



## **VINA GROUNDWATER SUSTAINABILITY AGENCY BOARD MEETING**

Regular Meeting Agenda  
March 11, 2020, 5:30 p.m.

**City Council Chamber - 421 Main Street, Chico**

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Materials related to an item on this Agenda are available for public inspection in the City of Chico Public Works Operation & Maintenance Office at 965 Fir Street, Chico, during normal 8 am to 5 pm business hours or online at <https://www.vinaqsa.org/>

### **REQUESTS TO ADDRESS THE BOARD**

**If you would like to address the Board at this meeting, you are requested to complete a speaker card and hand it to the Board Clerk prior to the conclusion of the staff presentation for that item.** The card assists the Clerk with minute taking and assists the Board in conducting an orderly meeting. Providing personal information on the form is voluntary. A time limit of three (3) minutes per speaker on all items and an overall time limit of thirty minutes for non-agenda items has been established. If more than 10 speaker cards are submitted for non-agenda items, the time limitation would be reduced to one and a half minutes per speaker. (California Government Code §54954.3(b)). Pursuant to Government Code Section 54954.2, the Board is prohibited from taking action except for a brief response from the Board or staff to statements or questions relating to a non-agenda item.

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#### **1. REGULAR BOARD MEETING**

1.1. Call to Order

1.2. Pledge of Allegiance

1.3. Roll Call

1.4. Election of Chair and Vice Chair

2. **CONSENT AGENDA** - all matters listed under the consent agenda are to be considered routine and enacted by one motion.

#### **2.1. APPROVAL OF 12/12/20 VINA GSA BOARD MEETING MINUTES**

**Action:** Approve minutes of Vina GSA Board meeting held on 12/12/20.

3. **ITEMS REMOVED FROM CONSENT – IF ANY**

4. **BUSINESS FROM THE FLOOR**

Members of the public may address the Board at this time on any matter not already listed on the agenda; comments are limited to three minutes. The Board cannot take any action at this meeting on requests made under this section of the agenda.

5. **NOTICED PUBLIC HEARINGS** NONE

6. **REGULAR AGENDA**

#### **6.1. ANNUAL BUTTE COUNTY GROUNDWATER STATUS REPORT.**

Staff will provide the results of the 2019 annual report of the groundwater conditions in Butte County (**Report – Kelly Peterson**).

**Recommendation:** None, this is an informational item only.

## **6.2. CONSIDERATION OF A REPORT ON THE VINA GSA STAKEHOLDER ADVISORY COMMITTEE (SHAC) MEETINGS**

The Board will consider a report from the December and February 2020 SHAC meetings in which the following action items were discussed (**Report – Management Committee**):

### 6.2.1. APPROVAL OF THE CHARTER FOR THE SHAC

SHAC members reviewed the Committee’s Charter which describes the Committee’s decision-making procedures, process agreements, roles, and responsibilities.

**Recommendation:** Approve the Charter for the Vina GSA Stakeholder Advisory Committee.

### 6.2.2. DRAFT “MONITORING PROTOCOLS FOR DATA COLLECTION & MONITORING” CHAPTER FOR THE VINA GROUNDWATER SUSTAINABILITY PLAN (GSP).

The Committee reviewed the first draft chapter of the Vina GSA’s Groundwater Sustainability Plan (GSP) entitled “Monitoring Protocols for Data Collection & Monitoring”.

**Recommendation:** Provide comments on the draft Monitoring Protocols Chapter of the GSP.

### 6.2.3. OUT-OF-BASIN TRANSFER/ARTIFICIAL RECHARGE EVALUATION PROCESS

On 10/19/10, the Board directed Staff to draft a rule to regulate out-of-basin water transfers pursuant to its authority under Water Code section 10725(c). The Committee reviewed a process to evaluate a potential rule and recommended the scope be broadened to cover the range of legal concerns with artificial recharge programs.

**Recommendation:** Review and provide comments on the revised evaluation process.

## **6.3. DEPARTMENT OF WATER RESOURCES (DWR) TECHNICAL SUPPORT SERVICES PROGRAM.**

Staff will provide a report on financial support to be received from DWR to install additional groundwater monitoring wells in Butte County (**Report – Kelly Peterson**).

**Recommendation:** None this is an informational item only

## **7. COMMUNICATIONS AND REPORTS**

These items are provided for the Board’s information. Although the Board may discuss the items, no action can be taken at this meeting. Should the Board determine that action is required, the item or items may be included for action on a subsequent posted agenda.

### 7.1 Vina GSA Management Committee Update

#### 7.1.1 Groundwater Sustainability Plan (GSP) Update (**Report –Butte County Staff**)

A. Basin Setting Project (**Verbal Report**)

B. GSP Completion Project (**Verbal Report**)

C. GSP Completion Timeline Status (**Written Report**)

D. Announcement of Airborne Electromagnetic Method (AEM) / Hydrological Conceptual Model (HCM) Public Workshop on April 22, 2020

### 7.2 Financial Status Report (**Report – Kelly Peterson**)

## **8. ADJOURNMENT**

The meeting will adjourn. to the next regular Vina GSA meeting on June 10, 2020 in the Council Chamber of the Chico Municipal Center building located at 421 Main Street, Chico, CA.





**Vina Groundwater Sustainability Agency**

308 Nelson Avenue  
Oroville, CA 95965  
(530) 552-3592

**VINA GROUNDWATER SUSTAINABILITY AGENCY  
BOARD MEETING MINUTES**

Regular Meeting

December 12, 2019, 5:30 p.m.

City Council Chamber - 421 Main Street, Chico

**1. REGULAR BOARD MEETING**

**1.1. Call to Order**

Called to Order by Chair Schwab at 5:30 p.m.

**1.2. Pledge of Allegiance**

**1.3. Roll Call**

**Board Members Present:**

Evan Tuchinsky  
Raymond Cooper  
Ann Schwab  
Steve Lambert  
Steven Koehnen, Alternate

**Board Members Absent:**

Jeffrey Rohwer

**Staff Present:**

Erik Gustafson (City of Chico Public Works Director), Paul Gosselin (BCDWRC Director), Kelly Peterson (BCDWRC Water Resource Scientist), Kamie Loeser (Durham Irrigation District), Valerie Kincaid (Attorney O'Laughlin & Paris LLP), Linda Herman (City of Chico Park and Natural Resource Manager), and Monica Murdock (City of Chico Administration Assistant).

**2. CONSENT AGENDA - all matters listed under the consent agenda are to be considered routine and enacted by one motion.**

**2.1. APPROVAL OF 11/14/19 VINA GSA BOARD MEETING MINUTES**

**Action:** Approve minutes of Vina GSA Board meeting held on 11/14/19.

Board member Tuchinsky noted that under Item 6.4 of the minutes Gary Cole was listed twice as being appointed to the Stakeholder Advisory Committee. Board member Tuchinsky made a motion to approve the consent agenda with this revision. Seconded by Board Member Cooper.

Motion carried as follows:

AYES: Member Tuchinsky, Member Cooper, Chair Schwab, Member Lambert, Member Koehnen.

ABSENT: None

NOES: None

**3. ITEMS REMOVED FROM CONSENT – NONE**

4. **BUSINESS FROM THE FLOOR**

Members of the public may address the Board at this time on any matter not already listed on the agenda; comments are limited to three minutes. The Board cannot take any action at this meeting on requests made under this section of the agenda.

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Richard Harriman addressed the Board regarding a conflict of interest and the request of a consent waiver.

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5. **NOTICED PUBLIC HEARINGS** NONE

6. **REGULAR AGENDA**

6.1. **CONSIDERATION OF A MEMORANDUM OF UNDERSTANDING (MOU) WITH BUTTE COLLEGE**

The Board considered executing a Memorandum of Understanding (MOU) with Butte College that would commit both agencies to participate in the development of a single Groundwater Sustainability Plan (GSP) for the Vina subbasin. (*Report–Paul Gosselin*).

**Recommendation:** Approve and authorize the Chair to sign the MOU with Butte College.

Board Member Tuchinsky made a motion to approve and authorize the Chair to sign the MOU with Butte College. Seconded by Board Member Lambert.

Motion carried as follows:

AYES: Member Tuchinsky, Member Cooper, Chair Schwab, Member Lambert, Member Koehnen.

ABSENT: None

NOES: None

6.2. **CONSIDERATION FOR APPROVAL OF THE FINAL BYLAWS FOR THE VINA GSA BOARD.**

At its 9/15/19 meeting, the Board reviewed a draft copy of the proposed Bylaws that will govern conduct of the Board meetings and day-to-day operations of the Vina GSA. At the Board's direction, the Bylaws were reviewed by legal Counsel and the Board will consider the final version for adoption (*Report – Linda Herman*).

**Recommendation:** Approve the final Bylaws as revised and presented

Member Tuchinsky inquired the reason for the proposed change for the alternate to fill in for the Chair and not the Vice Chair. Attorney Kincaid advised the reason was clarity and consistency. Chair Schwab requested the Vice Chair remain the person to preside the meetings in absence of the Chair, and that if both are absent that the Chair be selected by those primary directors present at that meeting.

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James Brobeck addressed the Board regarding enforcement mechanisms.

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Member Tuchinsky made a motion to approve the final Bylaws as revised regarding the Vice Chair as the alternate for the Chair when absent. Seconded by Member Koehnen.

Motion carried as follows:

AYES: Member Tuchinsky, Member Cooper, Chair Schwab, Member Lambert, Member Koehnen,

ABSENT: None

NOES: None

### **6.3. CONSIDERATION OF A DRAFT CODE OF ETHICS AND CONFLICT OF INTEREST POLICY.**

The Board reviewed for approval a draft Code of Ethics and Conflict of Interest Policy for the Board members and Agency staff (**Report – Linda Herman**).

**Recommendation:** That the Board review and approve the draft Code of Ethics and Conflict of Interest Policy.

Chair Schwab requested under Procedures for Violation of the Code of Ethics that language be added so that members may also submit written complaints or reports of conflicts to the “legal Counsel or Administrator” in case the complaint is regarding violations by the Chair. Attorney Kincaid will update this section with this additional language.

Member Tuchinsky made a motion to approve the draft Code of Ethics and Conflict of Interest Policy, with this revision included. Seconded by Member Lambert.

Motion carried as follows:

AYES: Member Tuchinsky, Member Cooper, Chair Schwab, Member Lambert, Member Koehnen

ABSENT: None

NOES: None

### **6.4. CONSIDERATION OF 2020 VINA GSA BOARD REGULAR MEETING CALENDAR.**

The Board reviewed and considered for approval the proposed Vina GSA Board regular meeting calendar for 2020. (**Report – Erik Gustafson**)

**Recommendation:** The Management Committee recommended that the Board provide input and approve a calendar of the regular meetings of the Vina GSA Board for 2020.

It was proposed that the Vina GSA Meetings be held quarterly instead of monthly, on the second Wednesday of the month.

Member Lambert made a motion to change the Vina GSA Board meetings to quarterly, on the second Wednesday of the month at 5:30 p.m. in the Chico City Council Chamber at 421 Main Street, Chico CA. Seconded by Board Member Koehnen.

Motion carried as follows:

AYES: Member Tuchinsky, Member Cooper, Chair Schwab, Member Lambert, Member Koehnen.

ABSENT: None

NOES: None

## **7. COMMUNICATIONS AND REPORTS**

These items are provided for the Board’s information. Although the Board may discuss the items, no action can be taken at this meeting. Should the Board determine that action is required, the item or items may be included for action on a subsequent posted agenda.

