#### SACRAMENTO CENTRAL GROUNDWATER AUTHORITY REGULAR MEETING OF THE BOARD OF DIRECTORS

Wednesday, December 14, 2016; 9:00 am

#### 10060 Goethe Road

Sacramento, CA 95827

(SRCSD/SASD Office Building South Community Meeting Room No. 1205–Valley Oak)

Meeting facilities are accessible to persons with disabilities. Requests for interpreting services, assistive listening devices or other considerations should be through Ramon Roybal by calling (916) 874-6826 (voice) and CA Relay Services 711 (for the hearing impaired), no later than five working days prior to the meeting.

The Board will discuss all items on this agenda, and may take action on any of those items. The Board may also discuss other items that do not appear on this agenda, but will not act on those items unless action is urgent, and a resolution is passed by a two-thirds (2/3) vote declaring that the need for action arose after posting of this agenda.

#### 1. CALL TO ORDER AND ROLL CALL – 9:00 A.M.

2. PUBLIC COMMENT: Members of the audience may comment on any item of interest to the public within the subject matter jurisdiction of the Groundwater Authority. Each person will be allowed three minutes, or less if a large number of requests are received on a particular subject. No action may be taken on non-agendized items raised under "Public Comment" until the matter has been specifically included on an agenda as an action item. If a member of the public wants a response to a specific question, they are encouraged to contact any member of the Board or the Executive Director at any time. Members of the audience wishing to address a specific agendized item are encouraged to offer their public comment during consideration of that item.

#### 3. CONSENT CALENDAR

• Approve minutes of the November 9, 2016 Board meeting and the November 9, 2016 Budget Subcommittee meeting.

Recommended Action: Approve Consent Calendar items.

#### 4. APPROVE SUBMISSION OF THE ALTERNATIVE SUBMITTAL FOR THE SOUTH AMERICAN SUBBASIN TO THE CALIFORNIA DEPARTMENT OF WATER RESOURCES; ENVIRONMENTAL DOCUMENT – EXEMPT (PLER CONTROL NO. 2016-00099)

**Recommended Actions:** 

- 1. Recognize the exempt status of the Alternative Submittal pursuant to Section 15307 and 15308 (actions for protection of a natural resource and protection of the environment) of the California Environmental Review Act (CEQA) Guidelines (PLER Control No. 2016-00099).
- 2. Adopt the proposed resolution memorializing the consideration and recognition of the exempt status of the Alternative Submittal and approving its submission for the South American subbasin to the

California Department of Water Resources pursuant to California Water Code 10733.6.

#### 5. REPORT ON EXISTING SCGA COMMITMENTS ADDRESSING STAKEHOLER CONCERNS IDENTIFIED IN ALTERNATIVE SUBMITTAL OUTREACH

Recommended Action: Review and recognize past commitments.

#### 6. JPA FIRST AMENDMENT

Recommended Action: Adopt the proposed Resolution recommending the governing bodies of the JPA signatories approve and execute a First Amendment to the Joint Powers Agreement to broaden the eligibility for SCGA Board appointments for certain members.

#### 7. EXECUTIVE DIRECTOR'S REPORT

• Sacramento Valley Subsidence Network Resurvey Project Spring 2017

#### 8. DIRECTOR'S COMMENTS

#### ADJOURNMENT

#### Upcoming meetings -

**Next SCGA Board of Directors Meeting** – Wednesday, January 11, 2017, 9:00 am; 10060 Goethe Road, SRCSD/SASD Office Building South Community Meeting Room No. 1205 (Valley Oak).

## **AGENDA ITEM 3: CONSENT CALENDER**

#### **BACKGROUND:**

The Board package includes draft minutes of the November 9, 2016 Board meeting and of the November 9, 2016 Budget Subcommittee meeting.

#### **STAFF RECOMMENDATION:**

Action: Approve Consent Calendar items.

Sacramento Central Groundwater Authority (SCGA) Regular Meeting DRAFT MINUTES Wednesday, November 9, 2016

#### 1. CALL TO ORDER AND ROLL CALL

Chair Brett Ewart called the Sacramento Central Groundwater Authority meeting of Wednesday, November 9, 2016 to order at 9:01 a.m.

The following meeting participants were in attendance:

Board Members (Primary Rep): Tom Nelson – Elk Grove Water District/ Florin Resource Conservation District Tom Mahon – Agricultural Interests Carl Werder – Agricultural-Residential Christine Thompson – Public Agencies Self-Supplied Paul Schubert – Golden State Water Company

Board Members (Alternate Rep): Todd Eising – City of Folsom Brian Fragiao – City of Elk Grove Allen Quynn – City of Rancho Cordova Brett Ewart – City of Sacramento Forrest Williams Jr. – County of Sacramento Jose Ramirez – Sacramento Regional County Sanitation District

<u>Staff Members</u>: Darrell Eck – Executive Director Sarah Britton – Legal Counsel Stephanie Studdert – Clerk Ramon Roybal Ping Chen

<u>Others in Attendance</u>: Jonathan Goetz – GEI Rodney Fricke – GEI Tom Gohring – Water Forum Mark Madison – Florin Resource Conservation District/Elk Grove Water District Bruce Kamilos – Florin Resource Conservation District/Elk Grove Water District Charlotte Mitchell – Agricultural Interests Suzanne Pecci – Domestic Well Owner Lisa Dills – Southgate Recreation Park District Mike Eaton – Cosumnes Coalition Mike Wackman – Omochumne-Hartnell Water District Darlene Thiel – Rancho Murieta CSD Ron Pecci Melinda Frost-Hurzel – Cosumnes Coalition Kerry Schmitz – SCWA Jay Schnieder – SRCD Jim Blanke – RMC Water and Environment Alberto Ramirez - Teichert

<u>Member Agencies Absent</u> Commercial/Industrial Self-Supplied Conservation Landowners Omochumne-Hartnell Water District Rancho Murieta CSD California American Water Company

#### 2. PUBLIC COMMENT

Suzanne Pecci submitted and read aloud a statement to the Board regarding the recent election activity at the Sloughhouse Resource Conservation District (SRCD) Board meeting held on October 27, 2016.

#### 3. CONSENT ITEMS

Melinda Frost-Herzel stated that her comment at the October 5, 2016, SGMA Subcommittee meeting regarding trigger points was misrepresented in the minutes. She stated that she asked if the Board had ever acted on low trigger points and the answer was that the Board had not chosen to act on them in the past.

*Motion/Second/Carried* - Director Carl Werder moved, seconded by Director Christine Thompson, the motion carried unanimously to approve the October 12, 2016, SCGA Board meeting and the October 5, 2016 SGMA Subcommittee meeting with amendment to October 5, 2016, SCMA Subcommittee following review of the audio.

#### 4. ELECTION OF OFFICERS

*Motion/Second/Carried* - Director Carl Werder moved, seconded by Director Christine Thompson, the motion carried unanimously to reappoint, in accordance with SCGA Policies and Procedures §3.06(a), Director Brett Ewart as Chair and Director Forrest Williams as Vice Chair for 2017 term.

## 5. PUBLIC DRAFT SOUTH AMERICAN SUBBASIN ALTERNATIVE SUBMITTAL

Executive Director Darrell Eck introduced Tom Gohring of the Water Forum who provided a status report presentation from the bilateral outreach meetings (*Note: The presentation given by Tom Gohring may be viewed on the Authority's website for the November 9, 2016 meeting date.*)

Director Paul Schubert requested clarification on what happens if overlapping GSA's are not resolved by June 2017. Counsel Sarah Britton provided that the State issued an opinion that the County would be the default governing entity over an overlap area. The area would continue to be considered overlapped and unmanaged. Counsel Sarah Britton further stated that the consequences of overlap are potential probationary status and extraction reporting.

Chair Brett Ewart said that the resolution being recommended should reaffirm and reiterate previous and future intent of the Board and continue efforts to resolve issues and work with agencies.

Speaker Melinda Frost-Herzel commended the Water Forum on their efforts during the Alternative Submittal process. She stated that the recommended resolution should give staff and the Water Forum authority to continue those efforts.

Speaker Mark Madison stated that Florin Resource Conservation District (FRCD) has thoroughly and closely reviewed the Alternative Submittal and commended staff and the consultants on their work. He further stated that the Alternative Submittal would not fix every ailment that an agency has, however, it would provide for compliance with SGMA in the least costly way. Mark Madison said that FRCD believes that there are no undesirable results. He stated that he encourages Omochumne-Hartnell Water District (OHWD) and Sloughhouse RCD to consider returning to participating in SCGA and not pursue theirown GSA quest.

Speaker Jay Schneider stated that he wanted to thank the Water Forum, on behalf of SRCD, for their effort in trying to identify the issues. Jay Schneider stated that all of the issues that were discussed in the current meeting and for the last year were a result of SCGA governance over the portion of the Cosumnes Basin lying east of Grantline Road within the boundaries of SRCD and OHWD. Mr. Schneider urged the Board to think about the concept of agreeing to a boundary line adjustment, agree to allow SRCD and OHWD to be the governing entities of the portion of the Cosumnes Basin lying east of Grantline Road, and enter into an agreement that would provide a buffer area near the center line of the Cosumnes.

*Motion/Second/Carried* - Director Forrest Williams moved, seconded by Director Christine Thompson, the motion carried unanimously directing staff to research previous meeting minutes and provide the Board with a compiled history of previous commitments and statements made by the Board; and further directed staff to bring draft language for the issues that have not been previously addressed or committed to, for Board review at the December 14, 2016 meeting.

#### 6. MEETINGS OF THE BOARD

Executive Director Darrell Eck stated that issues related to meeting various SGMA deadlines and associated coordination efforts may necessitate the Board meet during even numbered months through 2017.

Director Carl Werder suggested that the Board permanently meet monthly.

Counsel Sarah Britton advised that the recommended action be changed to reflect the word 'add' instead of 'set'. She also stated that if the Board wished to permanently meet monthly, staff would need to provide an amendment to the SCGA Policies and Procedures.

**Motion/Second/Carried** - Director Paul Schubert moved, seconded by Director Forrest Williams, the motion carried unanimously amending the recommended action to read, *Approve a deviation from Section 3.09(b) of the Rules and Procedures and <u>add meeting dates for even numbered months through 2017</u>; and approved the recommended action to deviate from Section 3.09(b) of the Rules of Procedure and add even numbered monthly meetings through 2017.* 

### 7. STATUS REPORT ON AMENDING THE JPA

Executive Director Darrell Eck provided status report. He stated that all of the changes have been provided to the signatory parties. Executive Director Eck provided that staff is hoping to bring the Amendment back to the Board for consideration in December. Counsel Sarah Britton clarified that the item has been circulated to the signatory staff members not their legislative bodies. Counsel Sarah Britton recommended that it return to the SCGA Board for review and potential approval, then out to the signatory legislative bodies for adoption.

#### 8. <u>EXECUTIVE DIRECTOR'S REPORT</u>

Executive Director Darrell Eck provided his report specific to SRCD, State Board draft fee concepts for SGMA implementation, and the next SGMA Subcommittee meeting possible dates. Executive Director Darrell Eck stated that Items Nos. 8 and 9 from the SRCD meeting agenda of October 27, 2016, is of specific interest to SCGA. Regarding the State Board Meeting, Executive Director Eck referred the Board to the agenda material packet and urged the Board to review the fees that would be applied in the event that local agencies are unable or unwilling to manage their basin. Executive Director Darrell Eck stated that staff is hoping to schedule a SGMA Subcommittee meeting for late November early December.

#### 9. DIRECTOR'S COMMENTS

Director Paul Schubert stated that Golden State Water Company's dedication ceremony for their pipeline went well and water is flowing three times a week. He stated that the pipeline will go live January 1, 2017 and will run 24/7.

Chair Brett Ewart stated that over the last several Board meetings there have been comments made from Board members regarding timely receipt of material. Chair Ewart requested that staff agendize, when appropriate, a discussion of the Policies and Procedures as they pertain to the timing of meeting materials being made available to Board members so that everyone has an understanding of what the expectations are moving forward.

Director Tom Mahon stated that the probationary rate from the proposed SGMA fee schedule is obscenely high and unsustainable.

Director Carl Werder suggested that those who are looking at proposed SGMA fee schedule, write letters to DWR regarding their concerns.

#### ADJOURNMENT

Chair Brett Ewart adjourned the meeting at 10:50 a.m.

#### **UPCOMING MEETINGS**

**Next SCGA Board of Directors Meeting** – Wednesday, December 14, 2016 at 9:00 a.m. located at 10060 Goethe Road, South Conference Room no. 1205 (Valley Oak)

Chair, of the Sacramento Central Groundwater Authority Board

ATTEST:

Clerk, of the Sacramento Central Groundwater Authority Board

Sacramento Central Groundwater Authority (SCGA) Budget Subcommittee Meeting Draft Minutes Wednesday, November 9, 2016

#### 1. CALL TO ORDER AND ROLL CALL

Chair, Brett Ewart called the Sacramento Central Groundwater Authority Budget Subcommittee meeting of Wednesday, September 21, 2016 to order at 11:08 a.m.

The following meeting participants were in attendance:

Subcommittee Members Tom Mahon – Agricultural Interests Carl Werder – Agricultural Residential Todd Eising – City of Folsom Brett Ewart – City of Sacramento Forrest Williams – County of Sacramento Bruce Kamilos – Elk Grove Water District/Florin Resource Conservation District Paul Schubert – Golden State Water Company

<u>Staff Members</u>: Darrell Eck – Executive Director Sarah Britton – Legal Counsel Stephanie Studdert – Clerk Ramon Roybal – SCGA Staff Ping Chen – SCGA Staff

<u>Others in Attendance</u>: John Goetz – GEI Rodney Fricke – GEI Sean Twilla – Golden State Water Company Charlotte Mitchell – Farm Bureau Darlene Thiel – Rancho Murieta CSD Mike Wackman - OHWD

#### 2. PUBLIC COMMENT

None

SCGA Budget Subcommittee Meeting Wednesday, November 9, 2016 1 of 6

#### 3. FUNDING SGMA GROUNDWATER SUSTAINABILITY PROGRAMS

Executive Director Darrell Eck identified that the purpose of the workshop was to discuss the funding models provided at the September 21, 2016 subcommittee meeting and concerns related to them.

Subcommittee Member Todd Eising stated that Folsom does not use groundwater. He stated that Folsom was content with the previous model and believes that the current model should be reevaluated. Member Todd Eising stated that he thinks that a rate consultant would be beneficial. He said that he does not like the idea of a pollster asking questions about taxes in the community. Subcommittee Member Forrest Williams asked the question of who are the customers and how would SCGA charge those customers. Specifically, he asked under what authority SCGA would charge them. Legal Counsel Sarah Britton stated that prior to identifying customers, SCGA would need to have a firm grasp on what it would be funding. Subcommittee Member Carl Werder stated that his understanding was that the Sacramento Board of Supervisors is the approving body of the Zone 13 fee that residents pay on their property taxes. Member Carl Werder asked if the same type of fee would be a possible route for SCGA. Counsel Sarah Britton stated that her understanding is that SCGA may possibly be able to do the same type of fee considering SCGA has joint powers. Member Carl Werder stated that his concerns were that some entities pull water from the river instead of using ground water, and all water use has some type of effect on the groundwater. He stated that everyone could have a flat rate similar to Zone 13. Subcommittee Member Bruce Kamilos stated that he has concerns with SCGA and potential violations of Proposition 218. Member Bruce Kamilos stated that he believes that SCGA should not wait too much longer to get some professional assistance. Subcommittee Member Paul Schubert stated that he has concerns with a flat tax and that a flat tax cannot be altered easily. Member Schubert suggested adding a one dollar emergency surcharge to the pumping component of the budget as an emergency funding mechanism to fund a rate study. Member Schubert further stated that he likes the current model that however it needs some major alternations and more emphasis on the pumpers. Chair Brett Ewart stated that Executive Director Darrell Eck mentioned in his opening remarks that Zone 13 may not be available in the future. Chair Ewart asked Executive Director Eck if he knew what the future was for Zone 13. Executive Director Darrell Eck guoted Sacramento County Water Agency, Kerry Schmidt's comments from the September 21, 2016 meeting minutes regarding Zone 13. He further stated that the understanding is that agencies are stretching the envelope if they continue implementing program instead of long range planning. Zone 13 was a long range planning idea for water supply and drainage. When agencies look at Zone 13 and see funds, they need to realize those funds are being shared among a lot of

> SCGA Budget Subcommittee Meeting Wednesday, November 9, 2016 2 of 6

different activities. Executive Director Eck stated that agencies need to start thinking conservatively and be prepared for what to do if those funds were no longer available. Subcommittee Member Forrest Williams stated that the message is that agencies should evaluate their rates and make their organization sustainable absent those Zone 13 funds.

Member Todd Eising provided that SCGA should put out a Request for Proposal (RFP) or a Request for Qualifications (RFQ) and have the subcommittee meet with the proposed rate consultants for a scoping meeting. He further stated that the rate consultants will have questions that the subcommittee will not think of.

Member Paul Schubert stated that he looks at his appointment to the SCGA Board as not to represent Golden State Water Board, but to represent a portion of the basin and the basin as a whole. He further stated that sometimes he approves and vote for things that are not individually beneficial for Golden State Water Company such as raising the rates, but it was beneficial for the basin.

Counsel Sarah Britton reiterated that currently, SCGA's jurisdiction is not basin wide. She stated that the Draft Alternative is an analysis that shows that the areas outside of SCGA's existing jurisdiction have been operating sustainably without management. She further provided that if the funding purpose being discussed is for sustainable basin management, then there may be a legal issue with SCGA to enact an SCGA only fee/assessment that would benefit people outside of the jurisdiction. Counsel Britton stated that it the fee/assessment could be possible but SCGA may need to divide the purpose for the funding for implementing SCGA activities and then find a non-rate/non-fee contribution in order to continue to develop Alternative Plan compliance or other basin wide activities. Member Bruce Kamilos requested clarification stating he understood staff to say that until/if the boundary line changes, SCGA would be performing the rate study for the existing boundary and it will change once the jurisdiction changes as well. Counsel Sarah Britton stated that she was not aware plans for the SCGA Board to change its jurisdictional boundaries. She stated that she was saying that SCGA has a limited jurisdiction in which SCGA itself can enact proposition 218 and 26 complaint funding mechanisms. She continued by stating that because these things have statutory and constitutional requirements to be proportional to certain levels of service.

Mike Wackman of Omochumne-Hartnell Water District (OHWD) stated that the Board should keep in mind the beneficial aspects that Agriculture (Ag) provides to the basin. Mike Wackman further stated that Executive Director Darrell Eck recently attended a meeting where it was explained that as Ag gets more efficient in irrigation, groundwater basins are becoming more stressed because there is not flood irrigating which is a natural recharge to the groundwater basin.

SCGA Budget Subcommittee Meeting Wednesday, November 9, 2016 3 of 6 Member Paul Schubert stated that one of the flaws he saw in the assessment model was for those who use their land for different reasons would be assessed the same amount. He provided the example of the area south of Folsom where there are properties that use hardly any water and then there are some Alfalfa growers. Member Schubert asked if anyone knew how long it takes to do an assessment. John Goetz provided an example of an area of less than one-hundred parcels taking over a year. Member Bruce Kamilos stated he believes that SCGA is heading towards some type of parcel based tax for simplicity factors. Member Forrest Williams asked Executive Director Darrell Eck if Zone 13 is a flat tax or property based. Executive Director Darrell Eck confirmed that Zone 13 is a parcel based assessment.

