-annual		http://waterdata.usgs.gov/nwis/inventory/?site_no=335649116523401
3S/1E-06N1S	335558116554001		Semi-annual		http://waterdata.usgs.gov/nwis/inventory/?site_no=335558116554001
3S/1E-08M1S	335523116542301		Semi-annual		http://waterdata.usgs.gov/nwis/inventory/?site_no=335523116542301
3S/1E-11F1S	335531116510401	Site10	Quarterly		http://waterdata.usgs.gov/nwis/inventory/?site_no=335531116510401
3S/1E-11F2S	335531116510402	Site10	Quarterly		http://waterdata.usgs.gov/nwis/inventory/?site_no=335531116510402
3S/1E-11F3S	335531116510403	Site10	Quarterly		http://waterdata.usgs.gov/nwis/inventory/?site_no=335531116510403
3S/1E-11F4S	335531116510404	Site10	Quarterly		http://waterdata.usgs.gov/nwis/inventory/?site_no=335531116510404
3S/1E-14A1S	335502116503601		Semi-annual		http://waterdata.usgs.gov/nwis/inventory/?site_no=335502116503601
3S/1E-18A1S	335504116544201		Semi-annual		http://waterdata.usgs.gov/nwis/inventory/?site_no=335504116544201
3S/1E-18C1S	335504116552601		Semi-annual		http://waterdata.usgs.gov/nwis/inventory/?site_no=335504116552601
3S/1E-18D1S	335504116554101		Semi-annual		http://waterdata.usgs.gov/nwis/inventory/?site_no=335504116554101
3S/1E-18L1S	335434116552601		Semi-annual		http://waterdata.usgs.gov/nwis/inventory/?site_no=335434116552601
3S/1E-19A1S	335408116544601		Semi-annual		http://waterdata.usgs.gov/nwis/inventory/?site_no=335408116544601
3S/1E-19B1S	335412116550401		Semi-annual		http://waterdata.usgs.gov/nwis/inventory/?site_no=335412116550401
3S/1W-02M1S	335616116574901		Semi-annual		http://waterdata.usgs.gov/nwis/inventory/?site_no=335616116574901
3S/1W-03K1S	335623116581701		Semi-annual		http://waterdata.usgs.gov/nwis/inventory/?site_no=335623116581701
3S/1W-03K2S	335621116581701		Semi-annual		http://waterdata.usgs.gov/nwis/inventory/?site_no=335621116581701
3S/1W-05R3S	335603117000401		Semi-annual		http://waterdata.usgs.gov/nwis/inventory/?site_no=335603117000401
3S/1W-09C4S	335552116592801		Semi-annual		http://waterdata.usgs.gov/nwis/inventory/?site_no=335552116592801
3S/1W-10R3S	335509116575101		Semi-annual		http://waterdata.usgs.gov/nwis/inventory/?site_no=335509116575101
3S/1W-12E1S	335543116564801		Semi-annual		http://waterdata.usgs.gov/nwis/inventory/?site_no=335543116564801
3S/1W-12L1S	335519116561701		Semi-annual		http://waterdata.usgs.gov/nwis/inventory/?site_no=335519116561701
3S/1W-14J2S	335440116565101		Semi-annual		http://waterdata.usgs.gov/nwis/inventory/?site_no=335440116565101
3S/1W-15D5S	335456116585001		Semi-annual		http://waterdata.usgs.gov/nwis/inventory/?site_no=335456116585001
3S/1W-15E1S	335447116585201		Semi-annual		http://waterdata.usgs.gov/nwis/inventory/?site_no=335447116585201

3S/2E-07G2S	335535116483801		Semi-annual		http://waterdata.usgs.gov/nwis/inventory/?site_no=335535116483801
3S/2E-07K1S	335523116484601		Semi-annual		http://waterdata.usgs.gov/nwis/inventory/?site_no=335523116484601
3S/2E-07P1S	335513116490601	Site 8	Quarterly		http://waterdata.usgs.gov/nwis/inventory/?site_no=335513116490601
3S/2E-07P2S	335513116490602	Site 8	Quarterly		http://waterdata.usgs.gov/nwis/inventory/?site_no=335513116490602
3S/2E-07P3S	335513116490603	Site 8	Quarterly		http://waterdata.usgs.gov/nwis/inventory/?site_no=335513116490603
3S/2E-07P4S	335513116490604	Site 8	Quarterly		http://waterdata.usgs.gov/nwis/inventory/?site_no=335513116490604
3S/2E-11H1S	335534116441501	Site 13	Semi-annual	X*	http://waterdata.usgs.gov/nwis/inventory/?site_no=335534116441501
3S/2E-11H2S	335534116441502	Site 13	Semi-annual	X*	http://waterdata.usgs.gov/nwis/inventory/?site_no=335534116441502
3S/2E-11H3S	335534116441503	Site 13	Semi-annual	X*	http://waterdata.usgs.gov/nwis/inventory/?site_no=335534116441503
3S/2E-15P1S	335423116455301	Site 9	Quarterly	X	http://waterdata.usgs.gov/nwis/inventory/?site_no=335423116455301
3S/2E-15P2S	335423116455302	Site 9	Quarterly	X	http://waterdata.usgs.gov/nwis/inventory/?site_no=335423116455302
3S/2E-15P3S	335423116455303	Site 9	Quarterly	X	http://waterdata.usgs.gov/nwis/inventory/?site_no=335423116455303
3S/2E-23C1S	335411116444601		Semi-annual		http://waterdata.usgs.gov/nwis/inventory/?site_no=335411116444601
3S/2W-01C1S	335645117024201		Semi-annual		http://waterdata.usgs.gov/nwis/inventory/?site_no=335645117024201
3S/2W-01H1S	335631117020601		Semi-annual		http://waterdata.usgs.gov/nwis/inventory/?site_no=335631117020601
3S/3E-07D1S	335556116431001		Semi-annual		http://waterdata.usgs.gov/nwis/inventory/?site_no=335556116431001
3S/3E-07M1S	335522116430701		Semi-annual		http://waterdata.usgs.gov/nwis/inventory/?site_no=335522116430701
3S/3E-08A1S	335557116411901		Semi-annual		http://waterdata.usgs.gov/nwis/inventory/?site_no=335557116411901
3S/3E-08L1S	335530116413701	Site 12	Semi-annual	X*	http://waterdata.usgs.gov/nwis/inventory/?site_no=335530116413701
3S/3E-08L2S	335530116413702	Site 12	Semi-annual	X*	http://waterdata.usgs.gov/nwis/inventory/?site_no=335530116413702
3S/3E-08L3S	335530116413703	Site 12	Semi-annual	X*	http://waterdata.usgs.gov/nwis/inventory/?site_no=335530116413703
3S/3E-08L4S	335530116413704	Site 12	Semi-annual	X*	http://waterdata.usgs.gov/nwis/inventory/?site_no=335530116413704
3S/3E-08M1S	335522116415201		Semi-annual		http://waterdata.usgs.gov/nwis/inventory/?site_no=335522116415201
3S/3E-09M1S	335525116410201	Site 11	Quarterly	X	http://waterdata.usgs.gov/nwis/inventory/?site_no=335525116410201
3S/3E-09M2S	335525116410202	Site 11	Quarterly	X	http://waterdata.usgs.gov/nwis/inventory/?site_no=335525116410202
3S/3E-09M3S	335525116410203	Site 11	Quarterly	X	http://waterdata.usgs.gov/nwis/inventory/?site_no=335525116410203
3S/3E-09M4S	335525116410204	Site 11	Quarterly	X	http://waterdata.usgs.gov/nwis/inventory/?site_no=335525116410204