### **7.1 Vina GSA Management Committee Update (*Verbal Report*)**

7.1.1 Stakeholder Advisory Committee Update (**Report – Kelly Peterson**)

7.1.2 Website Update (**Report - Kamie Loeser**)

### **7.2 Monthly Financial Status Report (*Report – Kelly Peterson*)**

**8. ADJOURNMENT**

The meeting will adjourn to the next regular Vina GSA meeting, at a date and time to be determined at this meeting, in the Council Chamber of the Chico Municipal Center building located at 421 Main Street, Chico, California.

The meeting was adjourned at 6:17 p.m. to the next regular Vina GSA meeting on Wednesday, March 11<sup>th</sup>, 2020 at 5:30 p.m. in the Council Chamber of the Chico Municipal building located at 421 Main St, Chico, California.

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Date Approved:

  /  /  .

Prepared By:

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Monica Murdock, Administrative Assistant

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Date



**Vina  
Groundwater Sustainability Agency  
Agenda Transmittal**

Agenda Item: 6.1

**Subject: Butte County Annual Groundwater Status Report**

**Contact: Kelly Peterson**

**Phone: (530) 552-3595**

**Meeting Date: 3/11/20**

**Regular Agenda**

**Department Summary:**

Pursuant to Chapter 33 and Chapter 33A of the Butte County Code, the Butte County Water and Resource Conservation Department is required to collect data on groundwater conditions (elevation, water quality) and land subsidence throughout the County spanning all three subbasins subject to the Sustainable Groundwater Management Act. Each February a report is published on the status of groundwater conditions and the Basin Management Objectives (BMO) program. The 2019 Groundwater Status Report includes a summary of hydrologic conditions for the 2019 water year, groundwater conditions, results from the water quality trend monitoring program and land subsidence data.

The 2019 water year (WY) was classified as a "Wet" water year in the Sacramento Valley with above average precipitation according to the Northern Sierra 8-Station index. Modest increases to groundwater levels were observed from the last WY, specifically in groundwater dependent areas of the county. However many of the wells monitored are at or near historic lows. Water quality results show no indication of saline intrusion into the basin. No inelastic land subsidence has been recorded in Butte County to date. The report was reviewed by the Butte County Water Commission Technical Advisory Committee and was presented to the Water Commission and the Board of Supervisors whom accepted and approved the report.

The full report and the appendices are available online at

<https://www.buttecounty.net/waterresourceconservation/groundwaterstatusreports/2019-Groundwater-Status-Report>

**Fiscal Impact:** No fiscal impacts.

**Staff Recommendation:** Accept as an informational item.



**Vina**  
**Groundwater Sustainability Agency**  
**Agenda Transmittal**

Agenda Item: 6.2

**Subject:** Vina GSA Stakeholder Advisory Committee Report

**Contact:** Kelly Peterson

**Phone:** (530) 552-3595

**Meeting Date:** 3/11/20

**Regular Agenda**

**Department Summary:** The Vina GSA Stakeholder Advisory Committee (SHAC) has met twice since formation, in December 2019 and February 2020. Membership details and all SHAC meeting materials can be found on the Vina GSA website: <https://www.vinagsa.org/>. All SHAC meetings are open to the public and will be held the third Tuesday of each month until at least May 2020 from 9:00 a.m. – 12:00 p.m. at the Old Muni Building (Upper Conference Room) at 441 Main Street, Chico, CA as agreed to by the group at their inaugural meeting. After May 2020 future meetings are TBD.

At the December 2019 SHAC meeting the group received an introductory presentation on the Sustainable Groundwater Management Act (SGMA), an overview of Vina subbasin groundwater conditions, reviewed the work plan for Groundwater Sustainability Plan (GSP) development in the subbasin and reviewed future SHAC agenda topics. SHAC members reviewed and made suggested revisions to their Charter which describes their decision-making procedures, process agreements and roles and responsibilities. SHAC members suggested the following changes to the draft Charter for the SHAC. In the “Membership” section on page 3 of the Charter, add an additional provision that a SHAC member may also be removed from the Committee if they fail to attend three consecutive meetings unless there are extenuating circumstances as determined by the Vina GSA Board. In the “Process Agreements” paragraph on page 4, include language in the second to the last bullet regarding meeting with others, “members can meet in accordance or in compliance with the Brown Act.” It was the consensus of the Committee to make both changes. All other portions of the draft Charter were agreed to through consensus of the Committee. At the February 2020 mtg. the revised Charter was reviewed and agreed to through consensus. Attached as 6.2.1 is the final version of the Charter.

At the February 2020 SHAC meeting the group received an overview of the Ralph M. Brown Act compliance and discussed its applicability to SHAC members within the context of SHAC members’ role to represent constituent interests. The group also received an overview of the Stakeholder Communications and Engagement Plan adopted by the Vina GSA Board of Directors in October 2019 and an introductory presentation on water budgets and groundwater data to lay the foundation for upcoming presentations of basin setting results. The group reviewed and commented on the first draft chapter of the Vina GSA’s GSP, the “Monitoring Protocols for Data Collection & Monitoring” chapter (attached as 6.2.2). Questions were answered by the Management Committee and there was one recommendation to add the language “included but not limited to” to section 2.4 which presents a partial list of streams within Butte County.

The SHAC also discussed the process document (attached as 6.2.3a) developed by staff to assist the Vina GSA Board with the development of an out-of-basin groundwater transfer rule as decided by the Vina GSA Board in October 2019 and provided feedback and input on possible issues and / or concerns. No formal recommendation was solicited from the group, nor was any received representing a unanimous position. However, a portion of the feedback received from individual members has been included into a revised process document attached as highlighted: 1. Identifying which specific scenarios could result in loss of water rights to overlying landowners, 2. Changing the title to “Consequences of Artificial Recharge”, 3. Clarifying that the Tuscan Water District does not have any current projects. A revised version of the process document now referred to as “Identifying and Managing the Legal Implications of Artificial Recharge” is

**Staff Recommendation:** 1. Approve the revised Charter for the Vina GSA Stakeholder Advisory Committee, 2. Provide comments on the draft Monitoring Protocols for Data Collection & Monitoring Chapter of the Vina GSP, 3. Provide feedback on the revised “Identifying and Managing the Legal Implications of Artificial Recharge” process document.

**Attachments:**

6.2.1: SHAC Charter

6.2.2: Monitoring Protocols for Data Collection & Monitoring GSP Chapter

6.2.3a: Original Out-of-Basin Rule process document

6.2.3b: Revised Artificial Recharge process document



## **Purpose**

The purpose of the Stakeholder Advisory Committee (SHAC) is to provide input and recommendations to the Groundwater Sustainability Agency (GSA) Board of Directors on groundwater sustainability plan development and implementation. The intent of the SHAC is to provide community perspective and participation in Sustainable Groundwater Management Act (SGMA) implementation.

The SHAC will review and/or provide recommendations to the GSA Board on groundwater-related issues that may include:

- Development, adoption, amendment of the GSP
- Sustainability goals and objectives
- Best management practices
- Monitoring programs
- Annual work plans and reports (including mandatory 5-year milestone reports)
- Modeling scenarios
- Inter-basin coordination activities
- Projects and management actions to achieve sustainability
- Community outreach
- Local regulations to implement SGMA
- Fee proposals
- Other

The SHAC will not be involved in the GSA's day to day operations, such as contracting, budgeting, etc.

## **Brown Act, Open Process, and Conflicts of Interest**

All meetings of the SHAC are open to the public. The GSA will announce SHAC meetings through its regular communication channels.

SHAC meetings are subject to the Brown Act. The SHAC shall adopt a schedule and location for regular meetings, and meeting agendas shall be posted in accordance with the Brown Act.

All SHAC meetings shall provide for public comment in accordance with the Brown Act, including non-agenda public comment and public comment on individual agenda items. Speakers will generally be limited to 3 minutes, but time may be adjusted based upon meeting circumstances. As needed, time limits may be placed on public comments to ensure the SHAC is reasonably able to address all agenda items during the course of the meeting. Special and emergency meetings need not provide for non-agenda public comment, but such comment may be allowed in the SHAC's discretion. Members of the SHAC are subject to all applicable conflict of interest laws including Government Code section 1090 and the California Political Reform Act. The Board shall adopt a conflict of interest code for the SHAC.

## **Roles and Responsibilities**

### GSA Board of Directors

The Board commits to the value of the SHAC and will consider SHAC recommendations when making its policy decisions.

### Stakeholder Advisory Committee

The role and responsibility of the SHAC is to solicit and incorporate community and stakeholder interests into recommendations on SGMA implementation in the Vina subbasin for the Board to consider in its decision-making process.

The criteria for SHAC members are to:

- Serve as a strong, effective advocate for the interest group represented
- Work collaboratively with others
- Commit time needed for ongoing discussions
- Collectively reflect diversity of interests

As part of membership, members agree to:

- Arrive at each meeting fully prepared to discuss the issues on the agenda. Preparation may include reviewing meeting summaries, technical information, and draft documents distributed in advance of each meeting.
- Present their constituent members' views on the issues being discussed and be willing to engage in respectful, constructive dialogue with other members of the group.
- Develop a problem-solving approach in which they consider the interests and viewpoints of all group members, in addition to their own.
- Keep their constituencies informed about the deliberations and actively seek their constituents' input.

### Management Committee

- Maintain a current roster of SHAC members.
- Work with GSA Board to fill SHAC vacancies, as needed.
- Prepare agendas for SHAC meetings.
- Notice all meetings in accordance with the Brown Act.
- Staff all meetings, record minutes and develop and distribute meeting summaries.
- Work with SHAC and GSA Board to develop annual workplan and schedule for SHAC meetings.
- Facilitate the process of incorporating SHAC recommendations into Board packets.
- Provide options and ensure records for AC 1234 Ethics Training and Brown Act Training for SHAC members.
- Maintain a record of all meeting materials.

### Facilitator

As resources allow, a third-party facilitator may provide impartial facilitation services for SHAC meetings. The facilitator's primary responsibility is to ensure an open process where all member interests are heard and thoughtfully considered. To this end, the facilitator works on behalf of the process and the members contributing to SHAC efforts. Specific responsibilities include:

- Support the Management Committee in developing and distributing SHAC agendas and relevant materials.
- Advocate for a fair, effective, and credible process, but remain impartial with respect to the outcome of the deliberations.
- Apply collaborative, mutual-gain negotiation methods that foster openness and identify areas of preliminary and final consensus agreement for advice and recommendations to the Board.
- In the absence of consensus, help identify areas of agreement and disagreement.
- Check in with members as needed to ensure all issues are identified and explored.
- Coordinate with Management Committee to ensure accurate, impartial documentation of meetings and agreements (i.e. meeting summaries and recommendation reports).
- Ensure all members uphold the tenets of the charter.

## **Membership**

Composition of the SHAC is intended to represent the beneficial uses and users of groundwater identified in SGMA. SHAC members may not serve concurrently on the GSA Board. Members must live or work with in the Vina subbasin or represent an organization with a presence in the Vina subbasin.

The GSA Board will appoint a representative to the SHAC, for a total not to exceed 10 members. The following represents a draft, proposed list of possible SHAC representation:

- Cal Water (1)
- CSU Chico (1)
- Butte College (1)
- Agricultural groundwater users (3)
- At-large domestic well users (2)
- At-large environmental representative (1)
- At-large business representative (1)

The GSA Board may appoint other interests representing beneficial users and uses of groundwater as per Water Code Section 10723.3.

### Member Appointment

The GSA Board will appoint At-large members to fill SHAC seats. Interested individuals from the community or organizations may apply to the GSA Board, designating in the application the seat that the applicant would intend to fill.

The GSA Board encourages candidates with experience and familiarity with groundwater and its management. The GSA Board will also give preference to applicants who have the backing of multiple organizations or individuals and/or have experience working with diverse community-based groups.