Executive Director Darrell Eck summarized the discussion of the workshop. He concluded that the Subcommittee believes it to be beneficial to speak with consultants regarding options and obtain a cost breakdown. Executive Director Eck said that he hopes to provide the Subcommittee with a potential cost analysis to see if the budget can accommodate it or if the Board would need to apply an emergency charge similar to Member Paul Schubert's example.

### 4. FISCAL YEAR 2016/2017 BUDGET QUESTIONS

Executive Director Darrell Eck reported on his conversation with representatives from Rancho Murieta CSD. Rancho Murieta CSD had expressed concerns regarding the increase in to their budget contribution amount as determined under the new funding methodology. Additionally, Rancho Murieta stated that they only use surface water. Executive Director Eck stated that the purpose for bringing it in front of subcommittee was to have the conversation of a possible reduction in their contribution. It was stated that only a portion of Rancho Murieta lies within the South American Sub-basin. Executive Director Eck stated that when the original contribution estimates were made, Rancho Murieta was looked at as entirely within the South American Sub-basin. Executive Director Darrell Eck stated that an adjustment could be contemplated based on that fact.

Executive Director Eck then reported that OHWD had also expressed a concern regarding its current budget contribution figure of \$10,000 and had suggested that their contribution could be covered by Zone 13 funds. Mike Wackman of OHWD stated that originally OHWD did not pay a fee into the organization; it was covered by Zone 13. Mr. Wackman stated that he had participated in conversations with the Zone 13 fund manager to discuss having Zone 13 cover OHWD's current contribution.

Chair Brett Ewart asked for if staff had a recommendation for addressing Rancho Murieta's concerns. Executive Director Darrell Eck replied that staff determined it would be

SCGA Budget Subcommittee Meeting Wednesday, November 9, 2016 4 of 6 reasonable to waive the minimum connection component of \$8,000 and account for only the 764 connections that were determined to be within the South American Subbasin. Executive Director Darrell Eck reported that it would result in reducing Rancho Murieta's contribution from \$18,000 to \$10,504. Darlene Thiel of Rancho Murieta stated that the information presented would give her enough to take to her Board for consideration. Counsel Sarah Britton stated that SCGA would need to amend the budget if they moved forward with this change. Member Paul Schubert expressed concerns regarding the per customer cost even at the reduced contribution amount. He stated that the new reduced contribution would still be \$13.74 per customer.

Darlene Thiel stated that she will provide the new figure to her Board and inform Executive Director Eck with the outcome. Mike Wackman stated that OHWD did not previously pay the contribution and he does not believe the OHWD Board will support paying \$10,000. Member Forrest Williams stated that he encourages those agencies that are funded by Zone 13 to have discussions with the Sacramento County Water Agency.

*Motion*, Member Forrest Williams motioned not to take the recommendation back to the Board until Rancho Murieta has taken the interim fee adjustment back to the their Board and once Executive Director Eck receives a letter of support, the Subcommittee will take it to the SCGA Board for a vote. Member Forrest Williams withdrew his motion and provided an alternative motion.

*Motion/Second/Carried* - Member Forrest Williams moved, seconded by Member Bruce Kamilos, the motion carried unanimously to continue the item, date not set, until Executive Director Eck has received a response from the Rancho Murieta Board regarding the interim fee adjustment.

#### 5. <u>BUDGET SUBCOMMITTEE MEMBER COMMENTS</u>

None

#### ADJOURNMENT

Chair Brett Ewart adjourned the meeting at 12:45 p.m.

SCGA Budget Subcommittee Meeting Wednesday, November 9, 2016 5 of 6

#### **UPCOMING MEETINGS**

**Next SCGA Board of Directors Meeting** - Wednesday, December 14, 2016, 9:00 a.m. located at 10060 Goethe Road, South Conference Room NO. 1205 (Valley Oak)



ATTEST:

Clerk, of the Sacramento Central Groundwater Authority Budget Subcommittee

> SCGA Budget Subcommittee Meeting Wednesday, November 9, 2016 6 of 6

#### AGENDA ITEM 4: APPROVE SUBMISSION OF THE ALTERNATIVE SUBMITTAL FOR THE SOUTH AMERICAN SUBBASIN TO THE CALIFORNIA DEPARTMENT OF WATER RESOURCES; ENVIRONMENTAL DOCUMENT – EXEMPT (PLER CONTROL NO. 2016-00099)

#### **BACKGROUND:**

At the April 20, 2016 Board meeting, staff was directed to perform various actions related to the submittal of a Sustainable Groundwater Management Act (SGMA) Alternative to state Department of Water Resources (DWR). According to the State Water Code the Alternative must be initially submitted to DWR no later than January 1, 2017.

At the October 12, 2016 Board meeting, the Public Draft Alternative Submittal was released for public comment in October 2016 and the Water Forum initiated bi-lateral meetings with interested stakeholders to discuss issues and concerns with the Public Draft Alternative Submittal document and process. Tom Gohring, Executive Director of the Water Forum provided a PowerPoint presentation of the outreach results in the November 9, 2016, Board meeting, and now posted on the SCGA website.

Today's presentation will focus on changes included in the Final Draft Alternative Submittal (a track changes version of the Alternative is included in the Board Package and is available on the Authority's website at <u>http://www.scgah2o.org/Pages/South-American-Subbasin-Alternative-Submittal.aspx</u>) as a result of public comments, the Water Forum summary report, and additional data and information obtained by staff in the month of October. The Board is being asked to recognize the exempt status of the Alternative Submittal pursuant to Section 15307 and 15308 (actions for protection of a natural resource and protection of the environment) of CEQA, and to adopt a resolution memorializing the exempt status and to approve submission of the Final Draft Alternative Submittal to the State Department of Water Resources no later than the January 1, 2017, statutory deadline. Upon approval of Today's resolution, the Alternative Submittal will be finalized, signed, and, along with the environmental documentation and resolution, uploaded to the State's Alternative Submittal website where it will undergo a 60 day public comment period.

Jon Goetz and Rodney Fricke will be making the presentation.

### **STAFF RECOMMENDATION:**

- 1. Recognize the exempt status of the Alternative Submittal pursuant to Section 15307 and 15308 (actions for protection of a natural resource and protection of the environment) of the California Environmental Review Act (CEQA) Guidelines (PLER Control No. 2016-00099).
- 2. Adopt the proposed resolution memorializing the consideration and recognition of the exempt status of the Alternative Submittal and approving its submission

for the South American subbasin to the California Department of Water Resources pursuant to California Water Code 10733.6.



RECORDING REQUESTED WHEN RECORDED MAIL TO:

County of Sacramento Department of Community Development Planning and Environmental Review Division 827 Seventh Street, Room 225 Sacramento, CA 95814

CONTACT PERSON: Catherine Hack TELEPHONE: (916) 874-6141

#### SPACE ABOVE RESERVED FOR RECORDER'S USE

#### NOTICE OF EXEMPTION

Project Title: Sacramento Central Groundwater Authority Alternative Submittal

Control Number: PLER2016-00099

**Project Location:** California Department of Water Resources Bulletin 118 Groundwater Basin #5-21.65 (South American Subbasin): The Basin is generally bounded by the American River to the north, the Sacramento River to the west, the Cosumnes River to the south and the eastern edge begins at the southeast end of Folsom Lake and extends south to the Cosumnes River.

#### APN: N/A

**Description of Project:** The Sustainable Groundwater Management Act (SGMA) was adopted in September 2014 with implementation beginning January 1, 2015. Primary oversight for implementation of SGMA is through the California Department of Water Resources (DWR) and State Water Resources Control Board (SWRCB). Under the provisions of SGMA a Groundwater Sustainability Plan (GSP) is required for all high and medium priority groundwater basins. SGMA also provides for a groundwater management agency within a basin compliant with the California Statewide Groundwater Elevation Monitoring (CASGEM) program to prepare and submit an Alternative to a GSP. The Alternative may be accepted if it satisfies the objectives of SGMA and demonstrates functional equivalency to Articles 5 and 7 of the GSP Emergency Regulations. The Sacramento Central Groundwater Authority (SCGA) prepared a draft Alternative Submittal which includes a stamped report prepared by California registered and licensed professional engineer and geologist demonstrating the basin has operated within its sustainable yield over a period of ten (10) years. For its report and analysis, the Alternative Submittal relies in part on the existing 2006 Central Sacramento County Groundwater Management Plan (CSCGMP) adopted in 2006 and its contribution to maintaining groundwater extractions under the sustainable yield. The Alternative Submittal content is an analysis and reporting of past and current data and information within a 10+ year period (2005-2015). The Alternative Submittal is not proposing any actions or projects, but references actions and projects conducted as implementation of the adopted 2006 CSCGMP.

The CSCGMP contains basic management objectives which serve to:

- Maintain a long-term average groundwater extraction rate
- Establish specific minimum groundwater elevations within all areas of the basin
- Protect against any potential inelastic land surface subsidence
- Protect against any adverse impacts to surface water flows
- Develop specific water quality objectives for several constituents of concern

The objectives ensure that the groundwater basin is managed and maintained, on average, at an extraction rate that does not present undue risk to private and public well owners by dewatering wells, degrading water quality, and creating ground subsidence. Additionally, the objectives assure coordination between agencies so that surface water flows in the other natural and restored streams in the area are not adversely impacted as a result of implementation of the CSCGMP. Future groundwater management actions by SCGA pursuant to its Joint Powers Agreement or implementation of these CSCGMP objectives are subject to environmental review consistent with the California Environmental Quality Act.

The Alternative Submittal analyzes the rate of groundwater extraction, changes in groundwater elevation, presence of land surface subsidence, and concentration trends in water quality constituents in the South American subbasin over

the last ten (10) years, and uses existing data and documents – including the 2006 CSCGMP – to demonstrate its functional equivalency to Articles 5 and 7 of the GSP Emergency Regulations, as required. SGMA requirements ensure SCGA's continued cooperation with other regulatory agencies. As described above, SCGA's Alternative Submittal, authorized by and compliant with SGMA objectives and requirements provides assurance of the maintenance, enhancement and protection of the environment and groundwater as a natural resource referencing provisions already approved as part of the adopted 2006 CSCGMP. No construction activities nor significant effects on the environment will occur as a result of this Alternative Submittal.

#### Name of public agency approving project:

Sacramento Central Groundwater Authority

#### Person or agency carrying out project:

Name: Sacramento Central Groundwater Authority Contact: Executive Director Darrell Eck Address: 827 7<sup>th</sup> St, Rm 301, Sacramento, CA 95814 Phone Number: (916) 874-6851

#### **Exempt Status:**

CATEGORICAL EXEMPTION - Section 15307, Class 7 and 15308, Class 8

#### Reasons why project is exempt:

The project consists of actions taken by regulatory agencies, as authorized by state or local ordinance, to assure the maintenance, restoration, enhancement, or protection of a natural resource and the environment where the regulatory process involves procedures for protection of the environment.

[Original Signature on File] Catherine Hack ENVIRONMENTAL COORDINATOR OF SACRAMENTO COUNTY, STATE OF CALIFORNIA County of Sacramento County Clerk 600 Eighth Street, Room 101 Sacramento, CA 95814

#### **OPR**:

State Clearinghouse 1400 Tenth Street Sacramento, CA 95814

#### SACRAMENTO CENTRAL GROUNDWATER AUTHORITY

#### **RESOLUTION NO. 2016-\_\_\_\_**

## RESOLUTION CONSIDERING AND RECOGNIZING THE EXEMPT STATUS OF THE ALTERNATIVE SUBMITTAL PURSUANT TO SECTION 15307 AND 15308 (ACTIONS FOR PROTECTION OF A NATURAL RESOURCE AND THE ENVIRONMENT) OF THE CEQA GUIDELINES AND APPROVING SUBMISSION OF THE ALTERNATIVE SUBMITTAL FOR THE SOUTH AMERICAN SUBBASIN TO THE CALIFORNIA DEPARTMENT OF WATER RESOURCES

WHEREAS, the Sustainable Groundwater Management Act of 2014 (SGMA) authorizes local agencies to submit an alternative to a Groundwater Sustainability Plan (GSP) to the State Department of Water Resources (DWR) for evaluation and assessment of its satisfaction of SGMA objectives; and

**WHEREAS**, such an alternative plan must be initially submitted to DWR no later than January 1, 2017; and

WHEREAS, DWR enacted GSP regulations that include guidance on the content and evaluation standard for alternatives; and

WHEREAS, the Sacramento Central Groundwater Authority (SCGA) has significant interest and investment in using its over ten (10) years of groundwater management toward SGMA compliance, demonstrating the basin has operated within its sustainable yield over a period of ten (10) years; and

**WHEREAS**, staff has developed a stamped report prepared by California registered and licensed professional engineer and geologist demonstrating the basin has operated within its sustainable yield over a period of ten (10) years; and

WHEREAS, all aspects of the project were reviewed for compliance with the California Environmental Quality Act (Act) and the project was found to be categorically exempt from the provisions of the Act because the project consists of actions taken by regulatory agencies, as authorized by state or local ordinance, to assure the maintenance, restoration, enhancement, or protection of a natural resource and the environment where the regulatory process involves procedures for protection of the environment.

NOW, THEREFORE, BE IT RESOLVED the SCGA Board of Directors:

 Considers and recognizes the exempt status of the Alternative Submittal pursuant to Section 15307 and 15308 (actions for protection of a natural resource and protection of the environment) of the California Environmental Review Act (CEQA) Guidelines Page 2

as further articulated in the Notice of Exemption (PLER Control No. 2016-00099); and

- Approves submission of the Alternative Submittal for the South American subbasin to the California Department of Water Resources pursuant to California Water Code 10733.6; and
- 3. Delegates authority to SCGA staff to do and perform everything necessary to carry out the purpose of this resolution.

ON A MOTION by Director \_\_\_\_\_\_, and seconded by Director \_\_\_\_\_\_, the foregoing resolution was passed and adopted by the Board of Directors of SCGA this 14th day of December, 2016, by the following vote, to wit:

AYES: Directors,

NOES: Directors,

RECUSAL: Directors, (PER POLITICAL REFORM ACT (§ 18702.5.)

ABSENT: Directors,

ABSTAIN: Directors,

Chair of the Board of Directors of the Sacramento Central Groundwater Authority, a duly formed Joint Powers Authority

(SEAL)

ATTEST:

Clerk of the Board of Directors of the Sacramento Central Groundwater Authority

1074085

# South American Subbasin Alternative Submittal

## 2014 Sustainable Groundwater Management Act



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Rodney A. Fricke, P.G., C.H.G. California Certified Hydrogeologist No. 11 California Professional Geologist No. 4089 Jonathan D. Goetz, P.E. Professional Civil Engineer C47314

Prepared by the Sacramento Central Groundwater Authority, and GEI Consultants, Inc.

#### Notice for Public Comment:

Prior to rendering a decision to submit the Alternative to the State, SCGA complied with the provisions of the California Environmental Quality Act (CEQA) by submitting the <u>draft</u> Alternative to the County of Sacramento Department of Community Development, Planning and Environmental Review Division for preparation of the appropriate CEQA documentation. The <u>draft</u> Alternative qualified for a categorical exemption pursuant to the California Code of Regulations Title 14, <u>Section 15307</u>, <u>Actions by regulatory agencies for protection of the environment</u>.

## **Executive Summary**

## "10733.6. ALTERNATIVE SUBMITTALS

(a) If a local agency believes that an alternative described in subdivision (b) satisfies the objectives of this part, the local agency may submit the alternative to the department for evaluation and assessment of whether the alternative satisfies the objectives of this part for the basin." – Sustainable Groundwater Management Act

## ES1. Introduction

The Sacramento Central Groundwater Authority (SCGA) has been in existence for over 10 years for the purpose of implementing an adopted SB 1938 Groundwater Management Plan which includes:

- Maintaining the regional long-term average groundwater extraction rate at or below the sustainable yield of 273,000 acre-feet annually established by the Water Forum
- Adherence to specific minimum groundwater elevations with a focus on the deepest point of the cone of depression
- Protection against any potential inelastic land surface subsidence
- Protection against any adverse impacts to surface water flows
- Development of specific water quality objectives for several constituents of concern

Formation of SCGA was a product of seven (7) years of negotiation by the Sacramento Area Water Forum, considered by the state to be a milestone in water resources management. Inclusive of all stakeholders, the resulting Water Forum Agreement is a moral commitment amongst those stakeholders to implement a solution containing seven elements, with the sixth element being Groundwater Management and the formation of governance entities.

In Central Sacramento County, groundwater has many users and uses. Water users with no access to surface water have relied heavily on groundwater since the 1930's. In the case of agriculture, significant pumping from 1950 to 1970's took place in the region, significantly lowering groundwater elevations (see hydrograph of cone of depression underlying Elk Grove area – Figure ES1), and highlighting the need to protect



ES1. Historic Groundwater Elevation Hydrograph



groundwater resources into the future. In the mid 1980's County policies were being adopted to prevent urban growth from depending solely on the region's groundwater resources, requiring the higher cost of conjunctive use (surface water use in conjunction with groundwater) with application across the entire subbasin. Since the mid 1980's, groundwater levels have recovered by 40 feet and the cone of depression has been removed.

In the 1980's, the Sacramento County Water Agency (SCWA) and City of Sacramento both envisioned the need for consensus-building around water. The City-County Office of Metropolitan Water Planning was formed and directed the Water Forum Process. The Groundwater Management Element of the Water Forum Agreement contains the suite of selfimposed restrictions of groundwater's use and acknowledgment of the importance of groundwater to maintain a reliable and safe water supply for the region's economic health and planned development, and to preserve the fishery, wildlife, recreational, and aesthetic values in the Lower American River (Water Forum's Coequal Objectives).

## ES2. <u>Central Sacramento Sustainable Yield</u>

State groundwater models and modeling platforms used in the Water Forum initiated the process of considering "all" impacts resulting from over-pumping and continue to be utilized today with model calibration updates occurring approximately every 5 years. Studied impacts are aligned very closely with SGMA's Undesirable Results, including:

- increased energy usage to pump groundwater from greater depths,
- increased water treatment due to upwelling of saline water from deeper aquifer formations,
- · replacement or deepening of wells resulting from lowering of groundwater levels,
- losses of surface water due to steepening of groundwater gradients in the case of hydraulically connected streams and rivers, and
- damage of private and public property due to land surface subsidence caused by dewatering of certain soil types.

Each of these factors was a consideration in the development of the sustainable yield assigned to each of the three Sacramento County subbasins, or portions of subbasins shown in the Figure ES2 below. Boundaries defining the three groundwater areas balanced the following four negotiated criteria: 1) county jurisdictional boundaries, 2) natural hydrogeologic features impeding subsurface flows, 3) persistent recharge areas, and 4) water district/purveyor/agency jurisdictional boundaries.

The long term average annual pumping amounts negotiated for each subbasin (North Basin - 131,000 acre-feet per year (AFA), Central Basin - 273,000 AFA, and South Basin - 115,000 AFA),

are integral to the success of other prescribed elements of the Water Forum Agreement. As a result, a high level of local agency and stakeholder commitments have supported projects and actions to maintain rates of pumping at or below the sustainable yield.

More specifically, Central Sacramento's sustainable yield is at the heart of region's water supply planning and land use documents (e.g., Zone 40 Master Plan, City of Sacramento Groundwater Master Plan, and City and County General Plans), and are cited as the source of underlying design and operational criteria justifying hundreds of millions of dollars of water supply conveyance and treatment infrastructure, including, but not limited to, the SCWA/East Bay Municipal Utilities District (EBMUD) Freeport Project, SCWA's Vineyard Surface Water Treatment Plant, and expansions to the City's Sacramento **River and American River diversion** 



ES2.Water Forum Subbasins

structures and treatment plants. The sustainable yield values are also used as the cornerstone of the region's determination of sufficiency of conjunctive use water supplies (i.e., SB610 and SB 221) for new development projects since the early 2000's.