* Transducer measurements will be discontinued in October 2024

Table 3. Groundwater-quality monitoring network and anticipated sampling schedule

Abbreviated State well number	USGS site number	Site name	Sampling Year (Federal fiscal year)				Link to USGS online data containing site, water-quality, and water-level data
			2025	2026	2027	2028	
2S/1W-27P1S	335743116582401					X	http://waterdata.usgs.gov/nwis/inventory/?site_no=335743116582401
2S/1W-29H1S	335820116595901		X				http://waterdata.usgs.gov/nwis/inventory/?site_no=335820116595901
2S/1W-32M1S	335709117004701		X				http://waterdata.usgs.gov/nwis/inventory/?site_no=335709117004701
2S/1W-33D2S	335741116595201			X			http://waterdata.usgs.gov/nwis/inventory/?site_no=335741116595201
2S/1W-35J1S	335714116565001	Site 6		X			http://waterdata.usgs.gov/nwis/inventory/?site_no=335714116565001

2S/1W-35J2S	335714116565002	Site 6		X			http://waterdata.usgs.gov/nwis/inventory/?site_no=335714116565002
2S/1W-35J3S	335714116565003	Site 6		X			http://waterdata.usgs.gov/nwis/inventory/?site_no=335714116565003
2S/1W-35P1S	335650116572101			X			http://waterdata.usgs.gov/nwis/inventory/?site_no=335650116572101
2S/2W-14C1S	340014117034301		X				http://waterdata.usgs.gov/nwis/inventory/?site_no=340014117034301
2S/2W-24L1S	335848117024301			X			http://waterdata.usgs.gov/nwis/inventory/?site_no=335848117024301
3S/1E-03J1S	335618116513401				X		http://waterdata.usgs.gov/nwis/inventory/?site_no=335618116513401
3S/1E-07E2S	335540116553901					X	http://waterdata.usgs.gov/nwis/inventory/?site_no=335540116553901
3S/1E-10N1S	335515116522801					X	http://waterdata.usgs.gov/nwis/inventory/?site_no=335515116522801
3S/1E-11F1S	335531116510401	Site 10		X			http://waterdata.usgs.gov/nwis/inventory/?site_no=335531116510401
3S/1E-11F2S	335531116510402	Site 10		X			http://waterdata.usgs.gov/nwis/inventory/?site_no=335531116510402
3S/1E-11F3S	335531116510403	Site 10		X			http://waterdata.usgs.gov/nwis/inventory/?site_no=335531116510403
3S/1E-11F4S	335531116510404	Site 10		X			http://waterdata.usgs.gov/nwis/inventory/?site_no=335531116510404
3S/1E-12D1S	335552116500901		X				http://waterdata.usgs.gov/nwis/inventory/?site_no=335552116500901
3S/1E-17C1S	335504116541501					X	http://waterdata.usgs.gov/nwis/inventory/?site_no=335504116541501
3S/1E-18D1S	335504116554101			X			http://waterdata.usgs.gov/nwis/inventory/?site_no=335504116554101
3S/1W-02M1S	335616116574901					X	http://waterdata.usgs.gov/nwis/inventory/?site_no=335616116574901
3S/1W-03K2S	335621116581701		X				http://waterdata.usgs.gov/nwis/inventory/?site_no=335621116581701
3S/1W-10R4S	335509116575201		X				http://waterdata.usgs.gov/nwis/inventory/?site_no=335509116575201
3S/1W-12B2S	335556116560701					X	http://waterdata.usgs.gov/nwis/inventory/?site_no=335556116560701
3S/1W-12K1S	335530116555901		X				http://waterdata.usgs.gov/nwis/inventory/?site_no=335530116555901
3S/2E-07G2S	335535116483801					X	http://waterdata.usgs.gov/nwis/inventory/?site_no=335535116483801
3S/2E-07K1S	335523116484601		X				http://waterdata.usgs.gov/nwis/inventory/?site_no=335523116484601
3S/2E-07P1S	335513116490601	Site 8	X				http://waterdata.usgs.gov/nwis/inventory/?site_no=335513116490601
3S/2E-07P2S	335513116490602	Site 8	X				http://waterdata.usgs.gov/nwis/inventory/?site_no=335513116490602
3S/2E-07P3S	335513116490603	Site 8	X				http://waterdata.usgs.gov/nwis/inventory/?site_no=335513116490603
3S/2E-07P4S	335513116490604	Site 8	X				http://waterdata.usgs.gov/nwis/inventory/?site_no=335513116490604
3S/2E-09E1S	335532116471701				X		http://waterdata.usgs.gov/nwis/inventory/?site_no=335532116471701