#### Application Timeline

The GSA Board will establish a timeline and process for appointment of the initial SGAC following GSA formation. In subsequent years, applicants will submit an application for vacant seats. The GSA will post applications on its website.

#### Stakeholder Advisory Committee Member Terms

SHAC member seats are 4-year terms. SHAC members are not term-limited. However, each term SHAC members must resubmit an application to the GSA Board.

SHAC members serve at the will of the GSA Board and may be removed by the Board with or without cause upon a super majority vote by the Board. SHAC members may also be removed from the Committee for failure to attend three consecutive meetings unless there are extenuating circumstances as determined by the GSA Board.

### **Decision Making and Governing Board Consideration**

To inform GSA Board decision-making, the SHAC will provide written recommendations that will be included in Management Committee reports. The recommendations will identify areas of agreement and disagreement. The SHAC will strive for consensus when possible, but reaching consensus is not necessary. Consensus means that everyone can at least live with a recommendation. When unable to reach consensus on recommendations, the SHAC will outline the areas in which it does not agree, providing some explanation to inform GSA Board decision-making.

Pursuant to GSA Board direction, the Management Committee will develop the annual work plan and schedule for SHAC meetings. The SHAC will adopt a charter describing its purpose, operating principles and ground rules that will be confirmed by the GSA Board of Directors.

The GSA Board will consider SHAC recommendations when making decisions. If that GSA Board does not agree with the recommendations of the SHAC, the GSA Board shall state the reasons for its decision.

### **Process Agreements and Ground Rules**

To conduct a successful collaborative process, all SHAC members will work together to create a constructive, problem solving environment. To this end, all members agree to the following process agreements which the SHAC will use, and to ground rules which will guide individual and group behavior.

Process Agreements

- ✓ Everyone agrees to negotiate in good faith. All participants agree to participate in decision making, to act in good faith in all aspects of this effort and to communicate their interests during meetings. Good faith also requires that members not make commitments they do not intend to follow through with, and that members act consistently in the meetings and in other forums where the issues under discussion in these meetings are also being discussed.
- ✓ Everyone agrees to address the issues and concerns of the participants. Everyone who is joining in the SHAC is doing so because s/he has a stake in the issue at hand. For the process to be successful, all the members agree to validate the issues and concerns of the other members and strive to reach an agreement that takes all the issues under consideration. Disagreements will be viewed as problems to be solved, rather than battles to be won.
- ✓ Everyone agrees to inform and seek input from their constituents about the outcome of the facilitated discussions. To the extent possible, scheduling will allow for members to inform and seek input from their constituents, and others about discussions.
- ✓ Everyone agrees that members can meet with other organizational or interest group members in accordance with the Brown Act. SHAC members may find it helpful to meet with other organizations or interest group members and to consult with constituents outside of the meeting so the member is better able to communicate community concerns on the issues at hand.
- ✓ Everyone agrees to attend all the meetings to the extent possible. Continuity of the conversations and building trust are critical to the success of the Advisory Committee. Members are encouraged to turn off cell phones and focus on the issue at hand. GSA staff or the facilitator will coordinate the meeting schedule.

#### Ground Rules

- ✓ Use Common Conversational Courtesy: Treat each other with mutual respect as you discuss and deliberate groundwater issues.
- ✓ All Ideas and Points of View Have Value: The goal is to achieve understanding. Simply listen, you do not have to agree. If you hear something you do not agree with or you think is "silly" or "wrong," please remember that the purpose of the forum is to share ideas.
- ✓ Be Honest, Fair, and as Candid as Possible: Put your interests forward, help others understand you and listen actively in order to understand others.

- ✓ **Avoid Editorials:** It will be tempting to analyze the motives of others or offer editorial comments. Please talk about your own ideas and thoughts. Avoid commenting on why you believe another participant thinks something.
- ✓ **Honor Time, Be Concise and Share the Air:** Help ensure an inclusive discussion by being cognizant of time constraints, stating your views clearly and concisely, and sharing the air so others can participate as well.
- ✓ **Think Innovatively and Welcome New Ideas:** Creative thinking and problem solving are essential to success. “Climb out of the box” and attempt to think about the problem in a new way.
- ✓ **Invite Humor and Good Will:** Don’t hesitate to bring levity and humor to the process when warranted, as this often helps collaborative discussions.

## **Amendments**

The SHAC can recommend future changes to the charter. The Board may amend the charter when needed using its decision-making procedure.

# **Monitoring Protocol for Inclusion in the GSP**

Submitted to:  
Butte County Department of Water and Resource Conservation

Date: November 2019

# Table of Contents

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<b><u>1</u></b>	<b><u>Introduction</u></b>	<b><u>2</u></b>
1.1	Regulations and Purpose of Monitoring Protocols	2
1.2	Goals and Objectives	5
1.3	Description of Monitoring Protocol Structure	5
<b><u>2</u></b>	<b><u>Existing Monitoring Protocols</u></b>	<b><u>6</u></b>
2.1	Groundwater Level: Existing Protocols	6
2.2	Water Quality: Existing Protocols	9
2.3	Subsidence: Existing Protocols	9
2.4	Streamflow: Existing Protocols	10
<b><u>3</u></b>	<b><u>Monitoring Protocol for Inclusion in the GSP</u></b>	<b><u>11</u></b>
3.1	Goals of the Monitoring Protocol	11
3.2	Training Requirements	12
3.3	Protocols	12
<b><u>4</u></b>	<b><u>References</u></b>	

## **Appendix A: Field Forms for Protocols**

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## **Appendix B: Groundwater Quality Monitoring Yearly Process and Trend Monitoring Program**

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# 1 Introduction

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## 1.1 Regulations and Purpose of Monitoring Protocols

This document describes the protocols for the collection, recording, and storage of geologic and hydrologic data for agencies within the Vina, Wyandotte Creek, and Butte Subbasins (Subbasins), to support the implementation of Groundwater Sustainability Plans (GSPs) required by the Sustainable Groundwater Management Act (SGMA). The rationale of monitoring network design and site selection is discussed in the Monitoring Network section of the GSP, which is under development.

Pursuant to §352.2 and §10727.2 of the SGMA Emergency Regulations <sup>[1]</sup>, shown below, monitoring protocols for data collection and management must be adopted to detect changes in groundwater levels, groundwater quality, inelastic surface subsidence, and surface water flow and quality. The monitoring protocols described in this document are informed by existing monitoring protocols, when possible, and are intended to provide practical guidance for field personnel in the collection and management of data.

### *§ 352.2: Monitoring Protocols*

*Each Plan shall include monitoring protocols adopted by the Agency for data collection and management, as follows:*

- (a) Monitoring protocols shall be developed according to best management practices.*
- (b) The Agency may rely on monitoring protocols included as part of the best management practices developed by the Department or may adopt similar monitoring protocols that will yield comparable data.*
- (c) Monitoring protocols shall be reviewed at least every five years as part of the periodic evaluation of the Plan and modified as necessary.*

### *§ 10727.2 Required Plan Elements*

- (f) Monitoring protocols that are designed to detect changes in groundwater levels, groundwater quality, inelastic surface subsidence for basins for which subsidence has been identified as a potential problem, and flow and quality of surface water that directly affect groundwater levels or quality or are caused by groundwater extraction in the basin. The monitoring protocols shall be designed to generate information that promotes efficient and effective groundwater management.*

The establishment of monitoring protocols is closely related to other GSP sections. Subarticle 4 of the GSP Emergency Regulations requires the establishment of a monitoring network that includes monitoring objectives, monitoring protocols, and data reporting requirements. The protocols must allow for the monitoring network to collect ample data to establish seasonal, short-term, and long-term trends in groundwater levels, groundwater quality, inelastic surface subsidence, and surface water flow and quality. In addition, monitoring protocols ensure that the methods used in future data collection – in support of measuring the achievement of sustainability goals or occurrence of undesirable results are consistent with the methods used to establish these metrics.

The boundaries of Vina, Wyandotte Creek, and Butte Subbasins are shown in Figure 1.

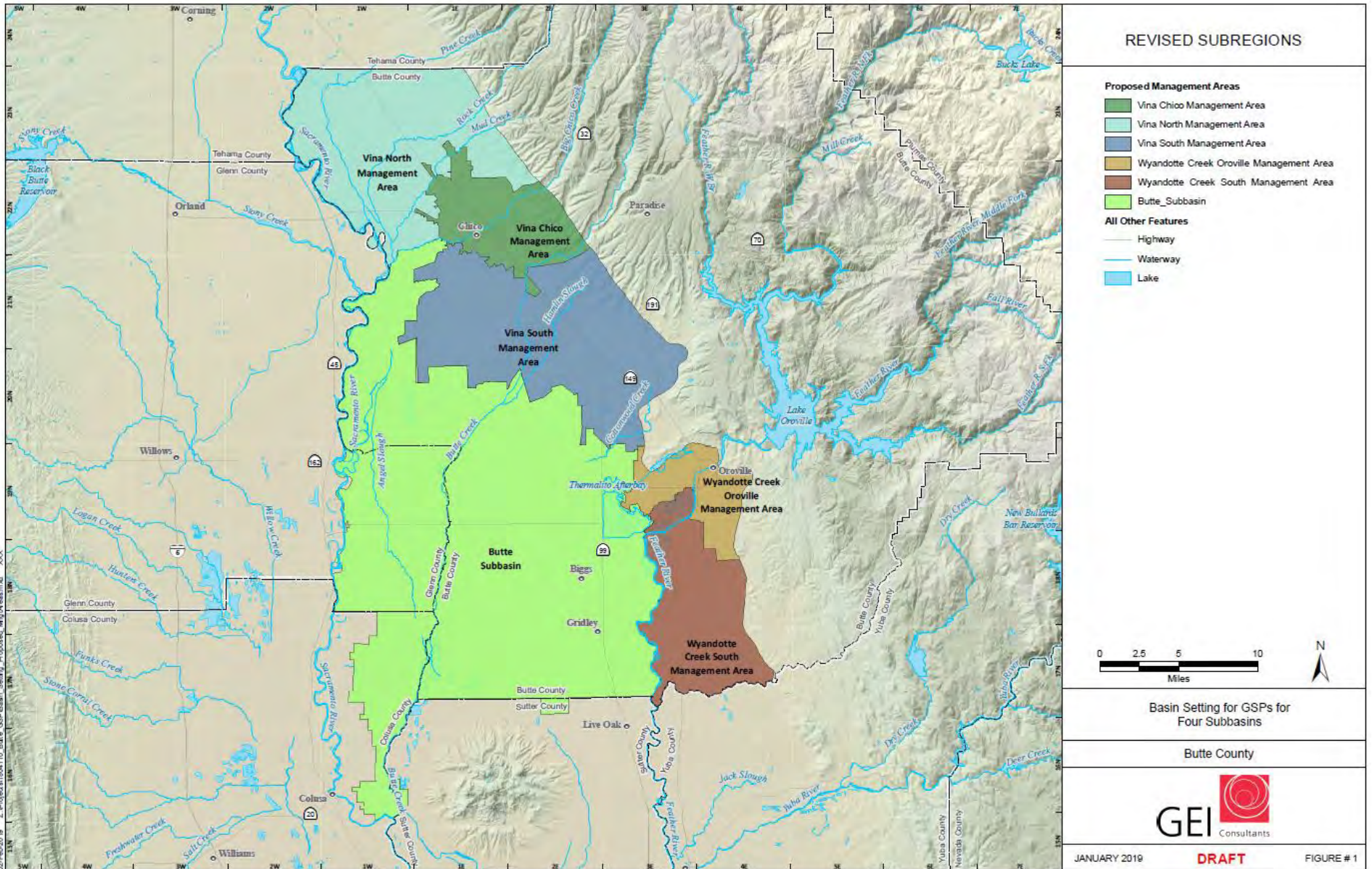


Figure 1. Butte County Subbasins and Neighboring Counties

## **1.2 Goals and Objectives**

The objectives of this monitoring protocol are to establish the purposes for monitoring groundwater, surface water, and subsidence with subbasins, and to set forth standard practices to be widely, and uniformly applied when collecting data from monitoring sites to provide a sound technical foundation for compliance with SGMA. This protocol provides necessary tools and procedures for any GSA to monitor groundwater and surface water conditions within their boundaries.