## ES3. Formation of Sacramento Central Groundwater Authority (SCGA)

The Groundwater Management Element of the Water Forum Agreement also establishes the need for forming groundwater governance agencies in each subbasin. SCGA was formed to implement the governance policy using a consensus-based setting similar to the Water Forum with a group of 50+ stakeholders. This group met once a month for three (3) years, beginning with fact finding, education, and then negotiation. In the third year, as negotiations were underway, a point was reached where the group decided to not move forward until a draft GMP was completed containing the specific criteria and management actions to agree upon. The initial draft of the 2006 SCGA GMP was developed and contained a progressive threshold-based approach to voluntary groundwater management, and a domestic well protection program providing protection to private domestic well owners if groundwater levels decline and wells become dry as a result of future municipal pumping.

The history and hydrogeology of the Central Sacramento groundwater aquifer system is welldocumented by County and State joint efforts in developing Bulletin 118-3 for the Sacramento Region, conducting biannual County-wide well monitoring, publishing biannual groundwater elevation contour maps, and developing calibrated computer groundwater models for use in negotiating federal, state, and local surface water and groundwater policies.



## ES4. Why Submit an Alternative to a Groundwater Sustainability Plan

Since 2006, SCGA has had the responsibility of recording monthly and annual municipal pumping data, and, beginning in 2011, estimating agricultural and private domestic pumping using satellite imagery to accurately estimate evapotranspiration for input into State DWR's IWFM Demand Calculator (IDC) to compare total basin pumping with the negotiated long term average sustainable yield of 273,000 AF/year set by the Water Forum. This comparison has resulted in the bar chart below showing that every year of reported pumping is below the negotiated sustainable yield for the Central Basin.



The South American Subbasin Alternative Submittal (Alternative) was developed with the approval of SCGA's 16 governing board members; the Alternative demonstrates subbasin operations from 2005 to 2015 did not exceed the sustainable yield conditions set forth by the Water Forum Agreement.

SCGA's submittal of the Alternative is also seeking to preserve the Groundwater Management Element of the Water Forum Agreement<sup>1</sup> and its 10+ years of interest and investment in using its GMP and management authority for the continued sustainable management of groundwater within the subbasin. If approved, SCGA is committed to continuing its role in sustainable management of the groundwater subbasin and in complying with the California Statewide Groundwater Elevation Monitoring (CASGEM) program. If the Alternative is approved, annual reporting of subbasin conditions is required in April 2018 and five year updates reporting how subbasin operations have stayed below the sustainable yield are due as early as 2022.

## ES5. 10-Year Analysis of Subbasin Operations within the Sustainable Yield

With this Alternative, SCGA strives to meet both the intent of SGMA legislation and a navigation of the "best" approach to provide the statutorily-required 10-year analysis of sustainable management of the subbasin. The Alternative requires total groundwater extractions based on factual evidence and a demonstration of the subbasin's successful operations within a governance environment where stakeholder concerns regarding groundwater impacts can be heard. The steps used in this process included presentations of the following:

- 1. Stakeholder process used in determining sustainable yield Brief understanding of open forum consensus and interest-based process to determine the subbasin sustainable yield.
- 2. Validity of the SCGA GMP sustainable yield to the South American Subbasin Analysis of the groundwater management and sustainable yield differences between the current SCGA Central Basin and the South American Subbasin.
- 3. **Comparing groundwater extractions with sustainable yield** Presentation of historic extraction amounts compared to the long-term average sustainable yield.
- 4. **Remediation and other regulatory programs** Recognition of the amount of groundwater remediation occurring in the subbasin and the adaptation role of the local groundwater management agency.
- 5. South American Subbasin water budgets Comparison of water budget data from local and state groundwater surface water models and conclusions.

<sup>&</sup>lt;sup>1</sup> The redefinition of the Central Basin to align exactly with the South American Subbasin is a changed condition to the Water Forum Agreement's Groundwater Management Element, but does not decrease the amount pumping (or Sustainable Yield) identified to achieve the suite of acceptable groundwater conditions as discussed in Alternative Section 2.2.2 Aligning SCGA Central Basin with South American Subbasin.

- 6. Water Forum review of undesirable effects Outline of the undesirable effects analyzed in the Water Forum process and used by the SCGA GMP to define the long-term average sustainable yield.
- 7. **Sustainability Indicators** Presentation of all applicable monitoring data and reports, and findings of sustainability using Sustainability Indicators to show no significant or unreasonable impacts to groundwater.

This report presents the necessary factual data to fully represent and characterize changes taking place as a result of using groundwater for beneficial purposes. In the case of groundwater levels, positive and negative changes are identified as occurring throughout the basin, and will continue to occur, especially as the subbasin's groundwater levels strive to reach new equilibria. Water quality is also shown to be in flux, but at rates expected of an aquifer system with groundwater movement occurring through geologic strata now being exposed to groundwater with natural differences in chemical makeup.

Sustainability Indicators, as defined by SGMA, are also evaluated for the South American Subbasin to show both positive and negative rates of change in the SGMA Undesirable Results (URs), illustrating why none of the negative changes are considered to be URs and why none are directly related to "non-regulatory" groundwater extractions in the South American Subbasin. Additionally, changes occurring as a result of outside influences are being ameliorated by adaptive management actions by its member agencies in cooperation with SCGA. All of the locally-adopted thresholds included in the 2006 GMP evaluated against the Sustainability Indicators indicate that none of the negative changes result in regional or local undesirable results.

## ES6. <u>Public Outreach</u>

Public outreach elements of the Alternative were completed in a compressed timeline due to SGMA's January 1, 2017, compliance deadline. A slightly larger outreach effort was completed by SCGA, through the Water Forum, over the months of October and November 2016 in support of characterizing the thoughts and concerns with the Alternative, and also captures concerns and project ideas being voiced in public meetings. The Water Forum report is included as **Appendix 1B** of the Alternative and provides an excellent summary of Alternative comments and "other" comments identified as being important to stakeholders. In addition, the Alternative includes public comment letters, and responses to the Water Forum and public letter comments, as **Appendix 1C**.

Delta stakeholders were contacted through the efforts of the Local Agencies of the North Delta (LAND). LAND entities through their representative stated support of the Delta Area's inclusion in the Alternative process. Principles of the Delta stakeholder support were articulated in a

draft Memorandum of Understanding and Agreement (MOU) that was provided to LAND entities for their Boards' approvals (Appendix 1D). While a fully executed copy of this MOU is not available at the time this submittal is due, SCGA and Delta Area interests continue to collaborate.

## ES7. Summary of Results

The difference contour map below provides the best roadmap to understanding the changes occurring in the groundwater basin and the level of management taking place to increase storage of available drinking water. The contour lines in the figure represent 10 foot (and 5 foot in the extreme points) intervals of elevation change between 2005 and 2015. Red and orange contour lines represent a decrease in groundwater elevations (storage loss), and light green and dark green contours represent an increase in groundwater elevations (storage gain). Each decline area (DA) and 'recharged area' (RA) depicted by one or more colored contour rings can be explained using available hydrologic data, regulatory discharge data, and groundwater hydrograph data found in public on-line databases. Each of the areas is briefly explained below



## with additional detail found in Alternative Section 2.6.2.1 Calculation of Change in Storage.

Most of the water level decline areas shown to have occurred on the eastern side of the subbasin (DA-1), are situated in close proximity to multiple groundwater remediation programs taking place due to groundwater contamination caused by historical disposal practices of multiple chemical constituents harmful to drinking water supplies. Cleanup extractions of contaminated groundwater take place under multiple federal EPA orders for the protection of human health. Pumping activities have been taking place since the 1980's and are forecasted to continue for an undetermined time into the future. SCGA and local land use agencies have a common understanding to adapt to changes in the cleanup program as



Source: SCGA 2006 Groundwater Management Plan ES6.Central Sacramento Groundwater Contamination Plumes

they occur over time. Local groundwater management agencies have no jurisdiction over cleanup activities, relying on communication and agreements to inform the agencies of proposed changes and remedies to avoid a net loss in groundwater.

The decline area in the southeast portion (DA-2) of the subbasin located near the point where Deer Creek flows out of the foothills into the Central Valley is due to: 1) federal and state remedial activities requiring pump, treat, and discharge to local streams and evaporation ponds, 2) reductions in minimum discharge requirements of El Dorado Irrigation District's wastewater discharge flowing into the Deer Creek watershed, and 3) California's drought conditions reducing the total base flow of Deer Creek in 2015. None of the above are within the management control of SCGA or any SGMA-qualified local agency.

Decline areas along the Cosumnes River (DA-3) are a direct result of drought conditions and less total available water for recharge from flows down the Cosumnes River to the Delta and from water held back for recharge via temporary flash dams. Groundwater in this portion of the

basin is reliant on Cosumnes River recharge and local agricultural practices are in place to capture as much water as possible for recharge purposes during late spring of each year. This decline area is expected to recover, and has shown past resilience with the return of wet year conditions.

Decline areas down in the Cosumnes Subbasin to the South (DA-4) are the result of reliance on groundwater by growing water demands in municipal, agriculture, and aquiculture uses, and have been exacerbated by the drought's impact on Cosumnes River flows. The level of groundwater level decline in the Cosumnes Subbasin and impacts to the South American Subbasin have not risen to the level of an undesirable impact, but close coordination is expected with future SGMA activities. Currently SCGA is maintaining storage levels in other areas of the South American Subbasin to offset subsurface losses currently occurring across subbasin boundaries. The overall storage loss, based on the negative difference contours only within the South American Subbasin, is approximated to be 107,000 AF. The annual average storage loss in the decline areas is calculated to be 11,000 AF/year.

A recharged area in the western portion of the subbasin (RA-1) underlying the City of Elk Grove and surrounding areas is the result of in-lieu recharge from the construction of large conjunctive use and surface water infrastructure facilities, fallowing and urban development of historically irrigated agricultural lands, increased use of recycled water, and water conservation. The increase in storage in this portion of the subbasin has filled the long-term cone of depression and has eroded the ridge of higher groundwater separating it from the Cosumnes Subbasin.

Lastly, a recharged area underlying the American River near the City of Sacramento's Fairbairn Water Treatment Plant and Diversion Structure (RA-2) has occurred likely as a result of a long term average increase in flows in the Lower American River, and the flattening of the hydraulic gradient as the cone of depression filled over the ten year period. The overall gain in storage, based on the recharged areas only within the South American Subbasin, is approximately 66,000 AF. The average annual storage increase over these recharged areas totals 7,000 AF/year.

The difference in total annual average change in storage over the 2005 to 2015 timeframe is calculated to be approximately 4,000 AF/year. In terms of order of magnitude, this equates to 4 to 5 large municipal wells in the subbasin, and is representative of a basin in equilibrium where natural recharge from deep percolation, hydraulically connected rivers, and boundary subsurface inflows are keeping up with active pumping and changes in hydrology. Groundwater sustainability has existed since the mid 1980's when recovery of the basin began after a period of overdraft. Over the 10 year period of the Alternative's analysis, the basin continues to recover at its deepest points and management is now focused on working with outside agencies to keep water from leaving the basin, and improving basin conditions where and when possible, in accordance with the SCGA 2006 GMP.

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## Table of Contents

Chapter 1. Introduction and Purpose	1- <u>1</u>
1.1 Background	1-3
1.1.2 Groundwater Management Plan	
1.1.3 Board Member Representation of Stakeholder Groups	
1.1.4 South American Subbasin Location	
1.1.1 Origin of SCGA GMP Area Boundaries	
1.1.2 SCGA GMP Area Not Included in Alternative	
1.2 Timeline of Groundwater Management Affecting South American Subbasin	1-10
1.3 Sacramento Water Forum	1-11
1.4 Public Outreach	1-12
1.5 Eligibility to Submit Alternative	1-14
1.5.1 Understanding SGMA's Purpose for Including Alternative Submittals	
1.5.2 Entire Subbasin Requirement	
1.5.3 Alternative Submittal Content	
1.5.4 Addressing Data Gaps	
1.5.5 Water Forum Process Used to Determine Sustainable Yield	
1.5.6 Method of Presenting Functional Equivalency	
Chapter 2. Evaluating 10 Voars of Operating within Sustainable Viold	2.1
Chapter 2. Evaluating 10 fears of Operating within Sustainable field	<u></u>
2.2 Stakeholder Process Lised in Determining Sustainable Vield	2-1 ງງ
2.2 Stakeholder Flocess used in Determining Sustainable field	<b>2-2</b> ງງ
2.2.1 Water Forum Frocess and Regional Groundwater Studies	
2.2.2 Ally ling SCGA Certifian Dasin with South American Subbasin	2-0 2 0
2.2.5 Assessing Need for Change in Existing Sustainable field Due to Realignment	
2.2.4 Vehindation of current and rast Water Demands	
2.2.5 Water Folum s 2005 Folecast would to Venny Sustainable Tield	
2.3 Companing Groundwater Extractions Comparison with Sustainable Viold	2-15 2 15
2.3.1 Annual of our dwater Extraction Comparison with Sustainable Treatment of our dwater Extraction Mothodology for Agricultural Dural Lloss	
2.3.2 Change in Estimation internouology for Agricultural Rural Oses	
2.3.5 Groundwaler Remediation and Uniter Regulatory Programs	
2.3.4 Other State and Local Regulatory Programs	2-21 ງາງ
2.4 South American Subbasin Conceptual Model and Description of Pasin Setting	Z-ZZ ງາງ
2.4.1 Sacialitetico County Groundwalet ividuel and Description of Basin Setting	Z-ZZ
2.4.2 South American Subbasin Water Pudgets	
2.4.3 South American Subbasin Water Dudyets	
2.5 Water Forum Ecrosoft Scongride	<b>Z-33</b> ງາງ
2.5.1 Water Follutin of Poducod Storago in Control Pagin	
2.5.2 Mater Forum Solution and Water Forum Agreement Draft FIP	
2.5.5 Water Forum Solution and Water Forum Agreement Drait Lik	2-30 2-25
2.5.4 UTILESII dule ETTEUIS	
2.5.5 Frotecting Fireate Domestic Weils and Water Quality	
2.5.6 Vertical Movement of Groundwater	
2.6 Applying Sustainability indicators .	<b>2-30</b> ລາວວ
2.6.1 No Chi offic Lowering of Groundwater Levels	
2.6.2 Groundwaler Storage	
2.0.5 Degraded Water Quality	
2.6.4 Latiu Subsiderite	
2.6.6 Societar Intrusion	
2.0.0 Sedwater IIIII USIUI	
2.7 Summary or Finalitys	2-65
Chapter 3. References [provided with electronic submittal]	3-1

## Figures

Figure 1-1. SCGA GSA Notifications	1-3
Figure 1-2. South American Subbasin and Sacramento Central Groundwater Authority	1-6
Figure 1-3. Fall 1996 Groundwater Contours and Central Basin Southern Recharge Boundary	1-9
Figure 2-1. 1993 Finite Element Mesh for South American Subbasin and Sacramento County	2-4
Figure 2-2. Groundwater Model Subregions and Water Forum Subbasins	2-5
Figure 2-3. Groundwater Elevation Contours for Fall 1996 Used by the Water Forum	2-7
Figure 2-4. Water Forum SacIGSM Model Subregions	2-8
Figure 2-5. Delta and South of Cosumnes Agricultural Unit Groundwater Pumping	. 2-12
Figure 2-6. Annual Comparison of Groundwater Extractions by Water Use Sector Categories and Sustainable Yield	. 2-16
Figure 2-7. Classified 2011 Land Use Based on Satellite Imagery	. 2-18
Figure 2-8. 2006 Known Extent of Groundwater Contamination	. 2-20
Figure 2-9. EID's Wastewater Discharge to Deer Creek Watershed	. 2-21
Figure 2-10. 2011 SacIGSM Groundwater Model Finite Element Mesh	. 2-24
Figure 2-11. Selected Model and Hydrostratigraphic Cross Sections of South American Subbasin	. 2-25
Figure 2-12. C2VSim Model Grid Approximating South American Subbasin	. 2-29
Figure 2-13. Adjacent Subbasin Subsurface Flows	. 2-30
Figure 2-14. Updated SacIGSM vs. C2VSim Calibration Annual Change in Storage	. 2-32
Figure 2-15. Updated SacIGSM Water Budget Summary and Annual Storage Change	. 2-32
Figure 2-16. Water Forum Static Baseline Model Results for Central Basin	. 2-34
Figure 2-17. Fall 2005 Groundwater Elevations Contours (ft, msl)	. 2-39
Figure 2-18. Fall 2015 Groundwater Elevation Contours (ft, msl)	. 2-40
Figure 2-19. Hydrograph Location Map for Select Monitoring Wells	. 2-44
Figure 2-20. Groundwater Hydrograph Operating Above Minimum Thresholds with Flat Trend	. 2-45
Figure 2-21. Groundwater Hydrograph Operating Above Maximum Threshold	. 2-45
Figure 2-22. Groundwater Hydrographs Operating Through Thresholds	. 2-46
Figure 2-23. Upper Threshold Contours from Water Forum Solution Model	. 2-47
Figure 2-24. Lower Threshold from Water Forum Solution Model	. 2-48
Figure 2-25. Water Level Trends	. 2-52
Figure 2-26. Groundwater Difference Contours Showing Changes in Storage	. 2-54
Figure 2-27. Groundwater Quality Box and Whisker Plots	. 2-58
Figure 2-28. Ground Subsidence Correlation with Groundwater near Elk Grove	. 2-61

## Tables

Table 2-1. Estimates of Annual Sustainable Yield for Sacramento County	2-5
Table 2-2. Reported Central Basin Groundwater Extractions	2-16
Table 2-3. Original SacIGSM Soil Moisture Budget – 1970 to 1990 Average, inches/year	2-27
Table 2-4. Original SacIGSM Surface Water and Groundwater Budgets (1970 to 1990 Average, AF/year)	2-27
Table 2-5. C2VSim 10-Year Average (2000-2009) Groundwater Budget for South American Subbasin	2-29
Table 2-6. Average Annual C2VSim/Updated SacIGSM Groundwater Budget Comparison for South American Subbasin	2-30
Table 2-7. Summary of Water Level Trends – South American Subbasin	2-43
Table 2-8. General Groundwater Quality Characteristics	2-57

## Appendices (Included with Electronic Submittal)

Appendix 1A – SCGA Groundwater Management Plan	A-3
Appendix 1B – Water Forum Stakeholder Outreach Summary for Public Draft Alternative	A-5
Appendix 1C – Public Comment Letters and Responses	A-7
Appendix 1D – Delta Reclamation District MOU and Alternative Support Letter	A-9
Appendix 2A – Water Forum Agreement Groundwater Management Element	A-11
Appendix 2B – Detailed Pumping Data	A-13
Appendix 2C – Groundwater Hydrographs	A-15
Appendix 2D – Location and Data of Measured Subsidence Data	A-17

## List of Acronyms

AFA or AF/Year – Acre-Feet Annually Alternative – SGMA Alternative Submittal

BMR – Basin Management Report

CASGEM – California Statewide Groundwater Elevation Monitoring CDPH – California Department of Health CVGSM – Central Valley Integrated Groundwater Surface Water Model CWD – Carmichael Water District

DWR<u>or State DWR</u> – California State Department of Water Resources

EID – El Dorado Irrigation District EIR – Environmental Impact Report

<u>FE – Functional Equivalency</u> <u>FRCD – Florin Resource Conservation District</u>

GAMA – Ground-Water Ambient Monitoring and Assessment GMP – SCGA Groundwater Management Plan GSP – Groundwater Sustainability Plan GSWC – Golden State Water Company

IRCTS --- Inactive Rancho Cordova Test Site

JPA – Joint Powers <u>Agreement/</u>Authority

LAND – Local Agencies of the North Delta

MOU – Memorandum of Understanding

NPDES – Nation Pollutant Discharge Elimination System

OHWD – Omochumne-Hartnell Water District

SacIGSM – Sacramento Integrated Groundwater Surface Water Model

SCGA – Sacramento Central Groundwater Authority

SCWA – Sacramento County Water Agency

SGMA – Sustainable Groundwater Management Act

SWP – State Monitoring Well Program

TDS – Total Dissolved Solids

VOC – Volatile Organic Compound
### Chapter 1. Introduction and Purpose

"SCGA has significant interest and investment in using its GMP and management authority for the sustainable management of groundwater within the South American Subbasin" – SCGA Purpose for Alternative Submittal

The Sustainable Groundwater Management Act (SGMA) was adopted in September 2014 with implementation beginning January 1, 2015. Uncodified legislative findings of SGMA state that properly managed groundwater resources help protect communities, farms, and the environment against prolonged dry periods and climate change, thereby preserving water supplies for existing and potential beneficial uses. The same findings declare the legislature's intent to provide local and regional agencies the authority to sustainably manage groundwater. Consistent with this State interest in groundwater sustainability through local management, the California Department of Water Resources (DWR) adopted regulations specifying the components of groundwater sustainability plans, alternatives to such plans, and coordination agreements implementing plans, as well as methods and criteria for DWR to evaluate the plans, alternatives, and agreements.