3S/2E-11H1	335534116441501	Site 13			X		http://waterdata.usgs.gov/nwis/inventory/?site_no=335534116441501
3S/2E-11H2	335534116441502	Site 13			X		http://waterdata.usgs.gov/nwis/inventory/?site_no=335534116441502
3S/2E-11H3	335534116441503	Site 13			X		http://waterdata.usgs.gov/nwis/inventory/?site_no=335534116441503
3S/2E-15P1S	335423116455301	Site 9				X	http://waterdata.usgs.gov/nwis/inventory/?site_no=335423116455301
3S/2E-15P2S	335423116455302	Site 9				X	http://waterdata.usgs.gov/nwis/inventory/?site_no=335423116455302
3S/2E-15P3S	335423116455303	Site 9				X	http://waterdata.usgs.gov/nwis/inventory/?site_no=335423116455303
3S/3E-07D1S	335556116431001		X				http://waterdata.usgs.gov/nwis/inventory/?site_no=335556116431001
3S/3E-07M1S	335522116430701			X			http://waterdata.usgs.gov/nwis/inventory/?site_no=335522116430701
3S/3E-08L1S	335530116413701	Site 12			X		http://waterdata.usgs.gov/nwis/inventory/?site_no=335530116413701
3S/3E-08L2S	335530116413702	Site 12			X		http://waterdata.usgs.gov/nwis/inventory/?site_no=335530116413702
3S/3E-08L3S	335530116413703	Site 12			X		http://waterdata.usgs.gov/nwis/inventory/?site_no=335530116413703
3S/3E-08L4S	335530116413704	Site 13			X		http://waterdata.usgs.gov/nwis/inventory/?site_no=335530116413704
3S/3E-08M1S	335522116415201					X	http://waterdata.usgs.gov/nwis/inventory/?site_no=335522116415201
3S/3E-09M1S	335525116410201	Site 11			X		http://waterdata.usgs.gov/nwis/inventory/?site_no=335525116410201
3S/3E-09M2S	335525116410202	Site 11			X		http://waterdata.usgs.gov/nwis/inventory/?site_no=335525116410202
3S/3E-09M3S	335525116410203	Site 11			X		http://waterdata.usgs.gov/nwis/inventory/?site_no=335525116410203
3S/3E-09M4S	335525116410204	Site 11			X		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 2024-2025 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 25% 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 2024-2025 Water Resources Investigations with the USGS.

San Bernardino Valley and Pass Agency hereby agree to share the USGS Fiscal Year 2024-2025 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 25ZGJFA21000060. 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 1. Technical Outreach and Planning	**$43,367**	$36,428	$6,939
Task 4. Water Quality Data Collection in the Yucaipa Basin	**$25,923**	$21,775	$4,148
Task 5. Artificial recharge water and local sources of groundwater recharge water in the Yucaipa Basin	**$45,067**	$37,856	$7,211
TOTAL	**$114,357**	**$96,059**	**$18,298**

1. 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, 2024 to June 30, 2025.

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 email or 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 invoice the Pass Agency its full cost share upon the execution of this Agreement. San Bernardino Valley will prepare a final disposition of USGS invoices for the Pass Agency no later than 45 days after the end of the Agreement term.

(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: _____

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/

08/06/2024

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, 2024 – September 30, 2025

Dear Ms. Dyer,

This letter confirms discussions between our respective staffs describing proposed work for the October 1, 2024 through September 30, 2025 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 12-month agreement period spans Federal Fiscal Year 2025.

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); and Products (Task 6).

This letter provides details of the work that are proposed for each of the 6 tasks during the 12-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 2024–25 program year, technical outreach will be provided, as requested by SBVMWD, to SBVMWD, to partner agencies in the USAVGB, to the Yucaipa groundwater sustainability agency (GSA) in the Yucaipa Basin, and to the public. For work in the USAVGB, 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 workshops and (or) technical 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). For work in the Yucaipa Basin, the USGS will provide 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).

Total Cost: $53,958 (SBVMWD: $43,367, USGS: $10,591)

> **Deliverables:** Written summary of technical outreach provided each quarter; a preliminary workplan for future tasks to support optimal water management in the USAVGB and the Yucaipa Basin.

2. Data collection and maintenance in the USAVGB

In the 2024–25 program year, the USGS will assess surface-water and groundwater monitoring sites, evaluate the feasibility of a continuous streamgage at Mill Creek, 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.

Total Cost: $283,527 (SBVMWD: $248,840, USGS: $34,687)

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

Surface-water data 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. This work builds on work performed in the 2023–24 program year. The potential for a new instantaneous surface-water monitoring site at Mill Creek will be evaluated. An instantaneous gage at Mill Creek may not be able to record highest flows. Work will be conducted to determine whether the timing and magnitude of recordable flows meet SBVMWD's management needs. This work 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 an instantaneous surface-water monitoring sites along Mill Creek.

2b. Assessment of groundwater monitoring sites and data

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. This work will build on work performed in the 2023–24 program year. Selected USGS multiple-depth, monitoring-well sites will be rehabilitated. This rehabilitation follows previous assessments of the physical condition of site infrastructure and groundwater-level data in the 2022–24 program years.

> **Deliverables:** Written summary of work performed each quarter. Written summary of historical changes in groundwater-levels for the groundwater basins that comprise the USAVGB. Written description of completed repairs or rehabilitation of multiple-depth, monitoring-well sites in the Bunker Hill and Rialto-Colton basins.

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 extend long-term records of chemical data, evaluate present conditions of the hydrologic system, 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, and to better understand vertical groundwater flow in selected areas.

Surface-water monitoring sites will be chosen to target the presence of emerging contaminants and will be based on the results of water quality sampling conducted in the 2023–24 program year. Samples will be collected from up to six surface-water monitoring sites. Water-quality sites will be selected in coordination with SBVMWD. Laboratory analyses on surface-water samples will be performed to measure major and minor ions, trace elements, nutrients, stable isotopes of oxygen and hydrogen, and for the presence and concentration of per- and polyfluoroalkyl substances (PFAS).

USGS multiple-depth, monitoring-well sites will be chosen following an analysis of historical water quality data and the results of water quality testing conducted in the 2023–24 program year. Water-quality sites will be selected in coordination with SBVMWD. Samples will be collected from up to 15 total wells from 3 multiple-depth, monitoring-well sites in the USAVGB. Laboratory analyses on groundwater samples will be performed to measure major and minor ions, trace elements, nutrients, stable isotopes of oxygen and hydrogen, tritium, and carbon-14, and, if requested, for the presence and concentration of PFAS).

All 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. Written summary of work performed each quarter. Written summary of water quality results. All analytical results will be archived in the NWIS database.

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 optimal water management decisions. Specific subtasks include: analysis of the distribution of hydrogeologic facies (subtask 3a); evaluation of vertical (subtask 3b); evaluation of horizontal groundwater flow (subtask 3c); and estimates of historical and future water-balance components (subtask 3d). 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.

Total Cost: $262,447 (SBVMWD: $209,958, USGS: $52,489)

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. This work builds on work performed in the 2023–24 program year.