## **1.3 Description of Monitoring Protocol Structure**

The Department of Water Resources (DWR) recommends that GSAs consider the adoption of existing monitoring protocols when possible. Section 2 – Existing Monitoring Protocol – provides information and background of existing monitoring protocols used by agencies in the Sacramento Valley for each of the following:

- Groundwater Level;
- Water Quality;
- Subsidence, and
- Streamflow.

The adequacy of existing monitoring protocols will then be compared to the benchmarks established in DWR's *Monitoring Protocols, Standards, and Sites: Best Management Practices (BMP)* <sup>[2]</sup> document. Section 3 – Monitoring Protocol for Inclusion in the GSP – provides field personnel with a practical guide to collect and manage groundwater level, water quality, subsidence, and streamflow data. This section will be included as a chapter in the GSP and is adapted from existing monitoring protocols (Section 2) and then altered, as needed, to comply with the *BMP*.

The appendices to this protocol contain procedures or documents that are referenced in Sections 2 and 3.

## 2 Existing Monitoring Protocols

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The Sacramento Valley Groundwater Basin covers an area of 4,900 square miles lying between the Coast Range to the west and the Cascade and Sierra Nevada Ranges to the east and extending from Red Bluff in the north to the Delta in the south. It covers parts of Sacramento, Placer, Solano, Yolo, Yuba, Sutter, Colusa, Tehama, Glenn and Butte counties and is the major source of groundwater in Butte County <sup>[3]</sup>. This monitoring protocol is intended for the Vina, Wyandotte Creek, and Butte Subbasins, which are part of the larger Sacramento Valley Groundwater Basin. Therefore, the protocols discussed in this section are derived from the counties that overlie any of these Subbasins (Butte County, Glenn County, and Colusa County) or agencies that operate within these counties. It should be noted that the Subbasins predominately lie within Butte County and therefore the protocols referenced in this section are often developed by Butte County.

### 2.1 Groundwater Level: Existing Protocols

Groundwater level monitoring within the Subbasins is well established, with the most comprehensive programs of data collection being performed by Butte, Glenn, and Colusa Counties. Some of this data is currently reported to DWR as part of the CASGEM network. To provide guidance for landowners and other agencies within the subbasins that monitor groundwater level, there are two protocols that are consistently relied upon:

- DWR's *Groundwater Elevation Monitoring Guidelines* (2010) <sup>[4]</sup>
- Glenn County's *Landowner Monitoring Guide* (2011) <sup>[5]</sup>

DWR's *Groundwater Elevation Monitoring Guidelines* provides detailed explanation of network design concepts and field guidelines for CASGEM water level measurements using a steel tape, electric sounding tape, sonic water level meter, or pressure transducer. Glenn County's *Landowner Monitoring Guide* similarly provides a protocol for the spatial and temporal components of monitoring, in addition to field guidelines for the collection and recording of water level data with electric sounding tape and steel tape.

Both the DWR and Glenn County documents provide example templates for data collection, shown in Figures 2 and 3, respectively.





## 2.2 Water Quality: Existing Protocols

Pursuant to DWR's Best Management Practices for Groundwater Monitoring Protocols, Standards, and Sites (*BMP*) the use of existing water quality data within the basin should be done to the greatest extent possible to achieve the Data Quality Objectives (DQOs) for the Groundwater Sustainability Plan. To ensure that the existing water quality data is collected with the same methods, it is imperative that the data collection in support of GSPs developed within the Vina, Wyandotte Creek, and Butte Subbasins employ the same monitoring protocols. The following documents were consulted to determine the methods used for historical water quality data collection:

- *Groundwater Quality Trend Monitoring Program* (Butte County, 2012) <sup>[6]</sup>
- *Groundwater Quality Monitoring Yearly Process* (Butte County) <sup>[7]</sup>
- *HQd Portable Meter: Users Guide* (Hach, 2017) <sup>[8]</sup>

Each of these documents were created or used by Butte County to provide a protocol that ensures consistent collection of groundwater temperature, groundwater pH, and groundwater electrical conductivity. This water quality monitoring is in response to Butte County Code Chapter 33 and Chapter 33-A.

Together, the *Groundwater Quality Trend Monitoring Program* and *Groundwater Quality Monitoring Yearly Process* establish the objectives of the monitoring program and provide an explanation of the data gathering process. Water quality samples are collected by a Hach HQd Portable Meter, and field staff are required to consult the *HQd Portable Meter: Users Guide* to calibrate and operate the instrument properly.

Additional water quality data is collected within the Subbasins and reported by the Sacramento Valley Water Quality Coalition in response to the Irrigated Lands Regulatory Program. This data updates the Groundwater Quality Assessment Report (GAR) and is compiled from the following sources:

- SWRCB: GeoTracker GAMA geodatabase;
- USGS: NWIS Web Portal, and
- DWR: Water Data Library.

## 2.3 Subsidence: Existing Protocols

Pursuant of DWR's *BMP* document, land subsidence should be measured based on the USGS guidelines for measuring land subsidence, which were created in response to the most recent California drought. These protocols provided by USGS recommends the use of the following to measure subsidence:



- Interferometric Synthetic Aperture Radar (InSAR);
- Continuous GPS (CGPS);
- Spirit Leveling;
- Extensometers, and
- Piezometers.

Within the Subbasins, both CGPS and extensometers are currently used to measure land subsidence. Additionally, the processing of InSAR data has been completed for a limited period by NASA’s Jet Propulsion Laboratory (JPL), which is available to the public through DWR [9]. Although the USGS guidelines do not list surveying benchmarks, the region has an extensive network of benchmarks – especially along highways – which can be used to monitor relative elevations over time.

## 2.4 Streamflow: Existing Protocols

Multiple surface water features are located within or form the boundary of the Subbasins. These include:

- Feather River;
- Sacramento River;
- Butte Creek;
- Pine Creek;
- Rock Creek;
- Mud Creek;
- Cottonwood Creek;
- Lake Oroville, and
- Thermalito Afterbay.

Additional waterways are listed and described in the 2016 Water Inventory and Analysis Report [10]. To monitor streamflow, a network of existing USGS gages and CDEC stations within the Subbasins has been developed. Streamflow measurements from this network are collected and reported in accordance with the procedures outlined in *USGS Water Supply Paper 2175* [11], which are currently being used by both the USGS and DWR for streamflow monitoring throughout the State. *USGS Water Supply Paper 2175* provides detailed instructions for the measurement of flow with multiple methods, including: stage, current-meter method, moving-boat method, tracer dilution, and miscellaneous methods.

## **3 Monitoring Protocol for Inclusion in the GSP**

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This section provides a “how to” manual for field staff that emulates the content and format of DWR’s *BMP* and is informed by applicable existing protocols discussed in Section 2 – Existing Monitoring Protocol. Per the *BMP*, the collection of data should be based on the best available science and applied consistently throughout the subbasin to yield comparable data.

This section will explore the following:

- goals of the monitoring protocol;
- training requirements;
- data and reporting standards, and
- monitoring protocols for each data collection process.

Monitoring for the sustainability indicator of “significant and unreasonable seawater intrusion” into the areas covered by this monitoring protocol is not needed due to the isolation of Butte County and its neighboring counties from the ocean and from estuaries or other saline bodies of water connected to the ocean. The monitoring protocol is intended to address each of the other sustainability indicators.

### **3.1 Goals of the Monitoring Protocol**

The overarching goal of this monitoring protocol is to provide agencies and field personnel with explicit instructions for the data collection, storage, and reporting of data to be included in the development and implementation of the GSPs. The adoption of these protocols allows for neighboring GSPs and, more broadly, GSPs statewide to have comparable data. The protocol will provide agencies the tools necessary to meet monitoring objectives described in the SGMA regulations. This includes the capture of data with a sufficient spatial distribution and temporal frequency to demonstrate short-term, seasonal, and long-term trends in basin conditions for each of the applicable sustainability indicators.

#### 3.1.1 Data Quality and Consistency

To be considered for inclusion in a GSP, data used to monitor sustainability indicators should be held to a quality standard. Quality data comes from a reputable source with known, documented methods of collection. The adoption of statewide and regional protocol allows for comparable data that is held to a similar quality standard.

This monitoring protocol also provides a template for consistent data collection for GSPs. If the quality of previous data collection is adequate, the same methods should be continued for future data collection to allow for accuracy in trend analysis. Where methods deviate, GSPs must be explicit in explaining the methods and potential data gaps.

### 3.1.2 Standardized Data and Reporting

The following data and reporting standards from §352.4 are relevant to the collection of monitoring data:

- (1) Water volumes shall be reported in acre-feet.*
- (2) Surface water flow shall be reported in cubic feet per second and groundwater flow shall be reported in acre-feet per year.*
- (3) Field measurements of elevations of groundwater, surface water, and land surface shall be measured and reported in feet to an accuracy of at least 0.1 feet relative to NAVD88, or another national standard that is convertible to NAVD88, and the method of measurement described.*
- (4) Reference point elevations shall be measured and reported in feet to an accuracy of at least 0.5 feet, or the best available information, relative to NAVD88, or another national standard that is convertible to NAVD88, and the method of measurement described.*
- (5) Geographic locations shall be reported in GPS coordinates by latitude and longitude in decimal degree to five decimal places, to a minimum accuracy of 30 feet, relative to NAD83, or another national standard that is convertible to NAD83.*

Pursuant to §352.4, all monitoring sites must include the following information:

- (1) A unique site identification number and narrative description of the site location.*
- (2) A description of the type of monitoring, type of measurement taken, and monitoring frequency.*
- (3) Location, elevation of the ground surface, and identification and description of the reference point.*
- (4) A description of the standards used to install the monitoring site. Sites that do not conform to best management practices shall be identified and the nature of the divergence from best management practices described.*

## 3.2 Training Requirements

Although not discussed in the *BMP*, the monitoring and data collection shall be completed by trained personnel. This monitoring protocol and all field equipment instructions, equipment calibration instructions, safety manuals, and other reference documents discussed in this protocol must be available to all personnel that conduct monitoring or data collection activities. Any laboratory used for water quality analysis must be accredited by the California Environmental Laboratory Accreditation Program.

## 3.3 Protocols

The GSP Regulations require the use of the protocols discussed in the *BMP*, or the development of similar protocols. Where applicable, the technical protocols described herein are adopted in their entirety and reprinted from the *BMP*, which leverages existing professional standards that are often adopted in various groundwater-related programs. When the protocol deviates from

the *BMP*, explanation for how the alteration or elaboration yields similar data is provided. The protocol for the selection and maintenance of monitoring sites is described in **Section XX – Monitoring Network**. All language that is taken directly from the *BMP* is shown in italics and any changes, additions, or edits are shown in brackets, [].

### 3.3.1 Groundwater Level: Protocol

The protocol for groundwater level monitoring described in the *BMP* is reprinted below. The field form shown in Figure 2 shall be used to record groundwater level measurements.