Primary oversight for implementation of SGMA is through DWR and the State Water Resources Control Board (SWRCB). Under the provisions of SGMA, a Groundwater Sustainability Plan (GSP) is required for all high- and medium-priority groundwater basins. SGMA requires that a GSP be submitted to DWR by January 31, 2020 or January 31, 2022 depending on the priority classification of the basin. SGMA also authorizes a groundwater management agency within a basin compliant with the California Statewide Groundwater Elevation Monitoring (CASGEM) program to prepare an Alternative to a GSP; this Alternative Submittal (Alternative) must be provided to DWR by January 1, 2017. According to the GSP regulations, Alternatives will be evaluated by the same criteria that will be used to assess GSPs.

<u>Requirements for a valid</u> Alternative state that the Alternative must cover the entire Bulletin 118 (2003) groundwater basin/subbasin and to include one of the following: 1) a copy of the GMP, 2) adjudication information, if applicable, or 3) information that demonstrates that the basin has been operated within its sustainable yield for a 10-year period. In addition, the Alternative must explain how its elements are functionally equivalent to Articles 5 and 7 of the adopted GSP Emergency Regulations. These Regulations identify the requirements for content of a GSP (Article 5) and for annual reports and 5-year periodic evaluations (Article 7).

This document is the Sacramento Central Groundwater Authority's (SCGA) Alternative Submittal for the South American Subbasin (5-021.65). This Alternative is comprised of two chapters (or sections) and associated appendices as listed below.

#### Chapter 1. Introduction

Appendix 1A – SCGA Groundwater Management Plan	A-3
Appendix 1B – Water Forum Stakeholder Outreach Summary for Public Draft Alternative	<b>A-</b> 5
Appendix 1C – Public Comment Letters and Responses	A-7
Appendix 1D – Delta Reclamation District MOU and Alternative Support Letter	A-9

#### Chapter 2. Introduction

Appendix 2A – Water Forum Agreement Groundwater Management Element	A-11
Appendix 2B – Detailed Pumping Data	A-13
Appendix 2C – Groundwater Hydrographs	<b>A-1</b> 5
Appendix 2D – Location and Data of Measured Subsidence Data	A-17

#### 1.1 Background

The Water Forum was established during 1993 and, after many years of negotiations, resulted in the Water Forum Agreement (January 2000), which subsequently led to the formation of SCGA in 2006. SCGA was established as one of the key milestones of the Sacramento Area Water Forum Successor Effort (Water Forum). The Water Forum is a large group of agricultural and business leaders, citizens' and environmental groups, water managers, and local governments who recognized that unless they took action the Sacramento region faced water shortages, environmental degradation, groundwater contamination, threats to groundwater reliability, and limits to economic prosperity.

In addition to the Alternative Submittal, SCGA is moving forward with SGMA compliance and submitted a notice of intent on July 21, 2016, to become a Groundwater Sustainability Agency (GSA) for its area within the South American Subbasin and exclusive status was granted for the majority of that area (see GSA 1 in Figure 1-1). Two overlap areas, submitted as GSA 2 and GSA 3, are present along the southern boundary of the South American Subbasin for the northern portions of the **Omochumne-Hartnell Water District** (OHWD) and the Sloughhouse Resource Conservation District (SRCD), respectively. Resolution of overlap areas will occur in parallel with the State's review of the Alternative. A GSA notice has not yet been submitted for the Delta Area of the South American Subbasin which lies outside of SCGA's GMP area, but SCGA anticipates



Figure 1-1. SCGA GSA Notifications

that local Reclamation Districts, small communities, and the County will submit their notice prior to the June 30, 2017 deadline.

#### 1.1.2 Groundwater Management Plan

The SCGA Groundwater Management Plan (GMP), included as <u>Appendix 1A</u>, was intentionally developed prior to the formation and creation of the <u>Joint Powers Agreement (JPA)</u>, and was the outcome of three years of education and consensus-based negotiations amongst 50+ stakeholders. The content of the GMP and the quantitative management goals and thresholds were imperative to the ultimate outcome of the JPA governance structure, the adoption of the GMP, and the 10+ years of successful implementation of the GMP in the subbasin.

The SCGA GMP was one of the first GMPs in the state to include numerical thresholds for each of the potentially undesirable effects known to occur from over-pumping of the groundwater basin, including full consideration of a well protection program to mitigate for any quantified, but unavoidable impacts occurring in the basin as a result of increased pumping. Trigger points were established to provide increasing levels of enforcement through the threshold spectrum, or bandwidth, with initial notification that a problem is occurring, then assessing the problem and developing a stakeholder-based solution, and ultimately to perform enforcement actions necessary to solve the problem. Acting as a quantitative goal for groundwater management in the Central Basin, the GMP has served as the basis for the establishment of governance, exercised powers, and financing of SCGA's groundwater management program over the past 10+ years.

#### 1.1.3 Governance

SCGA is governed by a JPA between the cities and county – comprising the primary land use agencies and entities with police power authority within the subbasin: the County of Sacramento, and the Cities of Elk Grove, Folsom, Ranch Cordova, and Sacramento. The JPA established a Board of Directors for SCGA which includes representatives from the cities and county as well as each of the groundwater use sectors, including:

- Florin Resource Conservation District/Elk Grove Water Service
- Golden State Water Company
- Californian-American Water Company
- Agricultural interests
- Agricultural-residential groundwater users
- Commercial/industrial self-supplied groundwater users
- Conservation landowners
- OHWD
- Public agencies self-supplied groundwater users
- Rancho Murieta Community Services District
- Sacramento County Regional Sanitation District

#### 1.1.4 Board Member Representation of Stakeholder Groups

Each of the above representatives agrees to represent the interests of their respective stakeholder groups on the governing board of the SCGA. This responsibility includes, in part, disclosure of all relevant groundwater information and concerns, implementation of applicable groundwater management objectives, and a robust communication process that allows the board members' constituencies to fully participate in groundwater management through their representative.

The importance of the representation process has been critical to reaching out to agricultural and agricultural-residential (rural) groundwater use sectors who are made up of <u>many</u> hundreds of individual land owners. The process is set up to allow an individual well owner to voice concerns through their representative, or at a local district board meeting, and have this concern brought before the SCGA Board by their representative for possible action within the guidelines set forth in the GMP.

#### 1.1.5 South American Subbasin Location

**Figure 1-2** shows the location of the South American Subbasin, the existing SCGA GMP area, and portions of the adjacent Bulletin 118 (2003) groundwater subbasins located within Sacramento County. SCGA's GMP area was based on the nodal grid of the Sacramento Integrated Groundwater Surface Water Model (SacIGSM), which was developed initially by the Sacramento County Water Agency (SCWA) and then updated as part of the Water Forum Agreement and includes the South American Subbasin as defined in DWR Bulletin 118.

As shown in **Figure 1-2**, areas of the South American Subbasin which fall outside the SCGA GMP area include three small areas along the eastern boundary of the subbasin due to the early coarseness of the SacIGSM (i.e., placement of 11 nodes along an 8.5-mile length of the boundary) and the best available definition <u>of</u> the eastern alluvial margin relative to the definition in <u>DWR Bulletin 118-3</u>. Today, the model grid extends east to the Sacramento/El Dorado county line and covers these eastern areas. These small areas are included as part of the Alternative.



Note: Includes 2016 groundwater basin boundary modifications



The southwestern portion of the South American Subbasin outside of the SCGA GMP area lies within the legal definition of the California Delta (Delta Area). While the Delta Area was not included in SCGA's management area, this area was evaluated in the original modeling grid devised by the Sacramento County Water Agency (SCWA) and Water Forum. The Delta Area was not included as part of SCGA or its GMP because groundwater conditions in the Delta area were recognized to be distinctly different from conditions in the majority of the South American Subbasin. This area is included in the Alternative as described in Section 1.5.2.

#### **1.1.1** Origin of SCGA GMP Area Boundaries

In the mid-1990's, the Water Forum, in working with affected agencies, sought to create groundwater focus areas north and south of the American River with the foresight of addressing the linkages between groundwater pumping and surface water flows. At the time, groundwater management at a local level included a different set of technical and sociopolitical ingredients to achieve success.

The area initially labeled in 1997 by the Water Forum<sup>2</sup> as "South Sacramento Area" was to become the "Central Sacramento County Groundwater Basin" or termed "Central Basin" in 2002 at the start of the Central Sacramento County Groundwater Forum. The Water Forum created three such areas within the county <u>because each area was</u> facing similar groundwater problems and conditions.

Boundaries defining the groundwater areas balanced the following <u>four</u> criteria: 1) county jurisdictional boundaries, 2) natural hydrogeologic features impeding subsurface flows, 3) persistent recharge areas, and 4) water district/purveyor/agency jurisdictional boundaries. Rivers and surface water bodies hydraulically connected with groundwater (i.e., loss rates affected by groundwater levels) were established as hydrogeologic boundaries <u>and</u> includ<u>es</u> the American and Sacramento Rivers. <u>The Delta is a persistent recharge boundary on the west</u>, where persistent high groundwater conditions exist. <u>The known extents of saturated regional alluvial material was established as a hydrogeologic boundary</u> along the eastern side of the Sacramento Valley.

The Central Basin's southern boundary delineation considered the Cosumnes River and Deer Creek alignments, both recognized as sources of groundwater recharge but with hydraulic disconnection in the middle reaches, intermittent hydraulic connection for short reaches

<sup>&</sup>lt;sup>2</sup> See Appendix E of Water Forum Agreement Draft Environmental Impact Report, <u>Baseline Conditions for</u> <u>Groundwater Yield Analysis</u>, (Montgomery Watson, 1997)

flowing into the Sacramento Valley, and full hydraulic connection as the two surface water sources come together and approach the persistent recharge areas of the Delta.

Average fall 1996 groundwater elevation contours shown in **Figure 1-3** confirmed the presence of the persistent recharge influence of the Delta, and a prevalent recharge ridge underlying the floodplain region of the Cosumnes River and Deer Creek water sources. In cooperation with groundwater stakeholders, the Water Forum sought to include the full extent of area affected by the behavior of the Central Basin's cone of depression south of the Cosumnes River. This resulted in an initial boundary delineation aligning slightly south of the Cosumnes River along reaches of the river as shown by the brown dashed line illustrated in **Figure 1-3**. The "potential" flow paths have also been added to approximate the possible recharge pathways.

Basin delineation was further refined by the SacIGSM finite element mesh and model subregions (i.e., logical grouping of model elements based on land use, water district, political, and hydrogeologic boundaries as shown in **Figure 2-2**) which most closely approximated the areas after the initial three criteria were applied. The yellow shaded area in the figure represents the Central Basin boundary delineation and is the current SCGA GMP area.

#### 1.1.2 SCGA GMP Area Not Included in Alternative

The SCGA GMP areas described above as being south of the Cosumnes River include portions of OHWD's service area south of the Cosumnes River and a portion of the area between the Cosumnes River and South Dry Creek (Sacramento County line) west of Highway 99. These areas are situated outside the South American Subbasin, and are not subject to this Alternative. Cosumnes Subbasin GSAs will be asked in the future to coordinate closely with SCGA in these areas because of the continued influence on the recharge and management of the South American Subbasin.



Source: Contour Map published by SCWA

Note: Recharge delineation and flow paths have been added for illustrative purposes only



#### 1.2 Timeline of Groundwater Management Affecting South American Subbasin

The 2006 SCGA GMP is a recognized milestone in the Greater Sacramento Region not only because it satisfies requirements set forth in the **Groundwater Element of the Water Forum Agreement**<sup>3</sup> but it is also founded on decades of local agency groundwater management experience:

- 1. Formation of the Sacramento County Water Agency by a special legislative act and includes countywide groundwater policies 1952
- 2. Adoption of policies by the County of Sacramento recognizing that groundwater should be conserved, managed, and protected 1972
- Voluntary groundwater elevation (spring and fall) monitoring as part of State Well Monitoring Program and development of groundwater elevation contour maps utilized by the State and local agencies to monitor groundwater use – 19<u>74</u>
- 4. Partnerships with DWR in Bulletin 118 studies to specifically characterize the region's aquifer and local groundwater conditions 1975
- Adoption of a master plan, creation of a benefit zone (i.e., Zone 40 of the Sacramento County Water Agency (SCWA)), and establishing a fee structure to implement conjunctive use programs to support all new growth within groundwater impacted areas – 1986
- Adoption of county-wide water policies limiting new development's use of groundwater and requiring that alternative supplies be identified to offset increased water demands – 1990
- 7. Development of a calibrated finite element groundwater-surface water model, and groundwater quality analyses 1993
- Development of current and projected water demands for Water Forum planning models (<u>The Estimate of Annual Water Demand within the Sacramento Metropolitan</u> <u>Area by Boyle Engineering</u>, 1995) – 1995
- 9. Delivery of first increment of surface water as part of SCWA's Zone 40's conjunctive use program 1995
- 10. Quantitative impacts analysis of undesirable <u>effects</u> and groundwater modeling to support Water Forum negotiations 1995
- Establishment of a stakeholder process and significant education to define Sacramento County groundwater management areas and acceptable sustainable yields (Water Forum Process) – 1994-2000
- 12. Self-imposed and locally financed consensus-based stakeholder process leading to a quantitative threshold-based groundwater management plan and a proposed governance structure 2000-2006

<sup>&</sup>lt;sup>3</sup> See <u>Groundwater Element of Water Forum Agreement</u>, or see Section 3(IV) of Water Forum Agreement <<u>http://waterforum.org/wp-content/uploads/2015/09/WF\_SEC\_3.pdf</u>>

- 13. Adoption of the SCGA Groundwater Management Plan and Joint Powers Authority Governance Structure – 2006
- 14. 10+ years of voluntary groundwater management through SCGA and member agencies who represent all subbasin groundwater use sectors 2006-2016

#### 1.3 Sacramento Water Forum

In 1994, interested stakeholders were brought together through the Sacramento Area Water Forum Process. As part of its charge, the Water Forum determined the role of groundwater in achieving sustainable management of all water resources (i.e., surface water, groundwater, remediated groundwater, and recycled wastewater) in meeting the Water Forum's coequal objectives:

## Provide a reliable and safe water supply for the region's economic health and planned development to the year 2030; and Preserve the fishery, wildlife, recreational, and aesthetic values of the Lower American River.

Much of the success of the 2000 Water Forum Agreement <<u>www.waterforum.org</u>> is based on a continuing partnership between the six interest groups (water suppliers, environmentalists, local governments, business groups, agriculturalists, and citizen groups) formed as part of the original six-year interest-based stakeholder process. The agreement is a living document within the Water Forum Successor Effort which, with affected interest groups, continue to meet and confer as changed conditions warrant. Additions and amendments to the Water Forum Agreement have ensured its on-going relevancy in the present-day regulatory environment and its value in the support and creation of local and regional water policies and practices.

In recognition of the Water Forum's role in the development of SCGA, specific policies and procedures have been included in SCGA's governing documents to provide a role for the Water Forum Successor Effort to assist in resolving conflicts.

#### 1.4 Public Outreach

As public outreach is an important component of SGMA, a notification regarding initiation of this Alternative was included on the agenda of the SCGA Board of Directors meeting on July 13, 2016. This notice<sup>4</sup> included SCGA's intention to prepare this Alternative <u>and provided</u> a website link and contact person for more information about SCGA, its SGMA compliance efforts, and the development of the Alternative. The subject of an Alternative has been regularly included on agendas of SCGA public meetings held throughout 2016 at the Sacramento Regional County Sanitation District (<u>SRCSD</u> offices, located in Rancho Cordova, as listed below.

- February 10
  Board Meeting
- April 7 SGMA Subcommittee
- April 20 Board Meeting
- April 21 SGMA Subcommittee
- May 16 SGMA Subcommittee
- June 8 Board Meeting
- June 22 SGMA Subcommittee
- July 13 Board Meeting
- July 20 SGMA Subcommittee
- August 18 SGMA Subcommittee
- September 14 Board Meeting
- October 5 SGMA Subcommittee
- October 12
   Board Meeting
- November 9
  Board Meeting
- December 14
  Board Meeting

All board and subcommittee meetings are advertised public meetings in compliance with the Brown Act. The SGMA Subcommittee was formed in 2015 and later charged to evaluate the merits, progress, and content of the Alternative as it developed. Feedback from the public and interest groups has been received in both board and subcommittee meetings regarding what an Alternative is, what it achieves with regard to SGMA compliance, and the long-term implications for those reliant upon groundwater as a water supply.

The nature of some concerns indicated that <u>additional outreach</u> was necessary. The Water Forum Successor Effort, being a "neutral space" for the Sacramento Region in resolving water-

<sup>&</sup>lt;sup>4</sup> See Item 5 on July 13, 2016 Agenda and Board Package

<sup>&</sup>lt;a href="http://www.scgah2o.org/Documents/2016%2007%2013%20SCGA%20Board%20Meeting%20Agenda%20Package.pdf">http://www.scgah2o.org/Documents/2016%2007%2013%20SCGA%20Board%20Meeting%20Agenda%20Package.pdf</a>

related issues relevant to the Water Forum Agreement, was asked to participate in this effort and secured State funding in order to conduct an intense stakeholder outreach process that ran in parallel with the development of the Alternative, including public review of the draft document. The results of this outreach effort are included as **Appendix 1B – Water Forum** <u>Stakeholder Outreach Summary for Public Draft Alternative</u>. <u>Public comment letters and</u> <u>responses are provided as Appendix 1C – Public Comment Letters and Responses.</u>

Focused stakeholder meetings in 2016 included:

- August 10 Delta Reclamation Districts, Local Agencies of North Delta (LAND)
- October 12 Cosumnes Watershed Coalition
- October 13 Florin Resources Conservation District/Elk Grove Water District
- October 18 Sloughhouse Resources Conservation District
- October 18
   Omochumne-Hartnell Water District
- October 19 Sheldon residents
- November 2 Sacramento County Farm Bureau
- November 7 Stakeholders Workshop at the SRCSD office

<u>See</u> Appendix 1B – Water Forum <u>Stakeholder</u> Outreach Summary for Public Draft<u>Alternative</u> for further discussion of outreach meetings by the Water Forum.