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). In program 2023–24, hydrographs from USGS multiple-depth, monitoring-well sites were used to characterize vertical groundwater-flow gradients in the USAVGB. . In this year, hydrographs from non-USGS wells will be compiled to expand the characterization of vertical groundwater-flow gradients to help identify potential areas for artificial aquifer recharge.

Deliverables: Written summary of work performed each quarter. Written summary of vertical groundwater flow from all compiled hydrographs 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 program year 2023–24, preliminary contour maps of groundwater-level elevations were constructed for the shallow and deep aquifer system using USGS multiple-depth monitoring-well sites to determine the direction of groundwater-flow within and across groundwater basins that comprise the USAVGB. In this year, groundwater-level elevations from non-USGS wells will be compiled and the preliminary contour maps will be updated to expand the preliminary characterization of groundwater flow. The revised contour maps will 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 from all compiled wells. 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.

3d. Estimates of regional water-balance components

The USGS Basin Characterization Model (BCM; Flint and others, 2021a, 2021b; Stern and others, 2024) will be used to estimate historical and future water-balance components for watersheds and groundwater basins in the USAVGB. The BCM is monthly, gridded, regional water-balance model that has been used to characterize the hydrologic response to changes in climate at a fine scale. A typical BCM application characterizes water availability as recharge and runoff components of the water

balance and considers potential changes due to climate. Water-balance components of interest for the USAVGB include local recharge, local runoff, actual evapotranspiration, and climatic water deficit.

Maps showing 30-year averages for historical and future time periods will be generated to show the spatial and temporal variation of selected water-balance components over the study area. Graphs showing historical and future (1895–2099) water-balance components for selected watersheds and groundwater basins will be constructed to show the temporal variations for specific hydrologic areas. The results from this work will show where, when, and how hydrologic components of interest have changed throughout the area, most notably recharge and runoff. Water-balance components from the BCM will also be compared to equivalent components in published hydrologic models to identify spatial or temporal parts of those published models that could be improved upon.

The BCM is a state-wide model, and as such may not be precisely calibrated to local conditions. Outputs from the BCM will be validated with respect to climatic and surface-water measurements from local streamgages, and with respect to hydraulic conductivity of geologic materials. If appropriate, work will be initiated to locally calibrate the BCM in the USAVGB, with final publication in future program years.

Deliverables: Written summary of work performed each quarter. GIS database and spreadsheets with maps, graphs, and data from the BCM. Written summary of preliminary observations from BCM output and validation.

3e. Hydrologic characterization interpretive report

An interpretive report documenting and analyzing historical hydrologic conditions in the USAVGB will be written incorporating work completed in tasks 2 and 3. This report will provide a comprehensive overview of surface-water flow and availability, groundwater-flow and availability, and water quality in the USAVGB since the mid-1900s through present-day The focus of the report will be on conditions since the early 2000s, with an emphasis on the effects of groundwater pumping and artificial aquifer recharge on groundwater storage. Elements of other tasks will include surface-water flow and groundwater-level plates (task 2), a preliminary analysis of hydrogeologic facies (task 3a), vertical groundwater-flow gradients (task 3b), groundwater-level contour maps (task 3c), and historical water-budget components from the USGS BCM (task 3d). In the 2024–25 program year, a draft interpretive report will be prepared.

Deliverables: Written summary of work performed each quarter. Draft interpretive report documenting and analyzing historical hydrologic conditions in the USAVGB.

4. Water-quality data collection in the Yucaipa Basin

The purpose of this task is to collect and summarize water-quality data collected from USGS multiple-depth monitoring-well sites and selected production 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. In the 2023–24 program year, water-quality samples were collected from the 4 USGS monitoring-well sites in the Yucaipa Basin (YVWC, YVDA, YVEP, and YV6E) and 13 selected production wells with historical records. The new samples collected at these wells 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).

The shallow well at the YVDA monitoring-well site did not yield a successful sample during the 2023–24 sampling effort due to sediment in the well. In the 2024–25 program year, the well will be re-developed and resampled for water quality.

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.

Total Cost: $29,540 (SBVMWD: $25,923, USGS: $3,617)

> **Deliverables:** Written summary of work performed each quarter. Analytical results for the collected sample will be archived in the NWIS database. A summary presentation will be given summarizing the analytical results for all Yucaipa samples collected in the 2023–24 and 2024–25 program years.

5. 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 in the 2023–24 program year. 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. A preliminary draft manuscript based on existing materials and historical water-quality data was prepared in the 2023–24 program year. New water-quality data from samples collected in the 2023–24 program year were not yet available for inclusion in the report. This year, the report will be updated to include the new water-quality data and will be submitted for publication at a scientific journal. Final publication of the journal article is anticipated to occur during the 2025–26 program year (funds for the 2025–26 program year are not included in the attached table).

Total Cost: $56,334 (SBVMWD: $45,067, USGS: $11,267)

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

6. Products

This task summarizes the anticipated deliverables for the 2024–25 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 2024–25 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 2024–25 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 continue to work through the writing and publication process. No additional funds were requested for completion of these articles.

Task 1: Summary of technical assistance activities and an ongoing workplan for future tasks to support optimal water management in the USAVGB and the Yucaipa Basin.

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

Subtask 2a: Summary of historical surface-water flow within watersheds that transect the USAVGB. Summary and scope of work for the installation and monitoring of an instantaneous surface-water monitoring sites along Mill Creek.

Subtask 2b: Summary of historical changes in groundwater-levels for the groundwater basins that comprise the USAVGB. Description of completed repairs or rehabilitation of multiple-depth, monitoring-well sites in the Bunker Hill and Rialto-Colton basins.

Subtask 2c: Summary of water quality results. All analytical results will be archived in the NWIS database.

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

Subtask 3a: Preliminary map and summary of the distribution of near-surface hydrogeologic facies. *Subtask 3b:* Summary of vertical groundwater-flow gradients from all compiled hydrographs.

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

Subtask 3d: GIS database and spreadsheets with water-balance component maps, graphs, and data from the USGS BCM. Summary of preliminary observations from BCM output and validation.

Subtask 3d: Draft interpretive report of historical hydrologic conditions

Task 4: Summary analysis of groundwater quality results; All analytical results will be archived in the NWIS database.

Task 5: Draft of a scientific journal article.