*Groundwater levels are a fundamental measure of the status of groundwater conditions within a basin. In many cases, relationships of the sustainability indicators may be able to be correlated with groundwater levels. The quality of this data must consider the specific aquifer being monitored and the methodology for collecting these levels.*

*The following considerations for groundwater level measuring protocols should ensure the following:*

- *Groundwater level data are taken from the correct location, well ID, and screen interval depth;*
- *Groundwater level data are accurate and reproducible;*
- *Groundwater level data represent conditions that inform appropriate basin management DQOs;*
- *All salient information is recorded to correct, if necessary, and compare data, and*
- *Data are handled in a way that ensures data integrity.*

#### **General Well Monitoring Information**

*The following presents considerations for collection of water level data that include regulatory required components as well as those which are recommended.*

*Groundwater elevation data will form the basis of basin-wide water-table and piezometric maps and should approximate conditions at a discrete period in time. Therefore, all groundwater levels in a basin should be collected within as short a time as possible, preferably within a 1- to 2-week period.*

*Depth to groundwater must be measured relative to an established Reference Point (RP) on the well casing. The RP is usually identified with a permanent marker, paint spot, or a notch in the lip of the well casing. By convention in open casing monitoring wells, the RP reference point is located on the north side of the well casing. If no mark is apparent, the person performing the measurement should measure the depth to groundwater from the north side of the top of the well casing.*

*The elevation of the RP of each well must be surveyed to the North American Vertical Datum of 1988 (NAVD88), or a local datum that can be converted to NAVD88 [if not already*

surveyed]. The elevation of the RP must be accurate to within 0.5 foot. It is preferable for the RP elevation to be accurate to 0.1 foot or less. Survey grade global navigation satellite system (GNSS) global positioning system (GPS) equipment can achieve similar vertical accuracy when corrected. Guidance for use of GPS can be found at USGS <http://water.usgs.gov/osw/gps/>. Hand-held GPS units likely will not produce reliable vertical elevation measurement accurate enough for the casing elevation consistent with the DQOs and regulatory requirements.

The sampler should remove the appropriate cap, lid, or plug that covers the monitoring access point listening for pressure release. If a release is observed, the measurement should follow a period of time to allow the water level to equilibrate.

Depth to groundwater must be measured to an accuracy of 0.1 foot below the RP. It is preferable to measure depth to groundwater to an accuracy of 0.01 foot. Air lines and acoustic sounders may not provide the required accuracy of 0.1 foot.

The water level meter should be decontaminated after measuring each well by:

1. Using deionized water to rinse the equipment;
2. Washing the equipment with an Alconox solution, then re-rinsing with deionized water;
3. Rinsing with the appropriate solvent type (such as isopropyl alcohol, acetone, or methanol, depending of the equipment's material composition);
4. Rinsing the equipment with deionized water several (at least three) times, and
5. Allowing equipment to dry on a clean surface (i.e. a polyethylene sheet) <sup>[12]</sup>.

### **Measuring Groundwater Levels**

Measure depth to water in the well using procedures appropriate for the measuring device. Equipment must be operated and maintained in accordance with manufacturer's instructions. Groundwater levels should be measured to the nearest 0.01 foot relative to the RP.

For measuring wells that are under pressure, allow a period of time for the groundwater levels to stabilize. In these cases, multiple measurements should be collected to ensure the well has reached equilibrium such that no significant changes in water level are observed. Every effort should be made to ensure that a representative stable depth to groundwater is recorded. If a well does not stabilize, the quality of the value should be appropriately qualified as a questionable measurement. In the event that a well is artesian, site specific procedures should be developed to collect accurate information and be protective of safety conditions associated with a pressurized well. In many cases, an extension pipe may be adequate to stabilize head in the well. Record the dimension of the extension and document measurements and configuration.

*The sampler should calculate the groundwater elevation as:*

$$GWE = RPE - DTW$$

*Where:*

- *GWE = Groundwater Elevation*
- *RPE = Reference Point Elevation*
- *DTW = Depth to Water*

*The sampler must ensure that all measurements are in consistent units of feet, tenths of feet, and hundredths of feet. Measurements and RPEs should not be recorded in feet and inches.*

### ***Recording Groundwater Levels***

*The sampler should record the well identifier, date, time (24-hour format), RPE, height of RP above or below ground surface, DTW, GWE, and comments regarding any factors that may influence the depth to water readings such as weather, nearby irrigation, flooding, potential for tidal influence, or well condition. If there is a questionable measurement or the measurement cannot be obtained, it should be noted.*

*The sampler should replace any well caps or plugs, and lock any well buildings or covers.*

*All data should be entered into the data management system (DMS) as soon as possible. Care should be taken to avoid data entry mistakes and the entries should be checked [for quality assurance and quality control.]*

### ***Pressure Transducers***

*Groundwater levels and/or calculated groundwater elevations may be recorded using pressure transducers equipped with data loggers installed in monitoring wells. When installing pressure transducers, care must be exercised to ensure that the data recorded by the transducers is confirmed with hand measurements.*

*The following general protocols must be followed when installing a pressure transducer in a monitoring well:*

- *The sampler must use an electronic sounder or chalked steel tape and follow the protocols listed above to measure the groundwater level and calculate the groundwater elevation in the monitoring well to properly program and reference the installation. It is recommended that transducers record measured groundwater level to conserve data capacity; groundwater elevations can be calculated at a later time after downloading.*
- *The sampler must note the well identifier, the associated transducer serial number, transducer range, transducer accuracy, and cable serial number.*

- *Transducers must be able to record groundwater levels with an accuracy of at least 0.1 foot. Professional judgment should be exercised to ensure that the data being collected is meeting the DQO and that the instrument is capable. Consideration of the battery life, data storage capacity, range of groundwater level fluctuations, and natural pressure drift of the transducers should be included in the evaluation.*
- *The sampler must note whether the pressure transducer uses a vented or non-vented cable for barometric compensation. Vented cables are preferred, but non-vented units provide accurate data if properly corrected for natural barometric pressure changes. This requires the consistent logging of barometric pressures to coincide with measurement intervals.*
- *Follow manufacturer specifications for installation, calibration, data logging intervals, battery life, correction procedure (if non-vented cables used), and anticipated life expectancy to assure that DQOs are being met for the GSP.*
- *Secure the cable to the well head with a well dock or another reliable method. Mark the cable at the elevation of the reference point with tape or an indelible marker. This will allow estimates of future cable slippage.*
- *The transducer data should periodically be checked against hand measured groundwater levels to monitor electronic drift or cable movement. This should happen during routine site visits, at least annually or as necessary to maintain data integrity.*
- *The data should be downloaded as necessary to ensure no data is lost and entered into the basin's DMS following the QA/QC program established for the GSP. Data collected with non-vented data logger cables should be corrected for atmospheric barometric pressure changes, as appropriate. After the sampler is confident that the transducer data have been safely downloaded and stored, the data should be deleted from the data logger to ensure that adequate data logger memory remains.*

### 3.3.2 Groundwater Quality: Protocol

For monitoring groundwater quality, the *Groundwater Quality Trend Monitoring Program* and *Groundwater Quality Monitoring Yearly Process* provide an explanation of the data gathering process. Water quality samples are collected by a Hach HQd Portable Meter and field staff are required to consult the *HQd Portable Meter: Users Guide* to calibrate and operate the instrument properly.

- *The Groundwater Quality Monitoring Yearly Process* provides an overview of the yearly monitoring process, the sampling procedure, and the equipment checklist for field testing.
- *The Groundwater Quality Trend Monitoring Program* outlines general monitoring objectives, parameters to be monitored, and the definition of parameters and their importance. These parameters include Electrical Conductivity/Total Dissolved Solids, pH, and Temperature.

The County's *Groundwater Quality Monitoring Yearly Process* is presented below and will guide groundwater quality monitoring for evidence of saline intrusion from brackish groundwater, performed for SGMA.

### **Groundwater Quality Monitoring Yearly Process**

1. **3 weeks prior:** Send out initial contact letter to well owners. Follow up with email/phone call to schedule a specific appointment time according to predetermined route. Update contact information
2. Send out/phone reminders to well owners.
3. **Late July/Early August:** Conduct the Field Testing
4. Compile data: enter into excel tables, update summary report.
5. Mail "thank you" letter and preliminary results to well owners.
6. Email summary report to TAC members.
7. Possibly present monitoring results to the Water Commission.
8. Include data in Annual Groundwater Status Report.

### **Equipment Checklist for Field Testing:**

- ✓ Field binder
- ✓ Hach Instrument
- ✓ pH buffer solutions (check expiration date)
- ✓ 2-3 bottles of deionized water (for rinsing probe)
- ✓ Paper towels
- ✓ Sampling bottle
- ✓ Wrench/pliers
- ✓ Camera

Information from the *Groundwater Quality Trend Monitoring Program* that provides relevant background to monitoring under SGMA is summarized below with the document presented in its entirety in Appendix B:

### ***Electrical Conductivity/ Total Dissolved Solids***

Degraded water quality is a predominant impact of over utilizing groundwater resources resulting in saline intrusion from among other sources, marine formations underlying freshwater aquifers. In Butte County, the primary freshwater bearing formations include the Tuscan Formation, overlying Alluvium deposits, Basin deposits, and the Riverbank and Modesto formations. A number of marine formations beneath the Tuscan formation make up the underlying saline aquifer system. Increasing salinity in groundwater wells could indicate over utilization of groundwater resources. To ensure sustainable management of local groundwater resources, monitoring efforts need to provide baseline trends related to salinity.

Total dissolved solid (TDS) concentrations are affected by the quantity and types of minerals present in the water. Since soil and rocks release ions into water flowing over or through them,



the geology of the aquifer plays a role in determining the amount and type of ions in solution, and because the concentration of total dissolved solids also determines the electrical conductivity, the two measures are related. Saltwater primarily contains sodium chloride (NaCl), but saline waters can owe their high salinity to a combination of other dissolved ions. The major positively charged ions (cations) are calcium (Ca<sup>+2</sup>), potassium (K<sup>+</sup>) and magnesium (Mg<sup>+2</sup>). The major negatively charged ions (anions) are chloride (Cl<sup>-</sup>), sulfate (SO<sub>4</sub><sup>-2</sup>), carbonate (CO<sub>3</sub><sup>-2</sup>), and bicarbonate (HCO<sub>3</sub><sup>-</sup>). Electrical conductivity is also greatly dependent on temperature, however most meters adjust EC readings to a standard 25°C (77 °F).

### ***pH***

pH, by definition, is dependent on the solution's hydrogen ion concentration and is a measure of how acidic or basic the water is. An abundance of hydrogen ions in solution (as indicated by low pH) can change concentrations of other substances present in the water, sometimes to a more or less toxic form. For example, a decrease in pH (below 6) may increase the amount of mercury (or other metals) soluble in water. pH therefore is important because it affects the solubility of substances in solution. The U.S. EPA has identified a desirable pH range of 6.5-8.5 as part of its Secondary Drinking Water Standards. pH is also an important parameter for irrigation water. The pH of the soil affects plant production and acceptable soil pHs vary by plant type. Irrigation water or precipitation can change the pH of the soil over time. Variation in pH can affect plant growth, nutrition, and susceptibility to pests. Nutrients present in the soil may be unavailable to plants due to a pH that is either too high or too low.

### ***Temperature***

Temperature is a standard parameter measured when assessing water quality mostly to indicate the point at which water being sampled is representative of aquifer water and not water standing in the well casing. Data is recorded when the temperature, pH and EC from the well stabilizes, typically after purging a minimum of three well volumes. Changes in temperature can also be an indication of other source waters migrating into the aquifer system such as stream seepage or flow from a different aquifer system.

The protocol for groundwater quality monitoring described in the *BMP* is reprinted below. The field form shown in Appendix A shall be used to record groundwater quality measurements.

*All analyses should be performed by a laboratory certified under the State Environmental Laboratory Accreditation Program. The specific analytical methods are beyond the scope of this BMP but should be commensurate with other programs evaluating water quality within the basin for comparative purposes.*

*The following points are general guidance in addition to the techniques presented in the USGS National Field Manual for the Collection of Water Quality Data* <sup>[13]</sup>.