#### 1.5 Eligibility to Submit Alternative

SCGA, in consultation with DWR, has strived to meet both the intent of SGMA legislation and navigate the "best" approach to provide the statutorily-required 10-year history of sustainable management of the subbasin with regulatory-required functional equivalence to the requirements set forth in Articles 5 and 7 of the GSP Regulations. Below are focus areas where direction was sought by SCGA from DWR Staff.

#### 1.5.1 Understanding SGMA's Purpose for Including Alternative Submittals

SCGA has prepared this Alternative to conform with SGMA's promotion and support for local actions to sustainably manage groundwater subbasins, recognizing and preserving the authority of cities and counties to manage groundwater pursuant to their police powers and minimizing state intervention to only when necessary to ensure local agencies manage groundwater in a sustainable manner. To this end, SGMA provides options for local agencies to show they satisfy the objectives of SGMA via a similar level of groundwater management through their existing GMP, and/or by providing sufficient factual evidence demonstrating the subbasin has operated within its locally established sustainable yield for at least 10 years.

SCGA and its GMP were created through consensus-based negotiations; its operational budget continues to be supported through voluntary local funding sources. These local funds have been used to self-govern the subbasin through application of quantitative objectives, thresholds, and triggers that align with each of the applicable <u>Sustainability Indicators</u> described in SGMA statute. SCGA member entities have over 20 years of operating and management experience in the subbasin and make up the 16<u>-</u>member Board of Directors<u>. SCGA is</u> committed to sustainable resource management through avoiding significant or undesirable impacts.

The 2006 SCGA GMP was used as a guide during DWR's development of required GSP content, now established in Article 5 of the 2016 GSP Regulations. While many requirements of the GSP Regulations are met via the SCGA GMP and its voluntary governance and cost structure, the GMP does not cover the entire South American Subbasin. SGMA requires the Alternative to satisfy statutory objectives for the whole subbasin, applying any of three statutory categories<sup>5</sup>. In conformance with statutory and regulatory directives, SCGA provides a technical analysis of 10+ years of subbasin operation within an established sustainable yield that relies, in part, on SCGA's management according to its GMP for the SCGA GMP area of the South American Subbasin. This Alternative includes a companion chapter presenting its functional equivalency

<sup>&</sup>lt;sup>5</sup> California Water Code Section 10733.6(b)

to elements that will be required for GSPs, as identified in Articles 5 and 7 of the GSP Regulations.

#### 1.5.2 Entire Subbasin Requirement

SGMA requires the Alternative apply to the entire subbasin, with boundaries defined by DWR Bulletin 118-3 (2003). As discussed above and shown in **Figure 1-2** the SCGA GMP management area does not cover the entire South American Subbasin. SCGA's JPA language defines the Authority's eastern boundary to be the El Dorado Countyline, which includes areas to the east of the GMP area boundary. SCGA will conduct management and funding actions consistent with the GMP in these "eastern fringe" areas.

A portion of the South American Subbasin west of Interstate 5 --- entirely within the Statedefined 'legal Delta' -- was not included in SCGA's GMP area (Delta Area). Water Forum studies completed in the mid-1990's delineated the Central Basin (i.e., SCGA GMP) boundaries using a set of criteria (see Section 1.1.1 for full list of criteria) with one being the presence of persistent recharge boundaries contributing to the sustainable yield of the Central Basin, described in detail in Section 1.1.1 above. The influence of the Delta's abundant surface water and inherent high groundwater conditions creates the Central Basin's western persistent recharge boundary still seen today.

After working with agricultural interests in the Delta through the Local Agencies of the North Delta (LAND), their representative indicated that LAND entities support the Delta Area's inclusion in the Alternative Submittal process, with principles articulated in a draft Memorandum of Understanding and Agreement (MOU) that was provided to LAND entities for their Boards' approvals (see **Appendix 1D – Delta Reclamation District MOU and Alternative Support Letter**). While a fully executed copy of this MOU is not available at the time this submittal is due, SCGA and Delta Area interests will continue to collaborate. SCGA and its member agencies will use existing programs and funding to conduct the required monitoring and annual reporting requirements for this area as part of future SGMA compliance for the Alternative.

#### **1.5.3** Alternative Submittal Content

Over the <u>4</u>-month period in which the Alternative was developed, a considerable amount of monitoring data and reporting documents were reviewed, evaluated, synthesized, and presented in order to provide DWR with all available monitoring data. Only applicable high quality data were used to demonstrate 10 years of operating within the sustainable yield. In addition, the SCGA GMP and various reference documents were reviewed and scrutinized in order to provide the best and most recent source information for functional equivalence to

Articles 5 and 7, with much of this information being derived from the evidence supporting the analysis demonstrating 10-years of sustainability. However, the Alternative's analysis itself contributes to satisfaction of functional equivalency. Each of the findings is supported with referenced data sources made available through the electronic submittal process. The Alternative is not proposing actions or projects independent of those approved as part of the adopted 2006 SCGA GMP.

#### 1.5.4 Addressing Data Gaps

Data gaps occur where the level of uncertainty creates a need for additional information. Data gaps can be addressed through monitoring and reporting, and through use of other available resources (i.e., DWR provided data, adjacent basin monitoring). Data gaps discussed in the Alternative are mentioned as possible areas for update or enhancement to further refine monitoring and reporting demonstrating continued operation within the sustainable yield of the subbasin. SCGA did not find data gaps, as that term is defined in the GSP regulations, that rise to a lack of information significantly affecting the understanding of the basin setting or evaluation of whether the basin is being <u>managed</u> sustainably.

#### 1.5.5 Water Forum Process Used to Determine Sustainable Yield

The 2000 Water Forum Agreement solidified a long-term average annual sustainable yield for the Central Basin (i.e., SCGA GMP area boundaries) of 273,000 acre-feet (AFA). The basis of this number is documented in Water Forum Agreement and GMP reference documents (included in the electronic submittal of the Alternative). The work completed <u>for</u> the Water Forum Agreement is equivalent to the requirements necessary to fully evaluate each of the <u>Sustainability Indicators</u> identified in SGMA. The results of this work were applied to support the factual findings ultimately used in the negotiation of sustainable yield for each of the three primary Sacramento County groundwater subbasins.

Conjunctive use of groundwater and surface water are a key element of groundwater management in the region. The SCGA sustainable yield was defined by local agencies and other interested parties and is viewed as meeting the competing interests for water without causing significant and unreasonable impacts for SGMA <u>Sustainability Indicators</u>.

#### **1.5.6** Method of Presenting Functional Equivalency

Functional equivalency to Articles 5 and 7 of the GSP Regulations is demonstrated in a separate standalone chapter (Chapter 4) of the Alternative due to its size, structured formatting, and method of uploading documents to State DWR's on-line Alternative Submittal website found at the url <http://wwwdwr.water.ca.gov/groundwater/sgm/alt.cfm>. The Chapter relies on direct reference to Chapter 2, the existing GMP, and other reference documents included in the electronic submittal package. Documentation of functional equivalency (FE) includes the following information for each section of Articles 5 and 7:

- 1. Link(s) to the appropriate section(s) of the GMP (or other reference documents)
- 2. Brief explanation of how substantial FE is met
- 3. List of data gaps, if any, for future improvements to the Alternative
- 4. If FE requirement is not relevant to the Alternative, a brief explanation as to why

All cited documents and figures not in **Chapter 2** or the GMP are included in the electronic Alternative Submittal package as \*.pdf files or hyperlinks. The adopted GSP <u>and Alternatives</u> <u>Emergency</u> Regulations published by <u>State</u> DWR<sup>6</sup> is considered a companion document and should be referred to by the reader, as the titling of the functional equivalency chapter follows the same order as the GSP Regulations. <u>State DWR also provides an optional table of the GSP</u> <u>regulations to accomplish what has been done in Chapter 4</u>. Both methods will be considered <u>as the Alternative Submittal is being uploaded</u>.

<sup>&</sup>lt;sup>6</sup> See url <http://wwwdwr.water.ca.gov/groundwater/sgm/pdfs/GSP\_Emergency\_Regulations.pdf>

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# Chapter 2. Evaluating 10 Years of Operating within Sustainable Yield

"An Alternative submitted pursuant to Water Code Section 10733.6(b)(3) shall provide information that demonstrates the basin has operated within its sustainable yield over a period of at least 10 years. Data submitted in support of this Alternative shall include continuous data from the end of that 10-year period to current conditions." (GSP Regulations § 358.2(c)(3))

#### 2.1 Introduction

The Sustainable Groundwater Management Act of 2014 (SGMA) authorizes local agencies to submit an alternative document to the State Department of Water Resources (DWR) for evaluation and assessment of whether the submitted document satisfies SGMA objectives (Water Code 10733.6(a)). An Alternative Submittal authorizes agencies with 10+ years of proven groundwater management experience, established governance structures, and <u>an</u> effective groundwater management plans the opportunity to comply with SGMA in a manner that is functionally equivalent to the stakeholder-based processes described in Articles 5 (Plan Content) and 7 (Reporting and Evaluation) of the GSP Regulations. SGMA specifically recognizes existing local management agencies where successful stewardship actions have led to 10 years or more of groundwater sustainability without exceeding locally-defined thresholds for any of the six (6) regulatory-identified <u>Sustainability Indicators (SIs)</u> (see GSP Regulations and California Water Code Section 10733.6).

Sustainable yield, as defined under SGMA is "the maximum quantity of water, calculated over a base period representative of long-term conditions in the basin and including any temporary surplus that can be withdrawn annually from a groundwater supply without causing an undesirable result."<sup>7</sup> By its definition, the determination of a subbasin's sustainable yield requires the long-term evaluation of <u>SIs and</u> undesirable results over a base period at differing groundwater extractions levels and hydrologic conditions.

The analysis provided in this chapter is based on multiple lines of factual evidence and is used to demonstrate the subbasin's successful operation within a stakeholder-supported quantified sustainable yield. The chapter's organization is structured as follows:

5. **Stakeholder process used in determining sustainable yield** – Brief understanding of open forum consensus and interest-based process to determine the subbasin sustainable yield.

<sup>&</sup>lt;sup>7</sup> Water Code § 10721(w)

- 6. Validity of the SCGA GMP sustainable yield to the South American Subbasin Analysis of the groundwater management and sustainable yield differences between the current SCGA Central Basin and the South American Subbasin.
- 7. **Comparing groundwater extractions with sustainable yield** Presentation of historic extraction amounts compared to the long-term average sustainable yield.
- 8. **Remediation and other regulatory programs** Recognition of the amount of groundwater remediation occurring in the subbasin and the adaptation role of the local groundwater management agency.
- 9. South American Subbasin water budgets Comparison of water budget data from local and state groundwater surface water models and conclusions.
- 10. Water Forum review of undesirable effects Outline of the undesirable effects analyzed in the Water Forum process and used <u>by the SCGA GMP to define</u> the long-term average sustainable yield.
- 11. **Sustainability Indicators** Presentation of all applicable monitoring data and reports, and findings of sustainability using Sustainability Indicators to show no significant or unreasonable impacts to groundwater.
- 12. **Conclusion** Summary of findings and data showing that sustainability can continue going forward.

#### 2.2 Stakeholder Process Used in Determining Sustainable Yield

The long-term average sustainable yield in the Central Basin represents the quantitative description of groundwater management goals as determined by stakeholders in the region. Conjunctive use programs, water policies, and projects within the affected region have, over the past 15 years, resulted in the ability to achieve the sustainable management goals originally set by the interest-based Water Forum Process in 1997 and ultimately included in the 2000 Water Forum Agreement.

The formation of SCGA was a "second stage" process consisting of representatives of the Water Forum and interested parties and stakeholders from within the subbasin to develop a locallydefined voluntary groundwater management program. The program, for the first time, focused on quantitative thresholds, triggers, and reporting actions to alert stakeholders of monitoring data and potential activities threatening the groundwater management goals of the basin. These include, but are not limited to, the comparison of total groundwater extractions to the long-term average sustainable yield.

#### **2.2.1** Water Forum Process and Regional Groundwater Studies

The scientific studies leading to negotiations of sustainable yield for groundwater basins within Sacramento County were developed during the Water Forum process using a numerical finite element groundwater-surface water model, based on the region's state published hydrogeologic conceptual model.<sup>8</sup>, with an initial node and element mesh as shown in Figure 2-1. Education and negotiations amongst representatives of interested parties were completed over a 3-year period, finally achieving consensus on quantified sustainable yields.

The results of the Water Forum process, including sustainable yield determinations, are documented in the January 2000 Water Forum Agreement (Appendix 1D – Appendix 2A – Water Forum Agreement Groundwater Management Element). The Water Forum Agreement recommendation for the South Area (also referred to as the Central Basin, see Section 1.1.1) is as follows:

The recommended estimated average annual sustainable yield is 273,000 acre feet. This represents the year 2005 projected pumping amount and is 23,000 acre feet more than the 1990 pumping amount. The projected 2005 pumping amount for the South Area [Central Basin] took into consideration the cost of delivery of surface water and the impacts which occur due to the lower stabilized groundwater levels. To meet year 2030 demands, a program would be implemented to use the groundwater basin conjunctively with surface water diversions. (Water Forum Agreement, January 2000)

<u>Central Sacramento's sustainable yield is at the heart of the region's current water supply</u> <u>planning and land use documents (e.g., Zone 40 Master Plan, City of Sacramento Groundwater</u> <u>Master Plan, and City and County General Plans</u>), and are cited as the source of underlying <u>design and operational criteria justifying hundreds of millions of dollars of water supply</u> <u>conveyance and treatment infrastructure, including, but not limited to, the SCWA/East Bay</u> <u>Municipal Utilities District (EBMUD) Freeport Project, SCWA's Vineyard Surface Water</u> <u>Treatment Plant, and expansions to the City's Sacramento River and American River diversion</u> <u>structures and treatment plants. The sustainable yield values are also used as the cornerstone</u> <u>of the region's determination of sufficiency of conjunctive use water supplies (i.e., SB610 and</u> <u>SB 221) for new development projects since the early 2000's.</u>

The Groundwater Management Element of the Water Forum Agreement also establishes the need for forming groundwater governance agencies in each subbasin. SCGA was formed as the governance agency of the Central Basin using a consensus-based setting similar to the Water Forum with a group of 50+ stakeholders. This group met once a month for three (3) years, beginning with fact finding, education, and then negotiation. In the third year, as negotiations were underway, a point was reached where the group decided to not move forward until a draft GMP was completed containing the specific criteria and management actions to agree upon. The initial draft of the 2006 SCGA GMP was developed and contained a progressive

<sup>&</sup>lt;sup>8</sup> See State DWR Bulletin 118-3 <<u>http://water.ca.gov/groundwater/bulletin118/report2003.cfm</u>>

threshold-based approach to voluntary groundwater management, and a domestic well protection program providing protection to private domestic well owners if groundwater levels decline and wells become dry as a result of future municipal pumping.



Figure 2-1. 1993 Finite Element Mesh for South American Subbasin and Sacramento County

The sustainable yields of the three subbasins defined by the Water Forum Agreement (see **Figure 2-2** are listed in **Table 2-1** (EDAW and Surface Water Resources, 1999). The 'Courtland Area' (i.e., the Delta Area, shown as dashed line) of the County was included in the modeling studies, but intentionally not included in the Central Basin for reasons explained below.

Annual Sustainable Yield (acre-feet)	Water Forum Groundwater Basins within Sacramento County					
Water Forum Agreement						
131,000	North Basin – north of the American River					
115,000	South Basin – south of the Cosumnes River, south of the Central Basin					
273,000	<b>Central Basin</b> – south of the American River to the south side of the Cosumnes River to include OHWD and other similar areas, east of Interstate 5; the GMP area of the Sacramento Central Groundwater Authority					

Table 2-1. Estimates of Annual Sustainable Yield for Sacramento County



Figure 2-2. Groundwater Model Subregions and Water Forum Subbasins

#### 2.2.2 Aligning SCGA Central Basin with South American Subbasin

Groundwater management in each of the three Water Forum subbasins was focused on developing a set of stakeholder supported activities designed to manage <u>and increase</u> groundwater elevations within the cones of depression shown in **Figure 2-3**. This figure represents average fall 1996 groundwater conditions (across multiple aquifers) showing three distinct subbasins developed from years of agricultural and urban pumping, and from the natural persistent recharge occurring from river flows and the California Delta. To best achieve groundwater management in the Central Basin, the Water Forum delineated the Central Basin's boundaries based on the following general criteria:

- County jurisdictional boundaries
- natural hydrogeologic features impeding subsurface flows such as connections with major rivers
- persistent recharge areas such as the Delta
- water district/purveyor/agency jurisdictional boundaries generally defined by the groundwater model subregion delineations used for model calibration

Based on the above criteria, the boundaries of the Central Basin were delineated as shown in **Figure 2-2**. Areas identified as part of the Delta were not included since the point where regional Central Basin pumping strongly influences recharge and recovery was, and continues to be<sup>9</sup>, close to the legal Delta's (and the North Delta Water Agency's) eastern boundary along Interstate 5. Areas south of the Cosumnes River were included in the Central Basin due to the Delta, Mokelumne River, and Cosumnes River confluence recharge source, and to bolster the strength of smaller political agencies and unrepresented lands. Stakeholder representatives were included in the boundary delineation.

This Alternative <u>compares and aligns</u> the Central Basin with the State DWR's Bulletin 118 (2003) South American Subbasin boundaries, and asks the question, "what change, if any, does this realignment have on the Water Forum's quantification of the basin's sustainable yield?"

**Figure 2-4** illustrates the latest SacIGSM model subregions and the areas that would be 'removed' from the Central Basin's original calculation, as they are south of the Cosumnes River and within the Cosumnes subbasin (Subtracted Area – portions of subregions 4 and 10), and the

<sup>&</sup>lt;sup>9</sup> See State Water Data Library Well:

<sup>&</sup>lt;http://www.water.ca.gov/waterdatalibrary/groundwater/hydrographs/brr\_hydro.cfm?CFGRIDKEY=5563>



Figure 2-3. Groundwater Elevation Contours for Fall 1996 Used by the Water Forum



Figure 2-4. Water Forum SacIGSM Model Subregions

areas that would be 'added' to include the Delta Area (subregion 29). The purpose of this analysis is to provide ground-truthing of SCGA's reported management of the Central Basin, as it was defined by the Water Forum, and the ability to continue using the SCGA sustainable yield of 273,000 AFA in this Alternative for the South American Subbasin. The intent is to include the Delta Area and remove the Subtracted Area pumping amounts, and demonstrate basin operations are within the sustainable yield set by Water Forum assuming the Central Basin was defined as the South American Subbasin. This includes use of the original Water Forum water budgets and Original SacIGSM forecast model runs, and the quantification of potential impacts of exceeding the six <u>sustainability indicators</u>undesirable result categories.<sup>10</sup>

The hypothesis of this exercise is as follows:

If Water Forum studies and models included the Delta Area in the analysis of forecasted changes in groundwater pumping, and <u>the</u> Central Basin sustainability and impacts w<u>ere</u> as based on further deepening of the Elk Grove cone of depression, then the same studies and model runs can be used today to estimate the amount of pumping that was occurring over the South American Subbasin footprint.

The sustainable yield resulting from the proof of this hypothesis assumes that pumping in areas outside the South American Subbasin, but within the SCGA GMP area, are transferred and evaluated in the context of the appropriate State DWR SGMA subbasin (i.e., Cosumnes Subbasin GSP evaluation of sustainable yield to include these areas).