The proposed program for the October 1, 2024 – September 30, 2025 agreement period, including the 6 tasks and associated subtasks and costs, are as follows:

Task	Funding		
	SBVMWD	USGS	Total
1. Technical outreach and planning	**$ 43,367**	**$ 10,591**	**$ 53,958**
2. Data collection and maintenance in the USAVGB	**$ 248,840**	**$ 34,687**	**$ 283,527**
3. Evaluation of artificial recharge activities in the USAVGB	**$ 209,958**	**$ 52,489**	**$ 262,447**
4. Water-quality data in the Yucaipa Basin	**$ 25,923**	**$ 3,617**	**$ 29,540**
5. Artificial recharge water and local sources of groundwater recharge in the Yucaipa Basin	**$ 45,067**	**$ 11,267**	**$ 56,334**
6. Products	**–**	**–**	**–**
TOTAL (Tasks 1-6)	**$ 573,155**	**$ 112,651**	**$ 685,806**

Total cost for the proposed investigations program is **$685,806**. Cost to SBVMWD is **$573,155**. Subject to the availability of cooperative matching funds, the USGS will provide **$112,651**. Total cost is for the agreement period October 1, 2024 through September 30, 2025.

Enclosed is a Joint Funding Agreement (JFA) 25ZGJFA21000060 for your approval. 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. If you are in agreement with this proposed program, please return one signed original JFA to our office.

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

Sincerely,

Director, USGS California Water Science Center

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

Form 9-1366
(May 2018)

U.S. Department of the Interior
U.S. Geological Survey
Joint Funding Agreement
FOR
Water Resource Investigations

Customer #: 6000000809
Agreement #: 25ZGJFA21000060
Project #:
TIN #: 95-6005196

Fixed Cost Agreement YES[X] NO[ ]

THIS AGREEMENT is entered into as of the October 1, 2024, by the U.S. GEOLOGICAL SURVEY, California Water Science Center, 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 the availability of appropriations and in accordance with their respective authorities there shall be maintained in cooperation for negotiated deliverables (see attached), 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) include In-Kind-Services in the amount of $0.00

(a) $112,651 by the party of the first part during the period October 1, 2024 to September 30, 2025

(b) $573,155 by the party of the second part during the period October 1, 2024 to September 30, 2025

(c) Contributions are provided by the party of the first part through other USGS regional or national programs, in the amount of: $0

Description of the USGS regional/national program:

(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.

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://www.usgs.gov/office-of-science-quality-and-integrity/fundamental-science-practices).

Form 9-1366
(May 2018)

U.S. Department of the Interior
U.S. Geological Survey
Joint Funding Agreement
FOR
Water Resource Investigations

Customer #: 6000000809
Agreement #: 25ZGJFA21000060
Project #:
TIN #: 95-6005196

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.

USGS Technical Point of Contact

Name: Geoffrey Cromwell
Research Geologist
Address: 3130 Skyway Drive, Suite 602
Santa Maria, CA 93455

Telephone: (805) 266-5234
Fax: (n/a)
Email: gcromwell@usgs.gov

Customer Technical Point of Contact

Name: Heather Dyer
Chief Executive Officer/General Manager
Address: 380 East Vanderbilt Way
San Bernardino, CA 92408
Telephone: (760) 397-7756
Fax: (n/a)
Email: heatherd@sbvmwd.com

USGS Billing Point of Contact

Name: Irene Rios
Budget Analyst
Address: 4165 Spruance Road Suite 200
San Diego, CA 92101-0821
Telephone: (619) 225-6156
Fax: (619) 225-6101
Email: iarios@usgs.gov

Customer Billing Point of Contact

Name: Heather Dyer
Chief Executive Officer/General Manager
Address: 380 East Vanderbilt Way
San Bernardino, CA 92408
Telephone: (760) 397-7756
Fax: (n/a)
Email: heatherd@sbvmwd.com

U.S. Geological Survey
United States
Department of Interior

Signature

By_____ Date: _____
Name: Anke Mueller-Solger
Title: Director, USGS California Water Science Center

San Bernardino Valley Municipal Water District

Signatures

By_____ Date: _____
Name:
Title:

By_____ Date: _____
Name:
Title:

By_____ Date: _____
Name:
Title:

USGS Program Letter 2024-2025

BOARD OF DIRECTORS MEETING

SEPTEMBER 16, 2024

Agenda

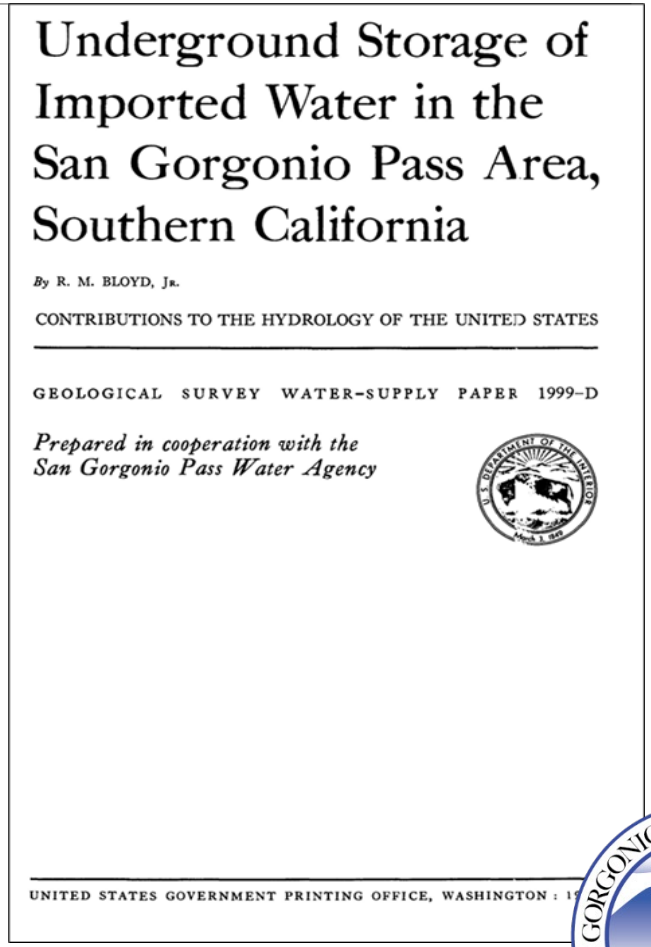
- USGS Program Letter History
- USGS Program Letter Elements
- Yucaipa Basin Collaboration
- Staff Recommendation

USGS -SGPWA Program History

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

USGS Program in recent years

- Water Level and Water Quality Monitoring
- Calimesa Subarea Data Collection
- Gravity Survey Performed on Danny Thomas Ranch
- Surface Water Flow Gaging in the Banning Canyon
- Smaller focused studies for strategic purposes



Underground Storage of Imported Water in the San Gorgonio Pass Area, Southern California

By R. M. BLOYD, Jr.