*Standardized protocols include the following:*

- *Prior to sampling, the sampler must contact the laboratory to schedule laboratory time, obtain appropriate sample containers, and clarify any sample holding times or sample preservation requirements.*
- *Each well used for groundwater quality monitoring must have a unique identifier. This identifier must appear on the well housing or the well casing to avoid confusion.*
- *In the case of wells with dedicated pumps, samples should be collected at or near the wellhead. Samples should not be collected from storage tanks, at the end of long pipe runs, or after any water treatment.*
- *The sampler should clean the sampling port and/or sampling equipment and the sampling port and/or sampling equipment must be free of any contaminants. The sampler must decontaminate sampling equipment between sampling locations or wells to avoid cross-contamination between samples.*
- *The groundwater elevation in the well should be measured following appropriate protocols described above in the groundwater level measuring protocols.*
- *For any well not equipped with low-flow or passive sampling equipment, an adequate volume of water should be purged from the well to ensure that the groundwater sample is representative of ambient groundwater and not stagnant water in the well casing. Purging three well casing volumes is generally considered adequate. Professional judgment should be used to determine the proper configuration of the sampling equipment with respect to well construction such that a representative ambient groundwater sample is collected. If pumping causes a well to be evacuated (go dry), document the condition and allow well to recover to within 90% of original level prior to sampling. Professional judgment should be exercised as to whether the sample will meet the DQOs and adjusted as necessary.*
- *Field parameters of pH, electrical conductivity, and temperature should be collected for each sample. Field parameters should be evaluated during the purging of the well and should stabilize prior to sampling. Measurements of pH should only be measured in the field, lab pH analysis are typically unachievable due to short hold times. Other parameters, such as oxidation-reduction potential (ORP), dissolved oxygen (DO) (in situ measurements preferable), or turbidity, may also be useful for meeting DQOs of GSP and assessing purge conditions. All field instruments should be calibrated daily and evaluated for drift throughout the day.*
- *Sample containers should be labeled prior to sample collection. The sample label must include: sample ID (often well ID), sample date and time, sample personnel, sample location, preservative used, and analytes and analytical method.*
- *[If possible], samples should be collected under laminar flow conditions. This may require reducing pumping rates prior to sample collection.*
- *Samples should be collected according to appropriate standards such as those listed in the Standard Methods for the Examination of Water and Wastewater, USGS National Field Manual for the Collection of Water Quality Data, or other appropriate guidance.*

*The specific sample collection procedure should reflect the type of analysis to be performed and DQOs.*

- *All samples requiring preservation must be preserved as soon as practically possible, ideally at the time of sample collection. Ensure that samples are appropriately filtered as recommended for the specific analyte. Entrained solids can be dissolved by preservative leading to inconsistent results of dissolve analytes. Specifically, samples to be analyzed for metals should be field-filtered prior to preservation; do not collect an unfiltered sample in a preserved container.*
- *Samples should be chilled and maintained at 4 °C to prevent degradation of the sample. The laboratory's Quality Assurance Management Plan should detail appropriate chilling and shipping requirements.*
- *Samples must be shipped under chain of custody documentation to the appropriate laboratory promptly to avoid violating holding time restrictions.*
- *Instruct the laboratory to use reporting limits that are equal to or less than the applicable DQOs or regional water quality objectives/screening levels.*

*Special protocols for low-flow sampling equipment:*

- *In addition to the protocols listed above, sampling using low-flow sample equipment should adopt the following protocols derived from EPA's Low-flow (minimal drawdown) ground-water sampling procedures (Puls and Barcelona, 1996 <sup>[14]</sup>). These protocols apply to low-flow sampling equipment that generally pumps between 0.1 and 0.5 liters per minute. These protocols are not intended for bailers.*

*Special protocols for passive sampling equipment:*

- *In addition to the protocols listed above, passive diffusion samplers should follow protocols set forth in USGS Fact Sheet 088-00 <sup>[15]</sup>.*

Note that the protocol for monitoring seawater intrusion (SI) has been excluded from this document, as the Butte County Subbasin and its neighboring counties are inland and thus not expected to require analysis of SI-dependent variables.

### 3.3.3 Subsidence: Protocol

The protocol for subsidence monitoring described in the *BMP* is reprinted below. Monitoring land surface displacement in the subbasin will rely upon existing and available data.

*Evaluating and monitoring inelastic land subsidence can utilize multiple data sources to evaluate the specific conditions and associated causes. To the extent possible, the use of existing data should be utilized. Subsidence can be estimated from numerous techniques, they include: level surveying tied to known stable benchmarks or benchmarks located outside the area being studied for possible subsidence; installing and tracking changes in borehole extensometers; obtaining data from continuous GPS (CGPS) locations, static GPS surveys or*

*Real-Time-Kinematic (RTK) surveys; or analyzing Interferometric Synthetic Aperture Radar (InSAR) data. No standard procedures exist for collecting data from the potential subsidence monitoring approaches. However, an approach may include:*

- *Identification of land subsidence conditions.*
  - *Evaluate existing regional long-term leveling surveys of regional infrastructure, i.e. roadways, railroads, canals, and levees.*
  - *Inspect existing county and State well records where collapse has been noted for well repairs or replacement.*
  - *Determine if significant fine-grained layers are present such that the potential for collapse of the units could occur should there be significant depressurization of the aquifer system.*
  - *Inspect geologic logs and the hydrogeologic conceptual model to aid in identification of specific units of concern.*
  - *Collect regional remote-sensing information such as InSAR, commonly provided by USGS and NASA. Data availability is currently limited, but future resources are being developed.*
- *Monitor regions of suspected subsidence where potential exists.*
  - *Establish CGPS network to evaluate changes in land surface elevation.*
  - *Establish leveling surveys transects to observe changes in land surface elevation.*
  - *Establish extensometer network to observe land subsidence. There are a variety of extensometer designs and they should be selected based on the specific DQOs.*

#### 3.3.4 Streamflow: Protocol

The protocol for streamflow monitoring described in the *BMP* is reprinted below.

*Monitoring of streamflow is necessary for incorporation into water budget analysis and for use in evaluation of stream depletions associated with groundwater extractions. The use of existing monitoring locations should be incorporated to the greatest extent possible.*

*Establishment of new streamflow discharge sites should consider the existing network and the objectives of the new location. Professional judgment should be used to determine the appropriate permitting that may be necessary for the installation of any monitoring locations along surface water bodies. Regular frequent access will be necessary to these sites for the development of ratings curves and maintenance of equipment.*

*To establish a new streamflow monitoring station special consideration must be made in the field to select an appropriate location for measuring discharge. Once a site is selected, development of a relationship of stream stage to discharge will be necessary to provide continuous estimates of streamflow. Several measurements of discharge at a variety of stream stages will be necessary to develop the ratings curve correlating stage to discharge. The use*

*of Acoustic Doppler Current Profilers (ADCPs) can provide accurate estimates of discharge in the correct settings. Professional judgment must be exercised to determine the appropriate methodology. Following development of the ratings curve a simple stilling well and pressure transducer with data logger can be used to evaluate stage on a frequent basis.*

*Streamflow measurements should be collected, analyzed, and reported in accordance with the procedures outlined in USGS Water Supply Paper 2175, Volume 1. – Measurement of Stage Discharge and Volume 2. – Computation of Discharge (USGS 2013). This methodology is currently being used by both the USGS and DWR for existing streamflow monitoring throughout the State.*

## 4 References

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- [15] U.S. Geological Survey, 2014. USGS Fact Sheet 088-00: Use of Passive Diffusion Samplers for Monitoring Volatile Organic Compounds in Ground Water, <https://pubs.usgs.gov/fs/fs-088-00/>

## **Appendix A: Field Forms for Protocols**

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## **Appendix B: Groundwater Quality Monitoring Yearly Process and Trend Monitoring Program**

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## **Butte County Groundwater Quality Monitoring Yearly Process**

1. May: Check expiration dates and volumes of pH buffers (4.01, 7.0 and 10.01), EC calibration solution and filling solution. Order as needed.
2. **Early July (~3 weeks before sampling):** Send out initial contact letter/email to well owners. Follow up with email / phone call to schedule a specific appointment time according to pre-determined route. Update contact information as needed.
3. Send out / phone reminders to well owners about one week before sampling.
4. **Late July / Early August:** Prepare / gather equipment and conduct the field testing. Late July is best. Too far into August results in access issues due to Almond harvest.
5. Compile data: enter into excel tables, perform QA/ QC on 100% of data, update preliminary results and Technical Memo summary report.
6. Email “thank you” letter/email and preliminary results to well owners.
7. Possibly present monitoring results to the Water Commission.
8. Present and discuss results from the Technical Memo Summary Report at a meeting of the Butte County Water Commission Technical Advisory Committee.
9. Include Technical Memo Summary Report in Annual Groundwater Status Report.

### **Equipment Checklist for Field Testing:**

- Field binder
- Hach HQd portable meter
- pH buffer solutions (check expiration dates)
  - 4.01 (+/- 0.02) Hach Cat. No 2283449
  - 7.0 (+/- 0.02) Hach Cat. No 2283549
  - 10.01 (+/- 0.02) Hach Cat. No 2283649
- EC probe filling solution (3M KCl saturated with ArCl Part No. S21M004)
- 2-3 gallons of distilled water (for rinsing probes)
- Paper towels/box of tissues
- Glass sampling jar
- Wrench / pliers
- Wasp spray
- Sunblock / skin protection
- Sturdy boots
- Camera
- Disposable gloves
- Timer / phone
- Extra batteries (AA)
- Soft Lint-free cloth

### **Sampling Procedure Each Day at the Initial Site:**

1. Check to see if the EC probe was stored in dry conditions, if so follow instructions in Hach manual for soaking probe before use.
2. Calibrate the Hach instrument (see pH and electrical conductivity calibration instructions)
3. Record calibration results and time.

### **Sampling Procedure for Each Site:**

1. Confirm that the pump has been turned on and running for at least 15 minutes.
2. Purge the well for at least 15 minutes using sprinklers, hose or other faucet available (prioritizing largest volume of water that can be purged). Purging and sampling location is site specific, see instructions for each location for details.

3. Put on gloves. Rinse the sampling jar with distilled water three times. Then rinse the sampling jar with the well water 3 times before pulling a sample. Submerge the pH probe in the sample. Stirring gently, wait until the reading stabilizes on the display of the Hach meter. Make a note of the pH, temperature and time.
4. Rinse the pH probe tip thoroughly with distilled water.
5. Rinse the sampling jar with the well water 3 times before pulling another sample, then pull another sample.
6. Rinse the probe tip with some of the next sample to be measured. Check to ensure the filling hole cap is open on the pH probe. Submerge the pH probe in the sample. Stirring gently, wait until the reading stabilizes on the meter indicated by a noise. Make a note of the pH, temperature and time.
7. Repeat steps 4 - 7 until three pH readings in a row are consistently within 0.10 of one another I.e. if Sample #1 = 7.02, Sample # 2 = 7.06 and Sample # 3 = 7.13 you would pull additional samples and keep measuring pH until they were all within 0.10 of one another consecutively, as  $6.13 - 6.02 = 0.11$ ....OR keep measuring pH until they round to the nearest tenth, three times in a row (such as 7.06, 7.13, 7.14 all round to 7.1).
8. Once all three samples have pH recordings within 0.10 of one another in a row, use the final water sample to measure and record EC, TDS, temp and the time.
9. Gently stir the EC probe without touching the sides or bottom of the sampling jar. If bubbles form under the EC sensor tip, gently shake probe until they are removed.
10. Rinse probes with distilled water and blot dry using a soft Lint-free cloth.
11. Store pH probe in storage solution after every use, between sampling sites and overnight.