#### 2.2.3 Assessing Need for Change in Existing Sustainable Yield Due to Realignment

All modeling conducted by the Water Forum for the determination of the sustainable yield included the Delta Area's land use and projected water demands. As stated in the above hypothesis, the Alternative contemplates realigning the Central Basin boundary as defined by the Water Forum to one matching the South American Subbasin footprint, requiring an assessment of the potential change to the basin's sustainable yield. Water Forum studies used increasing levels of regional groundwater pumping, based on growth assumptions in the 1990 Sacramento County General Plan and agricultural growth assumptions from the Farm Bureau. These growth assumptions were in 10-year increments through the year 2030 which represented "build-out conditions." Each 10-year growth scenario was used by local stakeholders as the basis for evaluating and negotiating the threshold for significant or unreasonable impacts. For the Central Basin, the acceptable 273,000 AFA long-term average

<sup>&</sup>lt;sup>10</sup> See Appendix E of Water Forum Agreement Draft Environmental Impact Report, <u>Baseline Conditions for Groundwater Yield</u> <u>Analysis</u>, (Montgomery Watson, 1997) or Alternative Resources: <u>WaterForum\_Groundwater Baseline Yield Analysis.pdf</u>

sustainable yield (see Appendix A of the SCGA GMP and Section 2.5 for additional information) was quantified by the Water Forum (1995), based on a forecasted growth scenario assuming future demand relies solely on groundwater, and represents stakeholder negotiation over the long-term average and maximum impacts from forecasted 2005 levels of pumping across the model domain, including the Delta Area as shown below,.

The outcome of the Water Forum modeling approach on the Central Basin also included the following:

- Impacts evaluated in Central Basin included unquantified incremental impacts resulting from 2005 forecasted pumping levels across the Original SacIGSM model domain including the Delta Area.
- The long-term average sustainable yield for adjacent subbasins to the north and south were negotiated to remain at 1990 levels of groundwater pumping.
- 3. Water Forum Solution Original SacIGSM forecast model included



negotiated surface water and groundwater (Water Forum Agreement) policy assumptions assuming 2030 forecasted growth conditions over the model domain (including Delta Area) and resulted in an average long term <del>average</del> extraction in the Central Basin of <del>less than</del> 273,000 AF/year.

#### 2.2.3.1 Change in Central Basin Area to Align with South American Subbasin

The Delta Area is approximately 32,250 acres, and is made up of predominantly agriculture with smaller agriculturally-based communities (i.e., Courtland and Hood) and conservation lands; the approximate area of the SCGA GMP area currently within the Cosumnes Subbasin (Subtracted Area, shown in **Figure 2-4**) is approximately 35,050 acres, an area made up of conservation lands, rural homes, and significantly lower densities of irrigated agricultural lands. The total area of the South American Subbasin (Bulletin 118 (2003)) is 248,000 acres (of which 87% is currently managed by SCGA's GMP). The net difference of total area accounted within the Water Forum-quantified sustainable yield by removing the Subtracted Area and adding the Delta Area is a reduction of 2,800 acres (or 1.1% of the total South American Subbasin area).

#### 2.2.4 Verification of Current and Past Water Demands

Because the sustainable yield management actions of the SCGA GMP are based on the aggregated pumping over the managed area, the 2011 SacIGSM calibration model (most <u>current</u>) is used to present and compare the unit and total demands, and patterns of groundwater pumping, between the Delta Area and the Subtracted Area.

Changes in evapotranspiration and agricultural water supply requirements, both seasonally and hydrologically, between the Subtracted Area and the Delta Area are expected to be closely matched due to their close geographic proximity. Slightly cooler temperatures and less overall evapotranspiration may occur in the Delta Area which could lead to a crop's reduction in overall water supply requirement; however, this natural occurrence is accounted for in the model and will show up in the comparison of pumping for both regions.

Since the Delta Area relies more on surface water for most of its irrigation in dry to wet years, the total <u>unit</u> groundwater pumping per agricultural acre,<sup>11</sup> as represented in the 2011 calibrated SacIGSM, shows the Delta Area groundwater use patterns closely matching those in the Subtracted Area but with approximately half the amount of pumping on a given acre of irrigated land compared to the Subtracted Area, as shown in **Figure 2-5**.

The top (<u>blueorange</u>) line) in this figure represents the average "Subtracted Area" unit pumping amount for each year of the calibration model, or, in other words, the average annual amount of groundwater applied to each acre of irrigated agricultural land, regardless of crop type. The <u>orange</u> bottom (<u>blue</u>) line is the same for the Delta Area.

<sup>&</sup>lt;sup>11</sup> Land area-based unit water demands (AF/acre/year) are often used in water demand studies to determine the relative difference in applied groundwater, surface, or total water demand for a region regardless of area.



Figure 2-5. Delta and South of Cosumnes Agricultural Unit Groundwater Pumping

**Figure 2-5** illustrates the close match in hydrologic variations in groundwater use patterns over a period of 40+ water years with <u>relative</u> dry/<u>critical</u> year peaks in the Subtracted Area being higher than the Delta Area <u>indicating conjunctive use practices taking place as agriculture shifts</u> <u>from surface water to groundwater in dry years</u>. The figure also indicates <u>a</u> similar trend over hydrologic wet and dry periods, with a noticeable decrease in unit pumping in the Subtracted Area over the <u>more recent</u>-dry period <u>from</u> 2005- <u>to</u> 2010, <u>likely</u> due to <u>changes</u> in irrigation practices (i.e., flood irrigation to drip irrigation) and <u>land</u> conversion <u>to</u> vineyards <u>with drip</u> <u>irrigation</u>.

Conservatively applying the most recent 10-year model average (2002-2011) of the annual unit pumping values to account for the latest irrigation practices and crops, the Delta Area's average unit pumping factor (1.53 AF/acre/year), as calculated from data in **Figure 2-5**, applied to the average irrigated land area of 26,851 acres (approximately 80% of total Delta Area)<sup>12</sup>, results in a total annual average groundwater pumping of approximately 41,000 AF/year. The same calculation for the Subtracted Area results in a 3.15 AF/acre/year average 10<sub>-</sub>-year pumping factor and an estimated 10,176 acres of irrigated agricultural lands<sup>13</sup>. The resulting average annual groundwater use (3.15 AF/acre/year X 10,176 acres) for the Subtracted Area is 32,100 AF/year. Even though the unit demand for agricultural pumping is higher in the Subtracted

<sup>&</sup>lt;sup>12</sup> Agricultural acreages are based on the Water Forum groundwater model using the 1993 DWR land use survey.

<sup>&</sup>lt;sup>13</sup> Irrigated area extracted through SacIGSM model land use file for elements south of the Cosumnes River resulting in approximately 30% of the total Subtracted Area (see GIS **Figure 2-7** for visual verification).

Area, the resulting groundwater use for agriculture is lower due to the lesser density of agriculture in the Subtracted Area. The above demands do not include rural water demands associated with the developed areas of large acre lots. This is considerably higher in the Subtracted Area, with a difference of approximately 1,800 AF/year higher in the Subtracted Area taking into account the higher population of rural development south of the Cosumnes River. In sum, the total increase in pumping as result of the realignment of the Central Basin to the South American Subbasin, based on the 2011 SacIGSM, could be as high as 7,100 AF/year.

Given the lower agricultural water supply requirement for groundwater in the Subtracted Area versus the Delta Area, removing the Subtracted Area and adding the Delta Area to the Water Forum sustainable yield calculation shows groundwater pumping for the realigned Central Basin could increase slightly over a normal to dry period (similar to water years 2002 to 2011).

#### 2.2.5 Water Forum's 2005 Forecast Model to Verify Sustainable Yield

This step in the realignment verification recalculates the sustainable yield based on the <u>use of</u> <u>the</u> South American Subbasin as the footprint for the Central Basin. Going back to the Water Forum's 2005 forecast model run (basis for the long-term average sustainable yield), the total (i.e., all land uses) approximated groundwater pumping for all uses within the Delta Area was reported as 31,100 AF/year<sup>14</sup>. For the Subtracted Area, the total groundwater pumping for the OWHD subregion (17,400 AF/year) and the Southwest subregion (94,000 AF/year) were used as the basis for calculating the Subtracted Area pumping using the percentage of agricultural acreage in each subregion relative to the entire subregion (i.e., necessary since Water Forum forecast model subregion data does report or provide for calculating partial demands):

#### OHWD subregion:

17,400 AF/year total pumping (all uses)<sup>15</sup> \* 3,021 agricultural acres (south of the Cosumnes River)/6,272 agricultural acres (in total subregion) = 8,400 AF/year

#### Southwest subregion:

94,000 AF/year total pumping (all uses) \* 7,155 agricultural acres (south of Cosumnes River)/30,000 agricultural acres (in total subregion)) = 22,400 AF/year

#### Sum of Subtracted Area Water Demand:

<sup>&</sup>lt;sup>14</sup> See Table 1. Baseline Conditions Summary in *Baseline Conditions for Groundwater Yield Analysis*, (Montgomery Watson, 1997)

<sup>&</sup>lt;sup>15</sup> See Table 3. Static Baseline Conditions: Groundwater Yield and Water Level Decline in *Baseline Conditions for Groundwater Yield Analysis*, (Montgomery Watson, 1997)

8,400 AF/year + 22,400 AF/year = 30,800 AF/year<u>, which is</u> (300 AF/year less than Delta Area pumping of 31,100 AF/year)

The net result of realigning the Central Basin to the South American Subbasin and applying the Water Forum-based sustainable yield conditions is 300 AF/year, <u>a</u> small addition to the sustainable yield quantification. More specifically, if the Central Basin boundary had been drawn co-extensively with the South American Subbasin, the Water Forum-based analysis would have concluded the sustainable yield as being the same or slightly greater than 273,000 AF/year. As a result, SCGA will continue to use the long-term average sustainable yield of 273,000 AF/year for this Alternative <u>Submittal for</u> the South American Subbasin, keeping with the intent of the Water Forum Agreement and principles of the SCGA GMP.

#### 2.3 Comparing Groundwater Extractions with Sustainable Yield

Operating within the long-term average sustainable yield is a comparison of groundwater extractions with the long-term average sustainable yield of the Central Basin. To incorporate the methodology of realigning the Central Basin with the boundaries of the South American Subbasin described in Section 2.2.2, SCGA recognizes that reported estimated groundwater pumping in biennial Basin Management Reports (BMRs) provide estimates over a slightly different area. The Alternative's goal of demonstrating that both annual and long-term average South American Subbasin extractions have been below the long-term average sustainable yield includes BMR data and tests whether the possible increase would create an exceedance condition.

Note: reporting of annual pumping consistently below the long-term average sustainable yield evidences highly conservative basin management for basins with active conjunctive use programs.<sup>16</sup>

#### 2.3.1 Annual Groundwater Extraction Comparison with Sustainable Yield

**Table 2-2** provides a summary of the BMR groundwater production data beginning in 2005. Since most water purveyors report their usage on a calendar year, the BMRs adopted the calendar year tabulation. In future annual reporting of groundwater usage, pumping amounts <u>will likely</u> be discretized to monthly values and <u>will report</u> both calendar year and water year totals. The comparison of calendar year-based extractions to a water year-based long term average sustainable yield does not appreciably change the comparison being made in this report since estimated values in the highest extraction years (2005-2010) could be reduced for agriculture and rural use sectors by approximately 45,000 AF/year; see **Section 2.3.2** for a detailed description of the change and reporting in methodology for estimating agricultural water supply requirement starting in 2011.

Table 2-2 only includes groundwater use sectors which were originally included formanagement in the 2006 GMP, and now in SGMA statute. The larger use sector categoriesinclude urban, agricultural, and agricultural-residential (rural). Urban uses include large andsmall water districts, self-supplied pumpers, park districts, and golf courses. Not included areextractions for groundwater remediation, discussed in Section 2.3.3.

**Figure 2-6** illustrates that groundwater production has been within the sustainable yield on an annual basis during the 11-year reporting period, ending in 2015. Groundwater production over this period is reported to have varied from 202,324 acre-feet in 2011 to 260,200 acre-feet

<sup>&</sup>lt;sup>16</sup> In future Alternative Updates, a running 10 year pumping average will be used for comparison against the long-term average sustainable yield to account for conjunctive use programs in urban and agricultural areas.

in 2008 (mean over 11 years: 236,800 acre-feet). **Appendix 2B** provides a detailed accounting of groundwater extractions by user including groundwater remediation.

The Central Basin realignment over the South American Subbasin is expected to add a small increment of agricultural extractions and, at the same time, reduce rural extractions with a net increase inof no more than 7,100 AF/year on average (see Section 2.2.2). The change in methodology for estimating agricultural water supply requirements, discussed in Section 2.3.2, will also need to be done for the Delta Area to verify this potential increase.

Table 2-2. Reported Central Dasin Groundwater Extractions											
Primary	Groundwater Production Reported <sup>3</sup> and Estimated (Calendar Years)										
Sectors	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015 <sup>2</sup>
Urban	78,070	80,227	79,780	84,498	81,287	73,680	68,679	66,478	64,547	54,610	54,111
Agriculture <sup>1</sup>	167,062	166,148	165,234	164,320	163,406	162,492	116,500	134,600	152,400	133,900	140,000
Rural	7,852	7,946	8,041	8,136	8,231	8,326	17,200	23,400	22,900	23,100	23,000
Total	252,984	254,321	253,055	256,954	252,924	244,498	202,379	224,478	239,847	211,610	217,111

Tahla 2.2	Ronartad	Contral Racin	Groundwater	Evtractions
Table Z-Z.	Reported	ocinii ai Dasiii	orounawater	LALIACTIONS

Notes:

1. Improved agricultural water supply requirement estimates using State DWR's IDC occurred in 2011.

Agriculture and Rural extractions for calendar year 2015 were not available and is based on the nominal average of previous 3 years.
 Detailed reporting of groundwater extractions are documented in SCGA's BMRs from 2007 to 2014 as published on SCGA's website at <<u>http://www.scgah2o.org/Pages/archive.aspx</u>> and included as Appendix 2B – Detailed Pumping Data of the Alternative.



Figure 2-6. Annual Comparison of Groundwater Extractions by Water Use Sector Categories and Sustainable Yield

#### 2.3.2 Change in Estimation Methodology for Agricultural Rural Uses

**Figure 2-6** <u>shows</u> a significant change in agricultural and rural demands from 2010 to 2011<u>and</u> <u>thereafter</u>. Agricultural volumes were originally estimated <u>using assigned crop acreage unit</u> <u>water demand factors according to</u> Water Forum's assumption<u>. The</u> Farm Bureau forecast that agricultural acreage would decrease from the reported 1990 irrigated area (using 1988 and 1993 State DWR land use surveys as source) by approximately 5% each 10<u>-</u>-year period to 2020 and then remain constant.

Post-20104 estimates of land use are based on satellite imagery, as shown in **Figure 2-7**, to estimate actual evapotranspiration and then applying State DWR's IDC soil moisture model to estimate the total water supply requirement for agriculture and irrigated rural areas.<sup>17,18</sup>

In addition, the 2015 estimate of agriculture and rural groundwater extractions are repeated from 2014 because the 2015 estimate is not available. Agricultural water supply requirements in 2015 are expected to be higher due to drought conditions and critical water year shortages of surface water (i.e., Delta, Sacramento River, and Cosumnes River) into the South American Subbasin. The possible one year increase in agricultural pumping is not expected to increase the long-term average extraction amounts to above the long-term sustainable yield. The impacts of the drought on 2015 levels of pumping also show up in groundwater level monitoring discussed in **Section 2.6.1**.

The SacIGSM modeling assumptions used to-date have not included the updated methodology of estimating agricultural water supply requirement. Much like the reporting estimates in **Table 2-2**, where agricultural and rural water supply requirements decreased with the updated methodology, the same will likely hold true for the Delta Area. This will likely result in a similar percentage reduction in agricultural and rural water supply requirements, affecting estimated surface water (riparian diversions) and groundwater use in the Delta Area.

#### **2.3.3** Groundwater Remediation and other Regulatory Programs

Groundwater remediation for the protection of drinking water supplies is a necessary extraction in the South American Subbasin. Remediation is accomplished under various state and federal regulatory programs at several sites within the basin (see **Figure 2-8**). These regulatory remediation activities protect drinking water quality for human use, and take precedence over the potential risk to groundwater reductions and aquifer impacts resulting from these extractions. SCGA has worked with the regulatory community for purposes of education, reporting, and developing strategies and methodologies to keep or return remediated groundwater to the basin. SCGA acknowledges the necessity to adaptively manage to remediation activities outside of SCGA's control until groundwater conditions reach a steady-state condition.

<sup>&</sup>lt;sup>17</sup> See RMC May 14, 2014 SCGA presentation: <http://www.scgah2o.org/documents/Ag%20Demand%20and%20BMR%20Board%20Presentation.pdf>

<sup>&</sup>lt;sup>18</sup> See Davids Engineering, Inc. June 6, 2014. Technical Memorandum, *Instructions for Annual Updates of SCGA ET and Applied Water Estimates Using Integrated Water Flow Model (IWFM) Demand Calculator (IDC) Version 4.0* <<u>http://www.scgah2o.org/Documents/TM2%20Annual%20Updates.pdf</u>>



Figure 2-7. Classified 2011 Land Use Based on Satellite Imagery
Awareness of remediation activities has increased gradually over the years as public groundwater supplies have been compromised, and as contaminant plumes continued to migrate downgradient. Groundwater extractions for the purpose of remediation have also increased over the years. During the 11-year reporting period, extraction increased from 23,000 AF/year to 31,400 AF/year (mean: 27,400 AF/year), mostly due to the overall expansion of facilities for the larger Aerojet Superfund Site.

At the time of the initial Water Forum studies, Aerojet was discharging remediated water via injection wells or by discharging the water onto porous dredge tailings; a common practice to maintain a capture zone and reduce further plume migration. Water Forum studies showed that little groundwater was actually lost to the subbasin, so remediation was not included as an element of the 273,000 AF/year long-term average sustainable yield.

Over time, Aerojet has phased out the use of injection wells and dredge tailings and the majority of its remediated discharge is to the American River under a National Pollutant Discharge Elimination System (NPDES) permit. Discharges of Aerojet's treated groundwater also go to Morrison Creek, and are kept onsite for industrial operations. All of the current modes of remediation effluent discharge have the potential for a loss of groundwater to the South American Subbasin.

Aerojet claims ownership of its groundwater discharges to the American River and to Morrison Creek and, during the early 2000s, began seeking partners to perfect these claims. Golden State Water Company (GSWC) is currently authorized to withdraw an annual volume of 5,000 AF/year of Aerojet water from the river. Beginning in 2017, in conjunction with Carmichael Water District (CWD), a new GSWC pipeline running beneath the American River will begin to deliver Aerojet remediation water to GSWC service area in the South American Subbasin. CWD will utilize its existing ranney collector to capture river underflows and treat the water north of the river via a pressurized filtration plant, and then convey the water via the new pipeline to the GSWC service area south of the American River and back into the South American Subbasin. This will allow GSWC to reduce its South American Subbasin groundwater extractions. Similarly, Sacramento County Water Agency (SCWA) is authorized to withdraw an annual volume of 8,900 AF/year of Aerojet water at their Freeport facility along the Sacramento River, less the loss factor (10%) of recharge via the river. This water is then conveyed to the eastern side of the SCWA service area and treated at the Vineyard Surface Water Treatment Plant for application in SCWA's service area in the South American Subbasin. Aerojet has reserved the remainder of its treated groundwater for use as replacement water in Rancho Cordova. In addition, Aerojet has considered various options for changing its discharge from Morrison Creek to the American River.