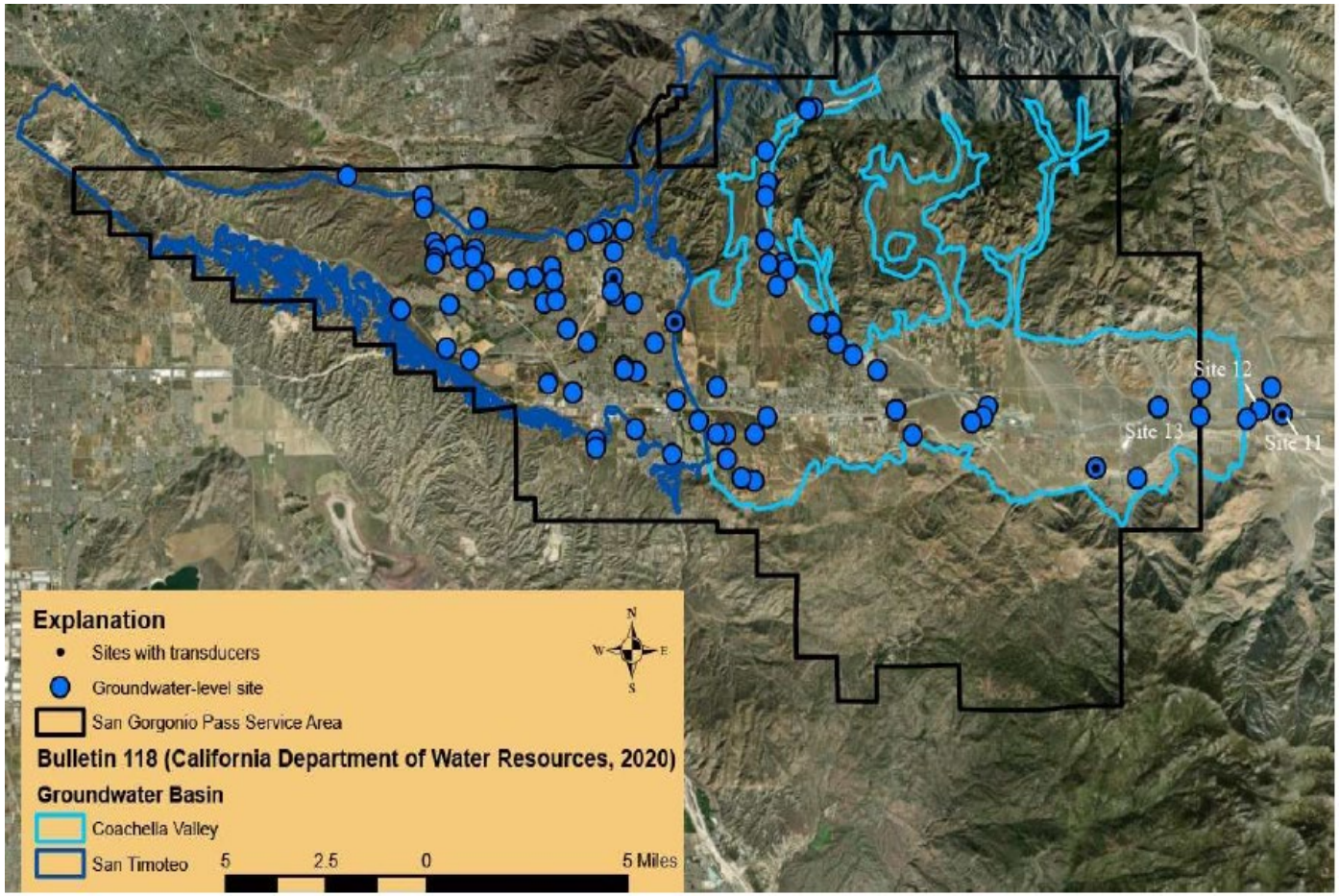
CONTRIBUTIONS TO THE HYDROLOGY OF THE UNITED STATES

GEOLOGICAL SURVEY WATER-SUPPLY PAPER 1999-D

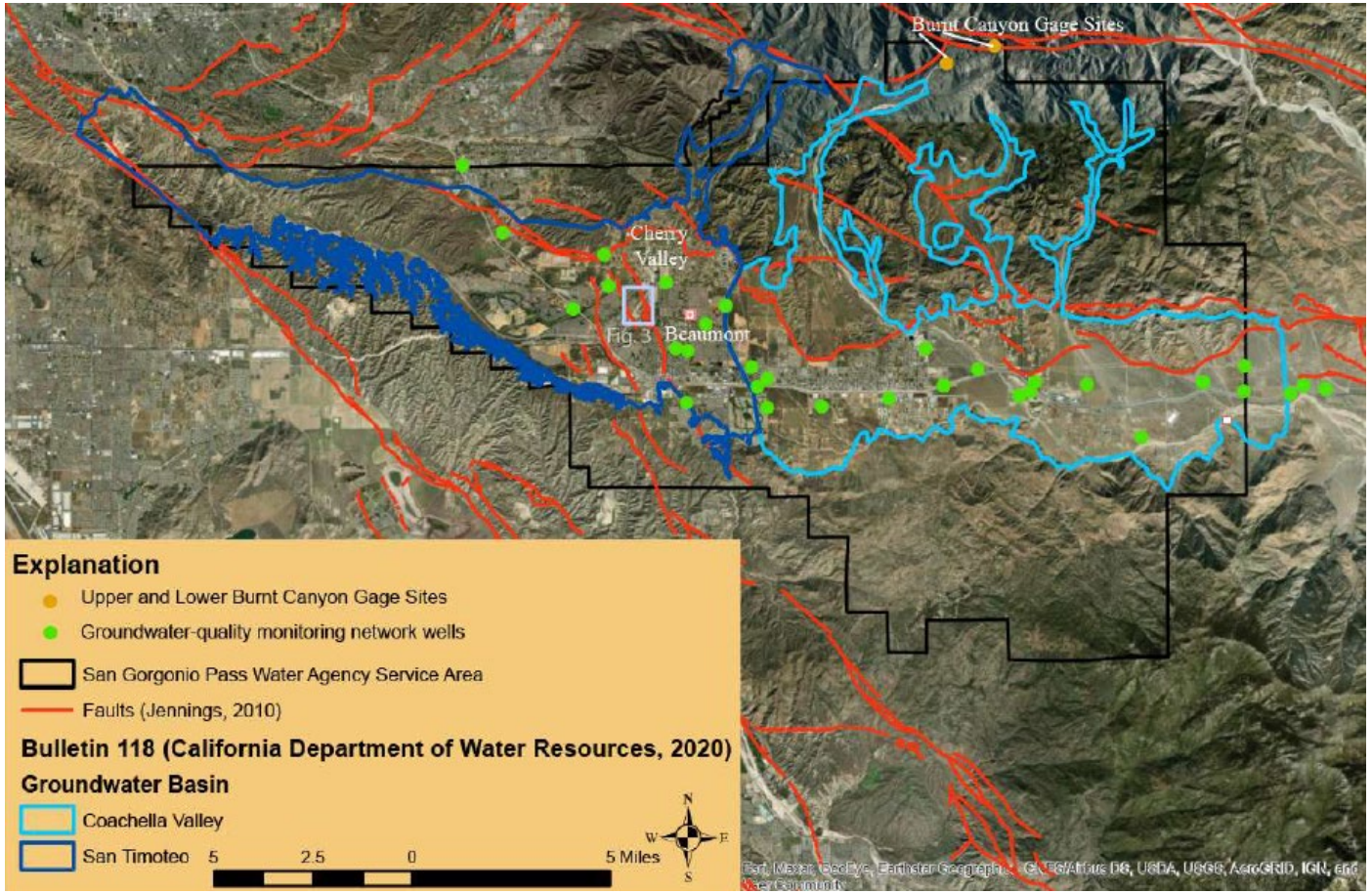
Prepared in cooperation with the San Gorgonio Pass Water Agency