**\*\*When done for the season, remove batteries from meter for storage\*\***

*(revised from State Water Project Water Quality Field Manual, January 1998 pg. 41-43, 59)*



February 6, 2020

## Development of an Out-of-Basin Transfer Rule for the Vina Subbasin

On October 10, 2019, the Vina Groundwater Sustainability Agency (GSA) Board voted to direct the Management Committee to draft a rule regulating out-of-basin water transfers pursuant to its authority under Water Code section 10725(c). The Vina Management Committee has established a process to develop the rule for out-of-basin transfers.

### Background

While the basin setting work is not completed, data indicate that groundwater elevations in the Vina subbasin have a declining trend line over the past couple of decades. The Vina subbasin is expected to incorporate into the groundwater sustainability plan a menu of water management actions and projects in order to meet a sustainable yield for the basin. Achieving a sustainable yield for the Vina subbasin may require the implementation of groundwater pumping reductions and/or recharge projects. Groundwater pumping reductions can be achieved through water conservation, introduction of surface water supplies to offset groundwater demand, or through specified groundwater allotments (i.e. on a per acre basis). Groundwater allocations alone would likely lead to reduced agricultural production and impact the economy and communities. Negative impacts can be avoided from groundwater pumping reductions through water conservation programs and/or introduction of surface water supplies. Initial water management projects to introduce surface water supplies to the Vina subbasin spurred concern about ownership (privatization) of recharged water, purchased surface water and the resultant potential export of recharged groundwater. To address these concerns, the Vina GSA Board directed the development of a rule to regulate out-of-basin transfers. The following is the process the Management Team, working through the Vina Stakeholder Advisory Committee, will follow to develop this rule for consideration by the Vina GSA Board.

### Process

1. Identify Potential Water Sources and Entities that Could Transfer Water  
Developing an effective rule will begin with identifying the specific vulnerabilities. The opportunity to transfer water out of the Vina subbasin involve a number of factors including the ownership of water, the legal rights that an entity holds over the water and the physical means to convey the water. A number of potential projects that could be part of the Vina GSP have raised concerns. The following highlights some of the potential projects as they relate to the ownership of groundwater and the ability to transfer it out of the basin. Some of these issues have other concerns, but the purpose of this effort is focused on the ability of entities to transfer water out of the Vina subbasin.

Issue 1: Incorporating a surface water supply to CalWater Chico would allow them to reduce groundwater pumping. Under this scenario, CalWater would purchase a surface water supply through a contract with a local agency (Paradise Irrigation District, Feather River Settlement Contractors, Butte County) who has available surface water.

- Under what circumstances would CalWater gain ownership of in-lieu recharged groundwater?
- What rights could CalWater exercise over recharged groundwater?
- Does it matter who CalWater contracts with?
- Under what circumstances would the owner of the surface water lose their ownership/water right?
- How does the case, City of LA v. City of San Fernando [LA No. 30119. Supreme Court of California. May 12, 1975] apply?

Issue 2: Opportunities exist in the Vina subbasin to recharge storm flow through recharge basins, on-farm flooding, conveyance infrastructure, or recharge ponds. These types of recharge projects are being promoted through DWR's FloodMAR program. Local public agencies conducting recharge projects would need a water right permit from the State Water Resources Control Board.

- Do local public agencies that manage a recharge project gain water rights over recharged groundwater? Who should apply and hold the rights?
- What rights could they exercise over recharged water?
- How would this affect other groundwater users?
- Are there existing rights that could support recharge?

Issue 3: The proposed Tuscan Water District intends to be a water district in the Vina subbasin and a small portion in the Butte subbasin. A formal application to form the Tuscan Water District is expected to be filed with LAFCO in the spring of 2020. Part of their proposed purpose would be to conduct recharge projects (e.g., Issue 2) and become an irrigation water supplier. The Tuscan Water District proposes to reduce individual growers' groundwater pumping by conveying and making surface water supplies available for irrigation. The Tuscan Water District would have to purchase surface water supplies from local agencies in a similar manner as CalWater (Issue 1). One difference is that the proposed Tuscan Water District would be a public agency. The same questions posed for Issue 1 and 2 apply to the proposed Tuscan Water District.

Issue 4: Other scenarios?

## 2. Evaluate Existing Rules

Based on the identification of out-of-basin transfers, a review of existing rules will determine if there are any gaps. The locally enacted, Chapter 33 of the Butte County Code, Groundwater Conservation, will be evaluated as well as state rules as specified in the California Water Code and the operational rules of the State Water Project.

### 3. Draft Rule to Protect the Vina Subbasin

Based on the evaluation of existing rules, the legal team will prepare recommendations that will allow the Vina GSA to protect the Vina subbasin from out-of-basin transfers.

#### Implementation

Step 1 will be involve consultation with the Vina Stakeholder Advisory Committee to evaluate the initial identification of the potential water sources and entities that could transfer water.

Step 2 will involve work by a legal review team. The legal review team will evaluate the types of projects and entities that may have an opportunity to transfer water out of the basin and may request clarification from the Vina Stakeholder Advisory Committee. The legal review team will then develop a draft summary of the rules that would govern the projects in Step 1. This draft summary will be presented for discussion to the Vina Stakeholder Advisory Committee. Based on the input from the Stakeholder Advisory Committee, the legal review team will evaluate existing rules and identify recommendations for a Vina subbasin out-of-basin transfer rule.

Step 3 will involve the recommendations be presented to the Vina Stakeholder Advisory Committee for a recommendation to the Vina GSA Board.



February 25, 2020

### *Identifying and Managing the Legal Implications of Artificial Recharge*

On October 10, 2019, the Vina Groundwater Sustainability Agency (GSA) Board voted to direct the Management Committee to draft a rule regulating out-of-basin water transfers pursuant to its authority under Water Code section 10725(c). The interest to develop an out-of-basin transfer rule came from concerns over the potential implications from artificial recharge projects. The Vina Management Committee has established a process to evaluate implications from artificial recharge projects and to develop a rule to protect Vina groundwater resources including out-of-basin transfers.

#### Background

While the basin setting work is not completed, data indicate that groundwater elevations in the Vina subbasin have a declining trend line over the past couple of decades. The Vina subbasin is expected to incorporate into the groundwater sustainability plan a menu of water management actions and projects in order to meet a sustainable yield for the basin. Achieving a sustainable yield for the Vina subbasin may require the implementation of groundwater pumping reductions and/or recharge projects. Groundwater pumping reductions can be achieved through land use policies, expanding urban and agricultural water efficiency technology, waste water recycling or increasing the use of surface water supplies to offset groundwater demand, or through specified groundwater allotments (i.e. on a per acre basis). Groundwater pumping reductions alone would likely lead to reduced agricultural production and impact the economy and communities. Negative impacts from groundwater pumping reductions may be avoided through water conservation programs, recharge (Flood MAR) and/or introduction of surface water supplies (in-lieu). The potential development of water management projects spurred concern about ownership (privatization) of recharged water, purchased surface water and the resultant potential export of recharged groundwater. To address these concerns, the Vina GSA Board directed the development of a rule to regulate out-of-basin transfers. Although the Vina GSA Board directed the development of a rule to regulate out-of-basin transfers, potential artificial/intentional recharge programs pose a wider set of questions and concerns that are in addition to out-of-basin transfers.

The following is the process the Management Team, working through the Vina Stakeholder Advisory Committee, will follow to evaluate implications of artificial recharge projects in order to develop a rule for consideration by the Vina GSA Board.



## Process

### 1. Identify Potential Implications of Artificial Recharge Programs

Developing an effective rule will begin with the evaluation and response to specific questions and concerns about artificial recharge projects. The project will address the range of questions and concerns, including:

- Do local public agencies or corporations that manage a recharge project gain water rights over recharged groundwater?
- What rights could they exercise over recharged water?
- How would this affect other groundwater users?
- Could groundwater users lose their right to pump groundwater?
- Are there types of surface water rights that could support recharge without negative implications?
- What are the impacts on urban rate-payers?
- Could artificial/intentional recharge stimulate urban sprawl?
- Could artificial/intentional recharge stimulate expansion of irrigated agricultural demand?
- Could recharge groundwater be available for export out-of-basin?
- Under what circumstances would the owner of the surface water lose their ownership/water right?
- How does the case, City of LA v. City of San Fernando [LA No. 30119. Supreme Court of California. May 12, 1975] apply?

### 2. Evaluate Existing Rules

A review of existing rules (Chapter 33 of the Butte County Code, Groundwater Conservation, California Water Code, State Water Project operations) will determine if there are any gaps to the identified concerns from artificial recharge projects.

### 3. Draft Rule to Protect the Vina Subbasin

Recommendations will be proposed that will allow the Vina GSA to protect the Vina subbasin from negative implications from artificial recharge project through enactment of policies and/or rules.

## Implementation

Step 1 - Consultation with the Vina Stakeholder Advisory Committee on the draft scope - This was completed on February 19, 2020. Their input is reflected in this document.

Step 2 – Legal Evaluation - Valerie Kincaid, Vina GSA Counsel, in cooperation with a legal review team will evaluate the questions and concerns about the implications of artificial recharge. The draft evaluation about artificial recharge and a summary of existing rules will be presented for discussion to the Vina Stakeholder Advisory Committee. Based on the input from the Stakeholder Advisory Committee, the recommendations for a Vina subbasin out-of-basin transfer rule or other applicable rules/policies will be developed.

Step 3 – Recommendation – The recommendations will be presented to the Vina Stakeholder Advisory Committee for a recommendation to the Vina GSA Board.



**Vina  
Groundwater Sustainability Agency  
Agenda Transmittal**

Agenda Item: 6.3

**Subject:** Review of the DWR Technical Support Services Program for Monitoring Well Installation

**Contact:** Kelly Peterson

**Phone:** (530) 552-3595

**Meeting Date:** 3/11/20

**Regular Agenda**

**Department Summary:** DWR has committed to providing guidance and support as Groundwater Sustainability Agencies (GSAs) implement SGMA and work toward managing groundwater basins sustainably. One avenue to do this is their Technical Support Services (TSS) program which supports GSAs as they develop and implement their Groundwater Sustainability Plans (GSPs). Monitoring well installation is one the services offered by the TSS Program which has been identified as a need for the Vina subbasin.

Installation of a monitoring well involves drilling into various types of geologic formations that exhibit varying subsurface conditions at varying depths; hence this is more accurately referred to as a “multi-completion well”. In general, it would include drilling one borehole with multiple casings so that each casing is screened at a different depth. This helps us to understand differences in groundwater levels between these different depths.

While there are multiple wells throughout the Vina subbasin which are part of the existing monitoring network, there are large areas in the subbasin without groundwater monitoring wells and in particular there are areas without wells that measure groundwater levels at varying depths in one location. These data gaps are prevalent in the Vina subbasin as can be seen in the attached map. New multi-completion wells will be equipped with continuous groundwater level recording devices which will provide a vast increase in the amount of groundwater level data recorded. Hourly groundwater level data can be collected at these wells, as compared to other wells which we gather data on only a few times per year.

Eligibility requirements are detailed in the attached Fact Sheet. Kelly Peterson (Butte County) in coordination with the Management Committee has been designated as the Point of Contact for the Vina GSA to submit TSS applications to DWR on behalf of the Vina GSA. The initial application for TSS to DWR has been submitted and progress is currently being made on the second application which will include site specific details on new potential monitoring well sites.