Source: SCGA 2006 Groundwater Management Plan

Figure 2-8. 2006 Known Extent of Groundwater Contamination

# 2.3.4 Other State and Local Regulatory Programs

In addition to remediation programs, the South American Subbasin is also subject to other regulatory program actions. The State Regional Water Quality Control Board monitors and regulates wastewater flow discharges from El Dorado Irrigation District that ultimately flow into Deer Creek and the Cosumnes River. Over the past 10 years, increased state water quality requirements on discharges for the protection of downstream uses and users has had the effect of reducing discharges to Deer Creek by almost half over the five-year period <u>as</u> shown in **0**. Since the years of higher flow provided significant recharge to the South American Subbasin (i.e., in dry months where 100% of Deer Creek flows go to groundwater recharge), the regulatory-driven reduction of El Dorado Irrigation District's discharge flows unavoidably impacts the subbasin, as discussed in later sections.



Source: EID's Deer Creek Wastewater Treatment Plant Discharge Summary Report (WDID: 5B090102001) <<u>http://ciwqs.waterboards.ca.gov/ciwqs/readOnly/PublicReportEsmrAtGlanceServlet?inCommand=reset</u>>

#### Figure 2-9. EID's Wastewater Discharge to Deer Creek Watershed

Other County and State cleanup programs are also extracting groundwater for treatment with discharge to sewer systems or evaporation ponds. While most are small in scope compared to larger state and federal programs, the overall result is a loss of water to the basin and lowering of groundwater levels in the South American Subbasin.

The realignment of the Central Basin to the South American Subbasin by adding the Delta Area and removing the Subtracted Area does not change the nature of impacts from reported ongoing remediation or reductions in regulatory discharges to eastern tributaries.

## 2.4 South American Subbasin Conceptual Model

Developing water budgets for the Central Basin has been done historically using reported municipal pumping and estimated agricultural water supply requirements as input into the Original SacIGSM calibration model (see Figure 2-1 for original finite element mesh of 1,637 elements) to estimate the contribution of subsurface flows both in and out of the Central Basin. Over time, the calibration model input data has essentially become the region's database of pumping, streamflow, and hydrologic data. As technology has improved, modeling resolution and domain has increased to better represent subbasin recharge boundaries. The groundwater model used today (see Figure 2-10 for 2011 finite element mesh with 5,938 elements) is the evolution of over 25 years of local agency custodianship, improved calibration of the model, and reported effects of changed conditions in all three of the Sacramento region subbasins-- as they were defined by the Water Forum. For purposes of clarity, this report refers to the Original SacIGSM, as the version of the model used in the Water Forum, and simply SacIGSM or Updated SacIGSM for more current versions. The report will distinguish between the "calibration" and "forecast" versions of the Original and Updated SacIGSMs. The forecast SacIGSM is used for purposes of testing water management strategies out over an 85-year historic hydrologic time period.

In addition to SacIGSM, State DWR has developed a second release of the Central Valley Groundwater Surface Water Model titled "C2VSim". This model provides a regional depiction of the entire valley at a coarse level of resolution, and allows for groundwater budget information to be extracted for each Bulletin 118 subbasin. Given the timing of SGMA and the deadline for submittal of the Alternative, both models are in the process of being updated to include 2015 data, but are not currently complete. The purpose of this section is to provide the best available water budget data, understanding that the next 5 year update will include the latest information from both updated models. By using both models in this water budget presentation, this analysis will be compatible with adjacent subbasin GSP analyses and easing the review by State DWR.

# 2.4.1 Sacramento County Groundwater Model and Description of Basin Setting

SacIGSM utilizes an open-source, public domain, finite element modeling platform, earlier known as the Integrated Groundwater Surface Water Model (IGSM), and was developed during the early 1990s for the Sacramento County Water Agency (Montgomery Watson, 1993). At the beginning of the Water Forum technical studies (circa 1994), IGSM was the preferred water resources management model over other platforms due to its accessibility of both input and output data to a public and stakeholder audience. State DWR was also using the same platform for the Central Valley Groundwater Surface Water Model (CVGSM).

SCWA and the City of Sacramento both funded the development of the Original SacIGSM model due to the heightened interest in a more comprehensive and integrated means of understanding and managing surface water and groundwater resources. In particular, the 1990 General Plan required new growth <u>developments to</u> provide supplemental water supplies and eliminate sole reliance on groundwater.

The Original SacIGSM domain (see **Figure 2-1**) addressed an area of approximately 890 square miles, and was subdivided into 1,637 elements (average element size: 0.5 square miles) via 1,552 nodes. The South American Subbasin was defined by nearly 50 percent of the elements. The North Basin was defined with 22 percent of the elements and the South Basin was defined with 30 percent of the elements, including 5 percent for the SCGA area outside of the South American Subbasin located south of the Cosumnes River (Subtracted Area, as defined in Section 2.2 above). The model area was divided into 35 subregions (see **Figure 2-2**), including 12 subregions within SCGA, which comprised 44 percent of the model area. The South American Subbasin is contained within 13 model subregions, including the Courtland subregion (Delta Area) and portions of three subregions (i.e., Southwest, OHWD, and Rancho Murieta) which also overlie the Cosumnes Subbasin.

The Original SacIGSM utilized two separate DWR land use survey maps, three sets of crop data, four hydrologic soil groups, and USGS topography. Water use was based on historical data for surface water diversions, reported groundwater pumping for municipal and industrial applications, and on crop acreage and crop consumptive use data (i.e., crop type, evapotranspiration, root depth, field capacity, etc.). The model addressed rainfall distribution patterns and evapotranspiration, and surface water in eight creeks, three rivers, and one drain plus streamflow from eight small watersheds to the east of the model domain.

#### 2.4.1.1 Basin Setting

The SacIGSM is a 3-dimensional model comprised of five layers, including an upper aquitard at the surface, two fresh-water aquifers that are separated by a second aquitard, and a non-fresh-water (unusable) zone at the base of the model. Model stratigraphy was based on the 1974 DWR Bulletin 118-3, USGS reports, well logs, and geophysical logs.<sup>19</sup> The upper fresh-water aquifer is wedge-shaped along the eastern side of the basin (dipping and thickening westward) but is relatively flat-lying on the western side (**Figure 2-11**). The thickness can vary up to approximately 300 feet, but is typically 200 feet, and the bottom can extend to an elevation of

<sup>&</sup>lt;sup>19</sup> See State DWR Bulletin 118-3 <<u>Reference Documents\DWR\_b118-3\_evalofgwresSacramentoCounty.pdf</u>>



Figure 2-10. 2011 SacIGSM Groundwater Model Finite Element Mesh



Figure 2-11. Selected Model and Hydrostratigraphic Cross Sections of South American Subbasin

approximately 200 feet below mean sea level. The upper aquifer is generally correlative to the Laguna Formation and other similar/younger sediments.

The lower fresh-water aquifer is similar in shape to the upper aquifer, but considerably larger. The wedge portion of the lower aquifer, on the eastern side of the basin, rests on bedrock (relatively impermeable) and can extend to depths between 800 and 1,200 feet below mean sea level. Within the center and western portions of the basin, the base of the lower aquifer extends to depths between 1,200 and 2,000 feet below mean sea level, to the top of the unusable water. This unusable water may occur at depths of 800 feet below mean sea level beneath the Delta area of the South American Subbasin. The lower aquifer is generally correlative to the Mehrten Formation and pre-Mehrten sediments.

The Laguna and Mehrten Formations were deposited during the Pliocene and Miocene Epochs, respectively, (Gutierrez, 2011) of the Tertiary or Neogene Period (2.6 to 23.0 million years ago) in a fluvial environment (DWR, 1974). These formations are comprised of interbedded layers of gravel, sand, silt, and clay with numerous channel deposits within the South American Subbasin. The deposits are wedge-shaped and dip gently and thicken in a westerly direction. The Laguna Formation is derived from granitic and metamorphic rocks while the Mehrten Formation is derived from andesitic rock. The Mehrten Formation also includes dense, hard layers of tuff-breccia.

At the time of the Water Forum technical studies (circa 1995/96), including improvements to the original SacIGSM, groundwater contours (**Figure 2-3**) indicated flows in a southwesterly direction throughout much of the subbasin towards a cone-of-depression on the western side of the basin underlying what is now the City of Elk Grove. Persistent recharge flows from the Delta flowed easterly and northeasterly toward this depression, and groundwater to the north from the American River, and south from the Deer Creek and Cosumnes River, also flowed toward the depression. Similar conditions existed in the North American and Cosumnes Subbasins. Subsurface groundwater inflows and outflows also occur between the South American Subbasin and adjacent basins beneath the Cosumnes River and the American River, respectively.

The cones-of-depressions of the Water Forum snapshot in 1996 (see **Figure 2-3**) were developed during the middle of the last century as groundwater was pumped extensively for agricultural land uses, and were known to not be in a state of equilibrium (i.e., groundwater levels still falling) in the mid 1980's. The majority of the subbasin's recharge occurs from the percolation of rainfall and irrigation water and from the rivers that bound three sides of the subbasin, including the Delta.

Delta Area groundwater conditions are notably different than groundwater conditions throughout the majority of the South American Subbasin to the east. Groundwater levels are quite shallow in the Delta Area and are intentionally lowered beneath the root zone via ditches and tile drains, while regional groundwater levels were occurring at depths that exceeded 150 feet at the subbasin's cone of depression.

### 2.4.2 Summary of Original SacIGSM Model Calibration Results

The Original SacIGSM was calibrated for the period October 1969 to September 1990, which included successive dry years (1976-77, 1987-90) and wet years (1982-83). The average difference between simulated and observed water levels over the model domain was less than five feet for the 21-year calibration period.<sup>20</sup> Documented budget information in the very first model was presented for each year of the calibration period for the entire model area, with the average values listed for soil moisture, and for surface water and groundwater, in **Table 2-3** and **Table 2-4**, respectively.

Components	Area:	Agricultural	Municipal	Undeveloped
Rain		18.7	19.3	19.7
Irrigation		35.1	28.3	-
Consumptive Use		24.4	-	-
Evapotranspiration		33.6	17.8	14.9
Direct runoff due to rain	n	7.1	12.8	4.0
Surface water return flo	DW .	4.5	11.7	-
Percolation into unsatu	rated zone	8.6	5.2	0.8

Table 2-3. Original SacIGSM Soil Moisture Budget – 1970 to 1990 Average, inches/year

 Table 2-4. Original SacIGSM Surface Water and Groundwater Budgets (1970 to 1990 Average, AF/year)

	Average		Average
Surface Water Component	Volume	Groundwater Component	Volume
Upstream flow (inflow to model)	17,120,822	Deep percolation	198,876
Small Watershed/Tributary flow	24,865	Gain from surface water	207,396
Direct runoff due to rain	308,604	Subsurface Boundary inflow	111,846
Surface water return flow	181,126	Pumping	(533,986)
Gain (loss) to groundwater	(207,396)	Change in storage	(15,868)
Diversions	(216,278)		
Downstream flow (outflow to model)	17,211,744	Total model storage in 1990	48,445,800

The original model budgets for the entire domain show that over 207,000 AF/year (see Gain from surface water in **Table 2-4**) or 1.2 percent of the surface water passing through the model domain enters the groundwater system of the SacIGSM area. This surface water component is 40 percent of the total groundwater recharge and only slightly higher than recharge from deep

<sup>&</sup>lt;sup>20</sup> See 1993 Sacramento County Groundwater Model Development Report
<a href="https://www.sci.uk/action.org"></a>

percolation (199,000 acre-feet or 38 percent) of applied irrigation water plus rain water. Subsurface boundary inflow accounts for the final component of recharge (112,000 acre-feet or 22 percent). The Original SacIGSM model showed an overall loss in groundwater storage for its 21-year calibration period. Nearly all of the subsurface boundary inflow in the model is associated with flows entering or leaving the model domain based on set boundary conditions.

The South American Subbasin accounts for a substantial portion of the Original SacIGSM budgets, ranging between 40 and 55 percent for most components.

## 2.4.3 South American Subbasin Water Budgets

Using the Updated SacIGSM calibration model with a calibration period from 1969 to 2011, and the most recent version of the State's C2VSim model (Central Valley Integrated Water Flow Model (IWFM)), detailed groundwater budgets have been extracted for the most recent overlapping 10-year time period (water years 2000 to 2009) in both models to provide the best available data and comparison between the two different models. Understanding that each model was developed independently and currently operate on different platforms (i.e., IGSM vs. IWFM), the state model is considered to be the baseline given its regional application by adjacent subbasins and by State DWR staff. The aquifer parameter assumptions remained the same in the Updated SacIGSM, but were not reviewed for the C2VSim, and th<u>e evaluation of</u> calibration methodologies of both models <u>is</u> outside the scope of this analysis.

The presentation of water budget information from both models is to provide a sense of the differences in each model with the understanding that each model is currently being updated to reflect the updated groundwater basin delineations and to bring calibration periods to the <u>same</u> SGMA baseline year of 2015. To provide a comparison of the two models, the average water budget for the 10 year time period from water years 2000 to 2009 (October 1999 to September 2009) is used in both models, with C2VSim <u>being the</u> constraining <u>model with</u> the <u>modeling</u> window <u>ending in</u> September 2009.<sup>21</sup>

Spatially, the Updated SacIGSM water budget is based on the current SCGA GMP boundaries plus the Delta Area in order to apply the model's subregion delineations to the best fit of the South American Subbasin. The C2VSim water budget is also based on the closest approximation of the subbasin in the coarse grid model using elements located <u>mostly</u> within the subbasin as shown in **Figure 2-12**.

<sup>&</sup>lt;sup>21</sup> Note that this comparison is for the purpose of understanding the differences between the two model applications and presenting the possible range in values for complex groundwater flow properties only obtained through computer modeling.

The C2VSim budget is extracted from model output data by applying the ZoneBudget feature of the IWFM platform to provide a detailed groundwater budget; whereas the Updated SacIGSM budget is extracted through the model subregion groundwater budgets files. The aerial extent of the SacIGSM budget is based on the subregion boundaries shown in Figure 2-10 to closely approximate the South American Subbasin noting that the water budget data will include the full recharge amount from the Cosumnes River and reflect any pumping and surface recharge in the Subtracted Area. The C2VSim output provides the information shown in Table 2-5 and includes significant detailed information regarding subsurface flows between adjacent groundwater subbasins, as shown by the annual model output data in Figure 2-13.

A comparison of the two models is provided in Table 2-6.



Figure 2-12. C2VSim Model Grid Approximating South American Subbasin

Table 2-5. C2VSim 10-Year Average (2000-2009) Groundwate	er Budget for South American Subbasin
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Inflows	Avg Monthly Volume (AF)	Avg Annual Volume (AF)	Outflows	Avg Monthly Volume (AF)	Avg Annual Volume (AF)
Total Percolation	1,409	16,908	Total Pumping	13,299	159,593
Lakes and Streams Inflow	6,375	76,501	Lakes and Streams	991	11,892
Boundary Recharge Inflow	2,264	27,170	Boundary Recharge Outflow	-	-
SubSurface Inflow	5,127	61,522	SubSurface Outflow	2,758	33,092
Diversion Recoverable Gains	275	3,306	Tile Drain Outflow	-	-
Gain from Subsidence	22	264	Loss from Subsidence	12	142
Total	15,473	185,670	Total	17,060	204,719
			Difference in Storage	(1,587)	(19,049)

able 2-6. Average Annual C2VSi	m/Updated	SacIGSM Gro	undwater Budget Comparison	for South American Subba	sin	
Inflows	C2VSim Avg Annual Volume (AF)	SACIGSM Avg Annual Volume (AF)	Outflows	<b>C2VSim</b> Avg Annual Volume (AF)	SACIGSM Avg Annual Volume (AF)	
Total Percolation	16,908	111,365	Total Pumping	159,593	212,157	
Lakes and Streams Inflow	76,501	69,371	Lakes and Streams	11,892		
Boundary Recharge Inflow	27,170	78,232	Boundary Recharge Outflow	-		
SubSurface Inflow	61,522	(53,024)	SubSurface Outflow	33,092		
Diversion Recoverable Gains	3,306		Tile Drain Outflow	-		
Gain from Subsidence	264		Loss from Subsidence	142		
Total	185,670	205,944	Total	204,719	212,157	
			Difference in Storage	(19,049)	(6,213)	



Figure 2-13. Adjacent Subbasin Subsurface Flows

Figure 2-13 illustrates the net amount of subsurface flow moving between each of the adjacent groundwater subbasins. Negative flows represent water leaving the subbasin as outflow and positive values represent water entering the basin as net inflows. The line represents the net inflow/outflow occurring over the model time period. In this case, the model consistently indicates a net subsurface inflow ranging between 8,000 AF/year and 20,000 AF/year.

Review of the two models indicate that both are estimating approximately the same slight decrease (<10,000 AF/year) in storage on an annual-basis, but show to be significantly different in terms of the absolute values of inflows and outflows. The significant difference in total percolation, subsurface flows, and pumping for the two models will require investigation as the models are being updated. The SacIGSM likely has more recent pumping and agricultural pumping data (outflows), so the amount of deep percolation from rainfall and irrigation of 4-5 inches per year (vs. 0.6 inches in C2VSim) is more reasonable with <u>a</u> below average rainfall period. A comparative feature in <u>the SacIGSM</u> subregion budget output is not available in the Updated SacIGSM calibration model output file\_-

C2VSim's low net deep percolation volumes are likely an artifact of its calibration settings to balance the reduced extraction volumes while trying to achieve the groundwater elevations showing up in <u>observation</u> wells. The change in storage (or difference between inflows and outflows) is therefore the better comparison between the two models, as shown in **Figure 2-14**, where change in storage for both models is exaggerated to see the similarities between the two model results, and that these similarities are most relevant to the discussion of model performance and calibration differences.

To place the average negative change in storage (both models) in context with the overall basin budget and the volumes of water moving in and out of the model subbasin, **Figure 2-15** shows the Updated SacIGSM annual inflow and outflow volumes on the left axis represented by the stacked columns either above or below the x-axis. The difference between <u>annual</u> inflows and outflows (i.e., change in storage) is plotted against the right axis <u>as a black line</u>. The fluctuations in change in storage are minimal compared to the total volume of water moving in and out of the basin each year. The change<u>s</u> in storage <u>are</u> expected and not significantly high compared to the total basin volume (i.e., not drying up the basin). Hydrologic wet and dry period stress is a significant driver for these types of year to year changes, with increased pumping contributing to the longer term changes until the basin reaches equilibrium at some point in the future. A regression line (red dotted) to represent the average trend over the <u>designated period and the</u> slight <u>positive</u> change is primarily due to subsurface inflows from adjacent subbasins and effective management of the cone of depression as explained in Section **2.6.1**.



Figure 2-14. Updated SacIGSM vs. C2VSim Calibration Annual Change in Storage



Figure 2-15. Updated SacIGSM Water Budget Summary and Annual Storage Change

# 2.5 Water Forum Review of Undesirable Effects

The Original SacIGSM model used by the Water Forum in 1995 was converted into a forecast model (Original SacIGSM Forecast) by keeping its calibrated aquifer parameters and geologic framework then adding 69 years of hydrologic data to create a steady-state model where various levels of the 1990 General Plan land uses and water demands at 10-year intervals (between 1990 and 2030) could be evaluated to identify undesirable effects due to increasing extractions in each of the Sacramento County subbasins. In addition, the full historic rainfall and streamflow data between 1922 and 1991 was included in the Original SacIGSM Forecast model to fully consider extreme hydrologic wet and dry periods. <u>Note that the Updated Forecast SacIGSM currently uses 85 years of hydrologic data</u>.