UNITED STATES GOVERNMENT PRINTING OFFICE, WASHINGTON : 1

Task 1 – Groundwater Level Monitoring



Task 2 – Groundwater Quality Monitoring

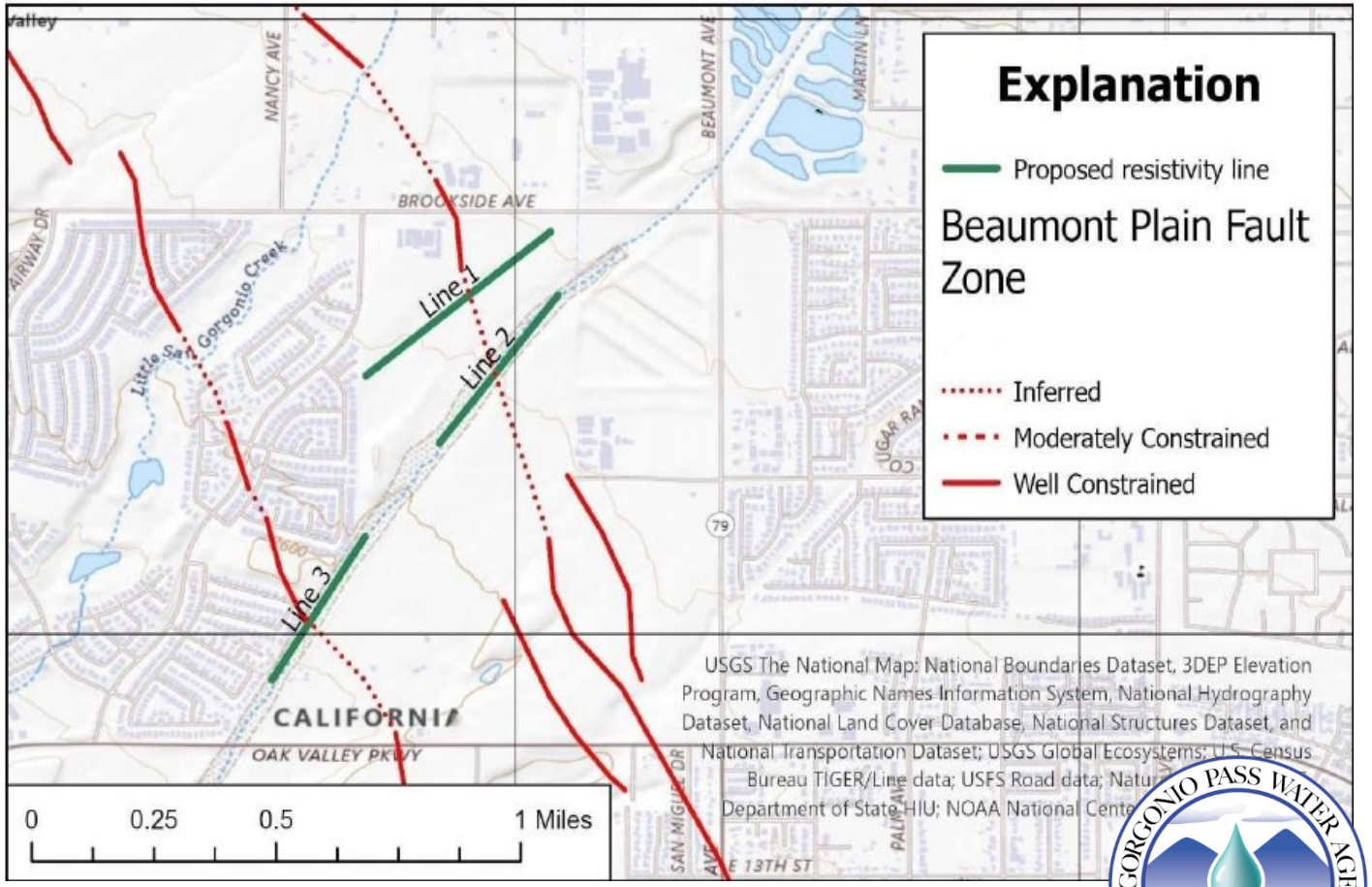


SAN GORGONIO PASS WATER AGENCY
Established 1961

Task 3 – Electrical Resistivity Tomography (ERT) Survey

Electrical Resistivity Tomography (ERT) Survey of Brookside West

- The goal of the ERT survey is to precisely locate mapped strands of the Beaumont Plain Fault Zone on our Brookside West Property
- The ERT survey will also help to determine the location of fine-grained material that may affect recharge rates at our proposed Brookside West Property
- This ERT survey cost can be used as a local cost share match with our USBR Grant