Currently the planning process has involved direct cooperation and work with staff of the Rock Creek Reclamation District (RCRD) to start with areas lacking monitoring wells in the Vina North draft management area near the community of Nord and also the northwest portion of the subbasin. These areas are also somewhat near the Sacramento River and neighboring subbasins. The RCRD has been instrumental in assisting with the initial identification of and outreach to interested landowners to determine potential sites for well installation. Outreach to date has resulted in apparent interest from three landowners. Final agreements will include land use agreements between DWR, the Vina GSA and the landowners. Any additional landowners located in the areas lacking monitoring wells in the Vina GSA interested in participating in the program / having a multi-completion well drilled on their land are encouraged to contact Kelly Peterson directly: kpeterson@buttecounty.net or (530) 552-3595.

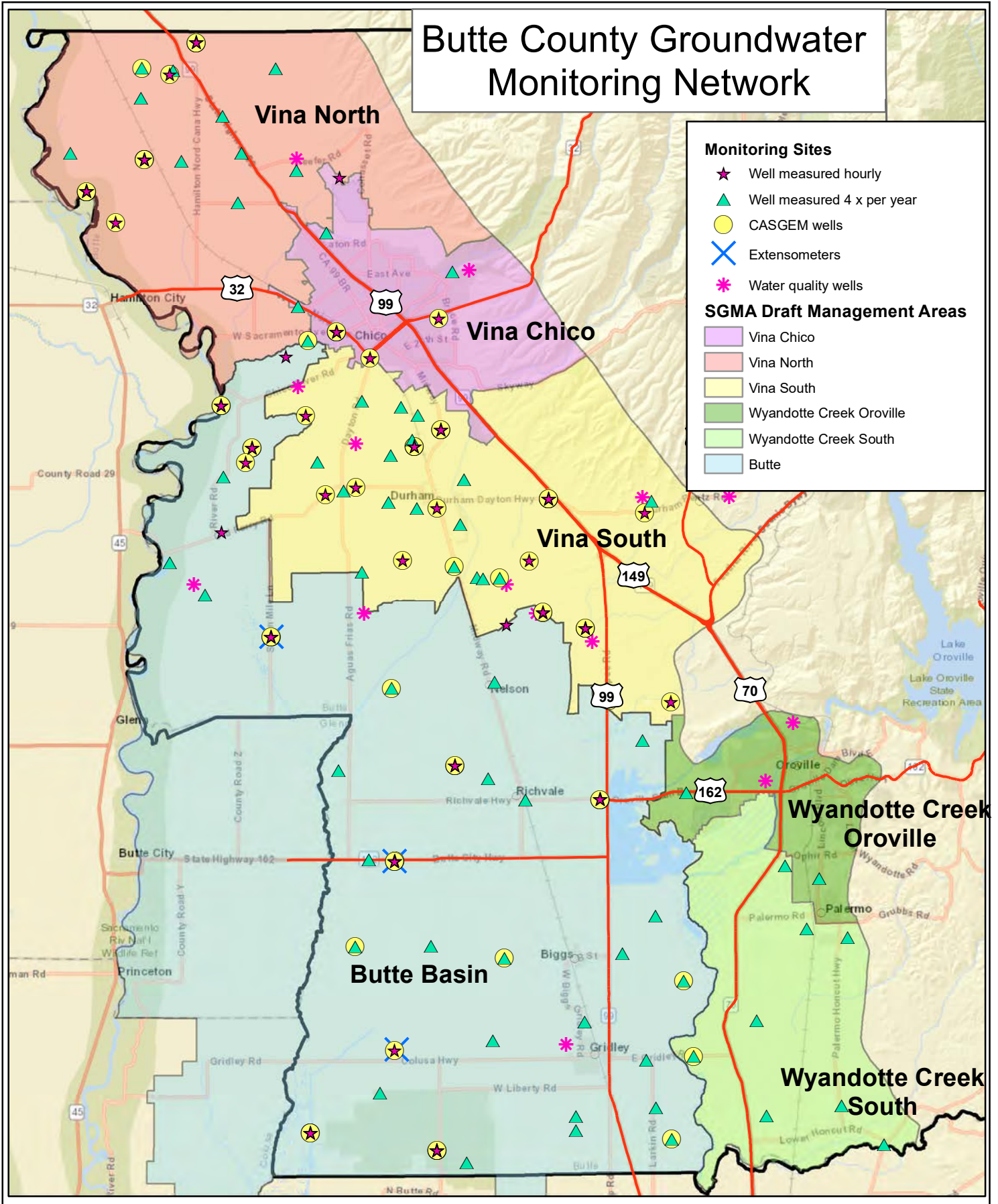
**Fiscal Impact:** No fiscal impact is anticipated. Staff will coordinate with participants and prepare applications through in-kind services and DWR will fund well installation and associated activities.

**Staff Recommendation:** Accept the item for information

**Attachments:**

- A: Monitoring Well Map
- B: Fact Sheet

# Butte County Groundwater Monitoring Network

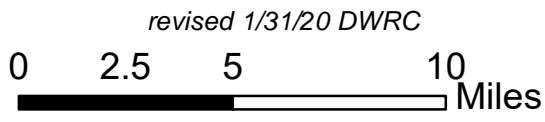


**Monitoring Sites**

- ★ Well measured hourly
- ▲ Well measured 4 x per year
- CASGEM wells
- ✕ Extensometers
- ★ Water quality wells

**SGMA Draft Management Areas**

- Vina Chico
- Vina North
- Vina South
- Wyandotte Creek Oroville
- Wyandotte Creek South
- Butte





# Technical Support Services for Groundwater Sustainability Plan Development

The Department of Water Resources' (DWR) Technical Support Services (TSS) supports Groundwater Sustainability Agencies (GSAs) as they develop their Groundwater Sustainability Plans (GSPs). The goal is to provide technical services as well as [data and tools](#)<sup>1</sup> to GSAs at both regional and statewide scales to build the capacity needed to achieve sustainability. TSS is available to GSAs through DWR Region Offices and/or contractors upon DWR funding availability. The initial priority for this funding will be focused on requests in critically over-drafted and high- and medium-priority basins.

## Technical Support Services Available:

### Field Activities

- Monitoring Well Installation
  - Geophysical Logging
  - Geologic Logging
- Groundwater Level Monitoring Training
- Downhole Video Logging
- Other Field Activities

### Modeling

- Modeling Training and Support (pending DWR updated model release)

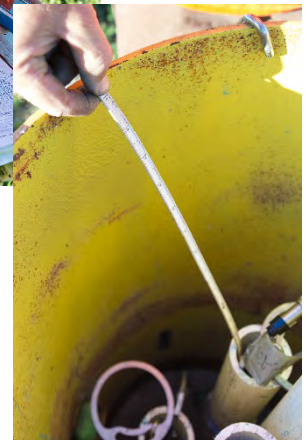
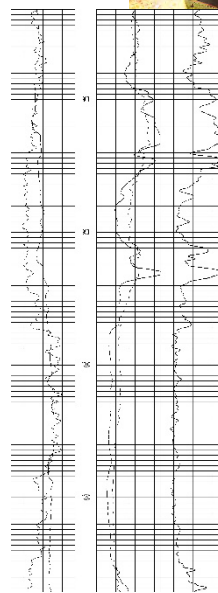


## Who is Eligible?

GSAs developing GSPs are eligible to apply for these services if they agree to meet all of the following obligations:

- Agree to share any data generated from the technical support service(s) with DWR and the public.
- Comply with all applicable laws related to the technical support service(s).
- Agree to work in an open, inclusive, and collaborative manner toward the development of a GSP, including appointing a coordinator for the basin to represent all GSAs, resolve disputes, and speak as one voice to DWR (not required to be the "Point-of-Contact" for

Coordination Agreements as used in 23 CCR §357.4 (b) (1) of the GSP Emergency Regulations, or the "Plan manager" as used in 23 CCR §351 (z), 353.4 (b), and §354.6 (c)).



- Agree to complete GSA’s responsibilities related to requested technical support service(s) within the defined timeframe.
- Support DWR staff or contractors that are providing technical support service(s).

## Application Process

Applications for TSS will be evaluated on a continuous basis as funding allows. Applications must be submitted through an online application system made available to the applicant following consultation with DWR Region Offices. **A PDF and Word copy of the application** are provided as a resource to help applicants prepare for the online application.

Applicants are encouraged to contact a Regional Office Coordinator at [sgma\\_rc@water.ca.gov](mailto:sgma_rc@water.ca.gov) to discuss the type and level of services needed prior to submitting an application.

**I. Applicant Background**  
(Questions 1-5 of 8)

★ 1) Select the groundwater basin/subbasin that pertains to this TSS General Application:  
*Only one TSS General Application per groundwater basin/subbasin is allowed.*

-----select-----

★ 2) Groundwater Basin/Subbasin Coordinator Information:  
*By submitting a TSS General Application for the above groundwater basin/subbasin, you are voluntarily identifying yourself as the Groundwater Basin/Subbasin Coordinator for all TSS Requests located in the groundwater basin/subbasin.*  
*Note: Not required to be the "Point-of-Contact" for Coordination Agreements as used in 23 CCR §357.4 (b) (1) of the GSP Emergency Regulations, or the "Plan manager" as used in 23 CCR §351 (z), 353.4 (b), and §354.6 (c).*

Organization Name:

Basin Coordinator Name:  Enter first and last name

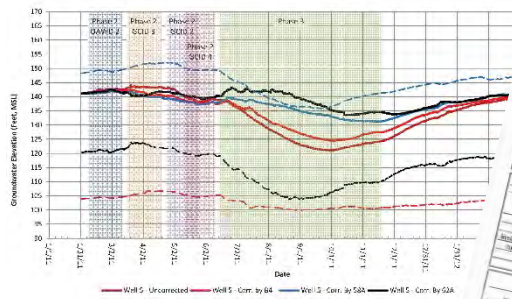
Phone Number:  Use format: ###-###-####

Email Address:

★ 3) How many GSPs are planned for the groundwater basin/subbasin?

★ 4) What other funding or technical services have the GSAs or GSA mer California?

None



A handwritten application form with multiple sections, including a header with 'MET. COMMITTEE REPORT' and 'E009038'. The form contains various tables, checkboxes, and handwritten entries, likely related to groundwater management or TSS requests.



California Department of Water Resources  
1416 Ninth Street  
P.O. Box 942836 Sacramento,  
CA 94236-0001

<http://www.water.ca.gov>

2019

1	Procurement Policy Approved	Aug-19
2	GSA Bylaws Approved	Sep-19
3	Budget Established	Sep-19
4	Insurance Services Retained	Sep-19
5	Communications and Engagement Plan Approved	Oct-19
6	All Stakeholder Advisory Committee Reps Appointed	Nov-19
7	Legal Services Retained	Nov-19
8	Website Developed	Dec-19
9	MOU with Butte College Executed	Dec-19
10	Conflict of Interest / Ethics Policy Approved	Dec-19
<b>2020</b>		
11	GSA Director Form 700s Due	Jan-20
12	Stakeholder Advisory Committee Charter Approved - GSA Board	Mar-20
13	Basin Setting Chapters Reviewed - Stakeholder Advisory Committee	May-20
14	MOU with Rock Creek Reclamation District Executed - GSA Board	Jun-20
15	Basin Setting Chapters Reviewed - GSA Board	Sep-20
<b>2021</b>		
16	Sustainable Criteria Drafts Reviewed by Stakeholder Advisory Committee	Jun-21
17	Sustainable Criteria Drafts Reviewed by GSA Board	Sep-21
18	Entire Draft GSP Reviewed - Stakeholder Advisory Committee	Oct-21
19	Entire Draft GSP Approved - GSA Board	Nov-21
20	<b>Final GSP Submittal to DWR</b>	<b>Jan-22</b>
21	Annual GSP Update to DWR	Apr-22 (+ 20 years)
22	5-year GSP Update GSA Board	Jan-27