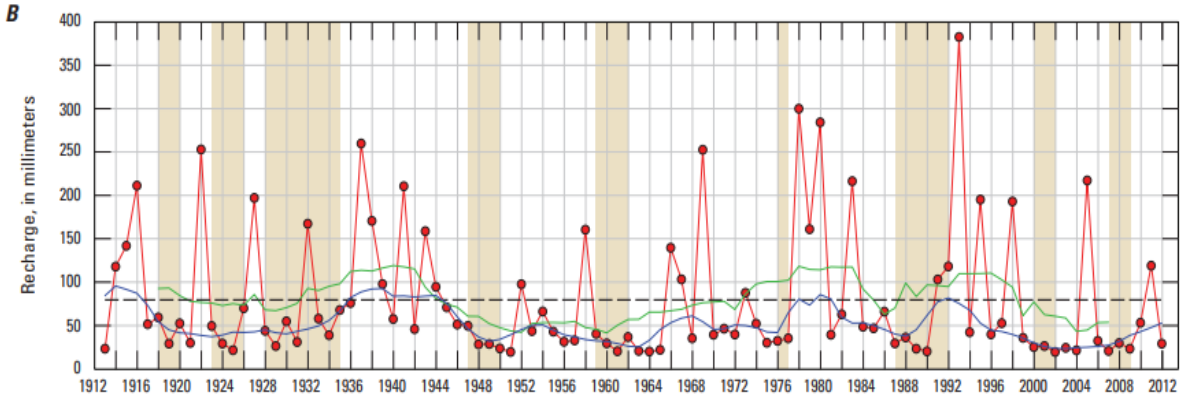
Task 4 – Burnt Canyon Streamgages

Burnt Canyon Streamgage Repair and Monitoring

- USGS staff will repair the Upper and Lower Burnt Canyon Streamgages that were damaged in the Apple fire in 2020
- Gages will be rated and calibrated for flow, reporting data every 15 minutes to the USGS database along with quarterly visits to the gages to ensure they are reporting accurately
- These Streamgages are a vital tool in water management as they will show how much water was diverted from the Whitewater River system into the Banning Canyon

Task 5 – Data Documentation, Reporting, Interpretation and Publications

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

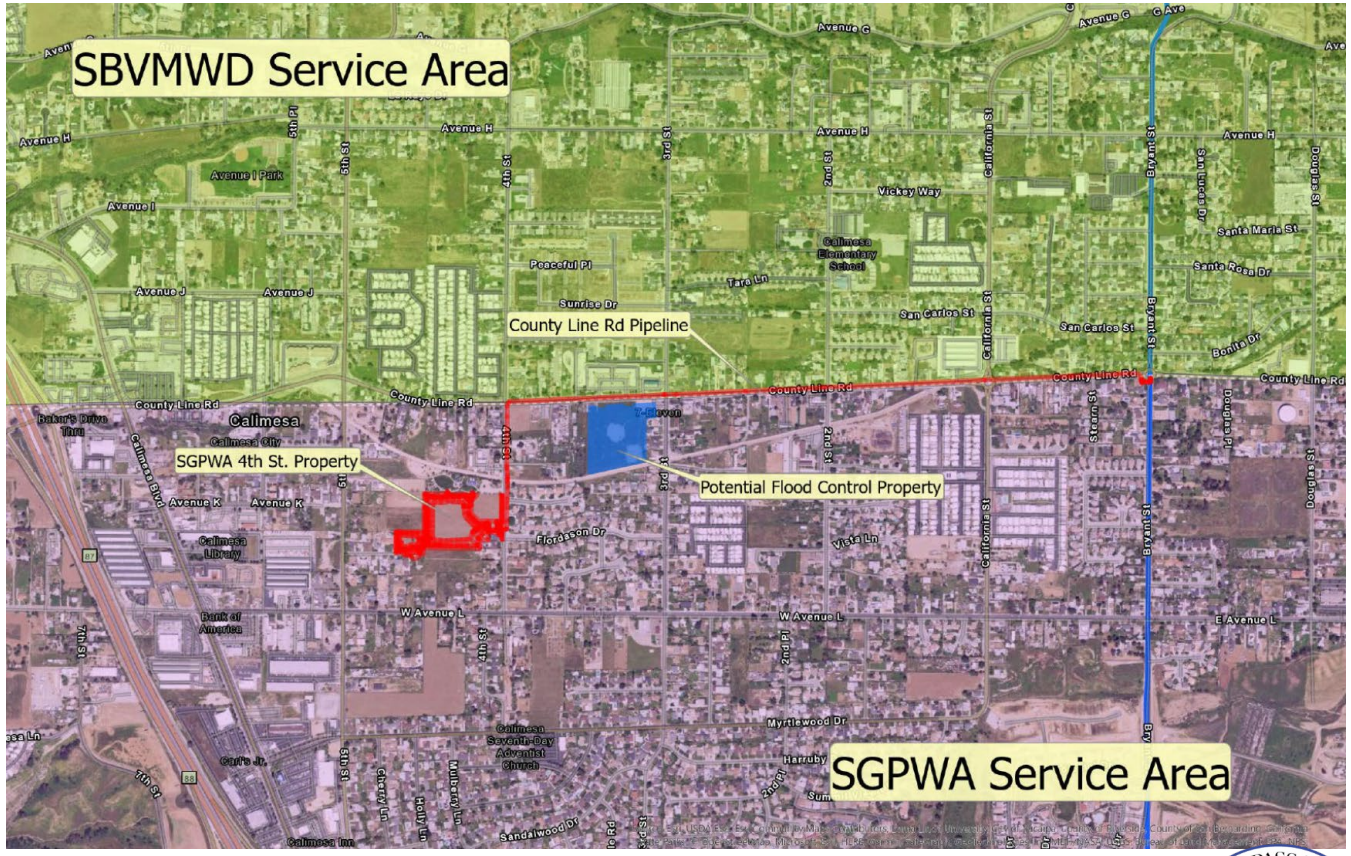


Additional USGS Tasks in Yucaipa Basin

Cost-Share Agreement with SBVMWD 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

These activities enhance and support the Yucaipa GSA and the County Line Road Project



Recommendation

Staff recommends 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 2024-2025 for $407,552, (USGS credit of $72,933 will be applied to this amount) and to enter into the cost-sharing agreement with SBVMWD for the USGS Yucaipa Basin activities for $18,298.