## 2.5.1 Water Forum Forecast Scenarios

A visual example of the 10-year interval Original SacIGSM Forecast runs are shown in **Figure 2-16** where the lowest groundwater level in the Central Basin is tracked over the model simulation period. This figure illustrates the behavior of the Central Basin with each line representing an increased amount of groundwater extraction for urban development according to the growth projections of the 1990 General Plan. The forecast model holds land use, monthly M&I water demands, and pumping locations static over 69 years of varying hydrologic conditions. Explained and illustrated in <u>Appendix A of the SCGA GMP</u>, is a summary of the original technical report, *Baseline Conditions for Groundwater Yield Analysis*, (Montgomery Watson, 1997), documenting the full range of undesirable effects in the Central Basin associated with each 10-year interval pumping scenario.

### 2.5.1.1 Physical Effects of Increased Extractions

Each forecast scenario, as represented in Figure 2-16, increases pumping above baseline conditions (1990 conditions and 1990 with conservation conditions). The sudden increase in groundwater extractions result in the following physical process: 1) lowering of regional groundwater levels, 2) steepening of gradients with hydraulically connected rivers and the Delta, and 3) natural recharge increasing to ultimately support the higher extractions. The approximate time frame for the Original SacIGSM Forecast model to reach a new stable condition (i.e., inflows approximate outflows) is shown to be approximately 20 years. This initial timeframe becomes important in describing how groundwater level thresholds are determined (Appendix B of the SCGA GMP) through SacIGSM modeling results.

In the case where a hydraulic connection is lost with a recharge source due to over-pumping, stabilization of the basin would not occur, and the basin would be in a constant state of overdraft with continuous reductions in storage and lowering of groundwater levels. In each of the Water Forum forecast scenarios, the physical processes described above take place with hydraulic connections remaining intact with the major recharge sources of the American River,

Delta, and Sacramento River. <u>As groundwater extraction increases, the Cosumnes River and</u> Deer Creek floodplain provides increased recharge along hydraulically connected reaches near the confluence of the two surface water sources and the Delta<u>.</u>;<u>h\_H</u>owever, recharge along hydraulically disconnected reaches of Deer Creek and the Cosumnes River shows as remaining close to the same under all scenarios, subject to hydrologic variations. Under a disconnected condition, river recharge is impeded by the river bed and bank seepage properties and not the regional groundwater aquifer, creating a maximum surface water to groundwater recharge condition.



Figure 2-16. Water Forum Static Baseline Model Results for Central Basin

Groundwater levels and all associated impacts were evaluated for each forecast period and the 2005 baseline condition was selected by the Water Forum stakeholders as being the approximate sustainable yield for the Central Basin--quantified as a long-term average of 273,000 AF/year. Note: The long-term average sustainable yield value and associated undesirable effects were interpolated using the 2000 and 2010 Original SacIGSM Forecast scenarios as described in Appendix A of the SCGA GMP.

On average, and using 2010 model results, groundwater levels decreased between 7 and 49 feet (median: 25 feet) within the various subregions of the Central Basin. For the minimum groundwater levels, the decrease varied from 14 to 93 feet (median: 35 feet). For the 2010 <u>model results, the Delta Area identified an average groundwater level decrease of 18 feet along the persistent recharge boundary which is the western boundary of the Central Basin.</u>

## 2.5.2 Recognition of Reduced Storage in Central Basin

Important to this Alternative's 10-year evaluation of operation within the sustainable yield is that lower groundwater levels from baseline (1990) conditions and reduced storage were recognized by the Water Forum stakeholders as being necessary for balancing regional water resources management. Moreover, the Water Forum based this decision on a detailed <u>evaluation</u> of the undesirable effects of lowering water levels, including: 1) degraded water quality in terms of higher concentrations of iron and manganese, 2) increased migration rates of known contaminant plumes, 3) land subsidence, and 4) reduced efficiency on existing supply wells due to a greater lift of the water or <u>the</u> need to deepen wells.<sup>22</sup>

### 2.5.3 Water Forum Solution and Water Forum Agreement Draft EIR

The Water Forum's regional goals of potential impact on American River flows was also evaluated by creating a Water Forum Solution version of the 70-year Original SacIGSM Forecast model with 2030 levels of water demand and land use, and surface water allocation rules based on a specialized model to reflect proposed American River flow standards and agreements to cutback or transfer diversions of American River water in drier years. This established both groundwater and surface water thresholds for the region's water policies by concluding the following:<sup>23</sup>

Under the Draft [Water Forum] Solution, groundwater levels are generally higher than the long\_term groundwater levels previously recommended by the Water Forum groundwater negotiation team. This is due to two factors: (1) the greater level of municipal conservation assumed by the Draft Solution, and (2) the greater volume of surface water supplies assumed by the Draft Solution. (Water Forum Agreement Draft EIR, Appendix E, January 2000)

### 2.5.4 Undesirable Effects

The Water Forum Agreement Environmental Impact Report (EIR) characterized the impacts associated with the Water Forum Solution (i.e., 2030 build-out conditions with groundwater and surface water used conjunctively), and the technical findings (included as Appendix E of the Draft EIR) of undesirable effects based on the Original SacIGSM Forecast model results, as less-than-significant (EDAW and SWR, 1999). The Water Forum and its numerous stakeholders concluded the value of the groundwater taken from storage exceeded the costs to install and

<sup>&</sup>lt;sup>22</sup> See Appendix E of Water Forum Agreement Draft Environmental Impact Report, <u>Baseline Conditions for</u> <u>Groundwater Yield Analysis</u>, (Montgomery Watson, 1997)

<sup>&</sup>lt;sup>23</sup> See Appendix E of Water Forum Agreement, Page 86. <<u>http://www.waterforum.org/wp-content/uploads/2015/09/WF\_DEIR\_Appendix\_res7.pdf</u>>

maintain treatment for iron and manganese and/or to deepen wells or pump groundwater from greater depths.

### 2.5.4.1 Water Quality

The Water Forum Agreement Draft EIR presented cumulative water quality impacts by showing a 67,700-acre area within the South American Subbasin that could be impacted by groundwater with elevated levels of iron and manganese, and possibly arsenic, due to an 80-foot decline in water levels since pre-development conditions (decades before 1990s). Most of the area was located in the south-central portion of the South American Subbasin but a fraction of the area extended into the Courtland/Delta Area along the eastern boundary.

Contaminant plumes from the sources identified in **Figure 2-8** were evaluated as mitigated (contained) by the remedial actions of the responsible parties. The EIR concluded the increased extraction rates and changes in regional groundwater gradients as a result of the Water Forum Solution would not substantially affect the migration rate of the plumes.

#### 2.5.4.2 Land Subsidence

Land subsidence has been recorded in the South American Subbasin, up to 0.4 feet in the vicinity of Elk Grove, according to three leveling profiles between 1947 and 1966. Subsidence was not identified on the eastern side of the basin, which was considered to be less susceptible due to the older age of the sediments. Additionally, these east-side sediments are likely to be more coarse-grained and less likely to contain significant compressible material than sediments further west. Land subsidence has been shown to be directly proportional to the decline in groundwater levels and was calculated to be 0.007 feet per foot of groundwater decline (see **Section 2.6.4.1)** in the South American Subbasin, based on an Elk Grove well located in the cone of depression near the intersection of Poppy Ridge and Bruceville Roads. This value was consistent with wells in the North and Galt Basins. For the expected water level declines of 49 feet (highest average) to 93 feet (lowest minimum), the calculated potential subsidence might vary between 0.34 and 0.65 feet over a period of several decades at a gradual rate of 0.020 feet per year. The EIR concluded that this potential subsidence was minor and would not likely damage infrastructure.

#### 2.5.4.3 Pumping Efficiencies and Well Deepening or Replacement

The EIR recognized that well efficiency would be lower at some supply wells because lower water levels would require a deeper pump setting and additional power, which would result in higher costs to lift the water from greater depths. Moreover, some wells might need to be drilled deeper. The EIR estimated that 14 municipal wells (9 percent) would require deepening along with 19 agricultural wells (5 percent) and 350 rural domestic wells (6 percent), based on

the Original SacIGSM Forecast baseline simulation technical findings. The EIR concluded that this condition was a less-than-significant impact. Nevertheless, the SCGA 2006 GMP included a Well Protection Program to cover the cost of deepening or replacing an existing agricultural or domestic well. This program was developed but has not been funded due to the economic recession of the late 2000s. SCGA has not received any claims of well loss.

### 2.5.5 Protecting Private Domestic Wells and Water Quality

Protection of private domestic wells is considered to be a top priority in the SCGA GMP. The SCGA member agencies have municipal well construction policies minimizing the impact of increased municipal pumping on rural domestic well owners who depend on untreated shallow aquifer groundwater for drinking water. Municipal well proximity impacts to private wells, like drawdown of groundwater levels, and the potential for vertical upwelling of poor quality water from deep aquifer units, are mitigated by identifying wells in the region and calculating the screen depth and minimum distance at which the new well drawdown effects will be less than one foot with no upward vertical migration from deeper aquifer units.

# 2.5.6 Vertical Movement of Groundwater

The potential for vertical movement of groundwater is known to occur in the South American Subbasin whenever a difference exists in the potentiometric surface (i.e., standing water head in feet) between the <u>shallow</u> unconfined aquifer and the <u>deeper</u> semi-confined aquifer. A higher head value (shallow>deep) in the <u>shallow</u> aquifer creates a downward vertical gradient; whereas, a lower head value (shallow<deep) in the shallow aquifer creates an upward vertical gradient possibly moving <u>deeper</u> water with higher TDS, manganese, and iron concentrations to the shallow aquifer. For this reason, all new municipal wells are required to screen in the deeper aquifer units to maintain a lower head value in the deep aquifer and then expect to treat for iron and manganese to meet secondary drinking water quality standards. SacIGSM is used to model new well pumping impacts and differentiates between natural and anthropogenic reasons for vertical groundwater movement.

# 2.6 Applying Sustainability Indicators

The validity of the sustainable yield applied to the South American Subbasin can be evaluated by assessing the condition of several sustainability indicators:

- 1. chronic lowering of groundwater levels,
- 2. reduction in groundwater storage,
- 3. seawater intrusion,
- 4. degraded water quality,
- 5. land subsidence, and
- 6. depletions of interconnected surface water.

Unmanaged utilization of groundwater resources can produce undesirable results that necessitate corrective management action(s) when these results are determined to be significant and unreasonable and occur throughout the subbasin. The following text describes the Alternative's use of available scientific data for each of the monitored sustainability indicators (i.e., monitoring data and published reports) for the South American Subbasin. This section supports the preceding sections by using th<u>ese</u> data to confirm there are no Undesirable Results occurring as a result of the South American Subbasin's operation within the sustainable yield over the past 10 years.

### 2.6.1 No Chronic Lowering of Groundwater Levels

Numerous wells are identified in the DWR databases for the South American Subbasin, including 30 wells in the California Statewide Groundwater Elevation Monitoring (CASGEM) program and more than 100 "voluntary" wells. Most of the CASGEM wells (27) are located within the SCGA management area and are listed in the SCGA (2012) CASGEM monitoring plan. Three CASGEM wells are located within the Courtland/Delta Area of the South American Subbasin, although <u>water level</u> data are <u>not</u> available for one well. SCGA has published four biennial Basin Management Reports (BMRs)<sup>24</sup> and presented hydrographs for 18 to 21 wells, including 11 CASGEM wells. One of the CASGEM wells (385541N1211812W001) was reported as destroyed during the spring to fall reporting period in 2012.

**Figure 2-17** and **Figure 2-18** are groundwater elevation contour maps for Fall 2005 and Fall 2015, respectively, for the South American Subbasin and portions of the adjoining basins to the north and south. These maps were produced by the Surfer computer program using default Kriging to distribute the irregularly spaced well data across a uniform grid of the area. This default grid included 100 nodes in the east-west direction and 91 nodes in the north-

<sup>&</sup>lt;sup>24</sup> SCGA's BMRs from 2007 to 2014 as published on SCGA's website at <<u>http://www.scgah2o.org/Pages/archive.aspx</u>>



Figure 2-17. Fall 2005 Groundwater Elevations Contours (ft, msl)





south direction. Elevation data were obtained from the CASGEM website for October of each year or for November if a well was not measured during October.

In comparing the Fall 2005 monitoring data to the Fall 1996 monitoring data (Figure 2-3), elevation contours show water levels increasing (+20 feet) in the South American Subbasin cone of depression and the North American Subbasin cone decreasing in size. Conversely, the Cosumnes Subbasin cone of depression increased in size and the 50-foot elevation contour has changed shape from circular to an elongated arch. Groundwater stakeholders in the regional Cosumnes Subbasin have been aware of these groundwater levels, but have been unsuccessful in establishing a governance and management plan to address agricultural or urban pumping activities in any portion of the Cosumnes Subbasin, as evidenced by the failed implementations of three groundwater management plans. This lack of management will likely harm adjacent subbasins.

#### 2.6.1.2 Increase in Fall 2005 and 2015 Groundwater Levels

Fall 2005 data indicates that <u>highland</u> recharge into the South American Subbasin flowed in a southwesterly direction under a relatively steep gradient toward the central area of the subbasin where lower water level elevations were shown to exist. Groundwater along the Sacramento River flowed in an east/southeasterly direction under a lesser gradient toward this central area. The westward flow gradient was three to four times greater than the eastward gradient. The contours also <u>show</u> groundwater flowing from the South American Subbasin into the adjacent subbasins, particularly the Cosumnes Subbasin to the south, as the Cosumnes Subbasin cone<u>expanded in size</u>.

Fall 2015 contours show the continuing rise in contours in the central portion, and the deepening <u>and expansion of the cone of depression</u> to the south of the Cosumnes River. Contouring of monitoring data is now placing the South American Subbasin cone-of-depression under the direct influence of pumping in the Cosumnes Subbasin, as defined by the -40-foot contour.

In the last three years, the two subbasins appear to have merged with a single Cosumnes Subbasin cone-of-depression. In the Fall 2015 contours, the Cosumnes Subbasin cone-ofdepression has increased in size and depth, extending to -80 feet MSL. The South American cone-of-depression has risen and filled in the extreme low point, making it broader in the Fall 2015 contours as compared to Fall 2005 insofar as the -30-foot contour encompasses a larger area within the center of the South American Subbasin. However, this areal increase is related to and influenced by the Cosumnes Subbasin cone of depression, as the contours show the -30-foot contour extends from the Cosumnes Subbasin into the South American Subbasin and defines the outer limits of the Cosumnes Subbasin cone. The 2015 contours clearly suggest that the Cosumnes Subbasin cone receives groundwater from the South American Subbasin.

#### 2.6.1.3 Verification of Groundwater Level Behavior Using Groundwater Hydrographs

Groundwater conditions were further assessed through a review of hydrographs (**Appendix 2B** – **Detailed Pumping Data**) for 1<u>5</u>3 wells in the CASGEM / Water Data Library database system for the South American Subbasin, with the data coming from 4<u>7</u> primary wells, including 21 wells in the 2012 CASGEM monitoring plan and one CASGEM well in the Delta area, <u>13</u> DWR Well Monitoring Program (SWP) wells that have been utilized by the BMRs, and <u>2</u>1 other wells (voluntary) with recent and historic data. Note that nine of the SWP wells were selected to be <u>CASGEM wells</u>.

The reported depths of 39 primary wells varied from 72 to 600 feet, with an average of 233 feet and a median depth of 200 feet. Total depth was not reported for eight primary wells.

Forty-four (44) of the 153 wells were classified into four secondary groups because the water level data did not span the 11-year period of 2005 to 2015. These wells provided more qualitative insight into the groundwater conditions of the South American Subbasin. The partial-data groupings included:

- 8 wells with data before SCGA was created and recent data
- 13 wells with data up to 2013
- 7 wells with data only after 2010
- 16 wells with data before SCGA, before 2006

The reported depths of 36 primary wells varied from 20 to 780 feet, with an average of 275 feet and a median depth of 234 feet. Total depth was not reported for eight secondary wells. Fiftyfive (55) of the 153 wells only had data prior to 2000 and could not be used for this evaluation. Water level data were not available for seven (7) wells. Table 2-7 provides a summary of characteristics for the hydrographs.

#### 2.6.1.3.1 Hydrographs

All available data (Appendix 2C – Groundwater Hydrographs) were plotted as hydrographs with uniform scales so water level depths and variations can be compared easily. Figure 2-19 shows the location of three selected hydrographs from Appendix 2C – Groundwater Hydrographs, as shown in Figure 2-20, Figure 2-21, and Figure 2-22. These hydrographs span the three types of groundwater behavior showing up in the larger set of hydrographs. For each hydrograph, the elevation scale is constant and ranges from 400 to -150 feet MSL to accommodate the highest ground surface elevation in Folsom to the lowest historic water level

#### Table 2-7. Summary of Water Level Trends – South American Subbasin

Final	
Draft	

	Total # of	Water Level Trend (Linear Regression) 2005 - 20015/16		Water Levels versus 2006 Threshold Bandwidth 2010 - 2015/16		Water Levels versus 2006 Threshold Bandwidth 2000 - 2005				SGEM SCGA-	AR SWP-	h bwr. & cassem				
Well Type	Wells	Rising	Flat	Falling	Above	Within	Below	Above	Within	Below	Total	No Data	8	8	Bot	Comments
Primary Wells - 2005 to 2015	<b>47</b>	<b>13</b> 2.8%	<b>6</b> 13%	28 60%	<b>14</b> 30%	<b>16</b> 34%	<b>17</b> 36%	<b>13</b> 29%	<b>19</b> 42%	<b>13</b> 29%	<b>45</b>	2	22 73%	13 65%	9	
Secondary Wells - Before SCGA & Recent	<b>8</b> 100%	<b>2</b> 2.5%	<b>0</b> 0%	<b>6</b> 75%	<b>2</b> 25%	<b>2</b> 25%	<b>4</b> 50%	<b>1</b> 13%	<b>5</b> 63%	<b>2</b> 2.506	<b>8</b> 100%	0	1 3%	1 5%	0	Visual trends
Secondary Wells - Partial SCGA (up to 2013)	13 100%	<b>3</b> 23%	1 8%	<b>9</b> 69%	<b>4</b> 31%	<b>3</b> 23%	<b>6</b> 46%	2 15%	<b>6</b> 46%	<b>5</b> 39%	13 100%	0	3 10%	4 20%	2	Visual trends
Secondary Wells - Recent (after 2010)	<b>7</b> 100%	0	<b>4</b> 57%	<b>3</b> 43%	<b>1</b> 14%	0 0%	5 71%	0	0	0	0	7	2 7%	0 0%	0	Visual trends, Invalid threshold for 1 well
Secondary Wells - Just before SCGA (up to 2005)	16 100%	<b>7</b> 44%	3 19%	6 38%	<b>11</b> 69%	3 19%	2 13%	<b>8</b> 50%	6 38%	2 13%	16 100%	0	1 3%	2 10%	0	Visual trends
Older Data Wells - Before 2000	55												0	0	0	
No Data Wells	7												1	0	0	
Total	153												30	20	11	
	Total	25	14	52	32	24	34	24	36	22	82	9	100%	100%		
		28%	15%	57%	36%	27%	38%	29%	44%	27%	100%					

Chapter 2. Evaluating 10 Years of Operating within Sustainable Yield South American Subbasin Alternative Submittal Sacramento Central Groundwater Authority



Figure 2-19. Hydrograph Location Map for Select Monitoring Wells



### 383735N1213338W001

Figure 2-20. Groundwater Hydrograph Operating Above Minimum Thresholds with Flat Trend



# 383610N1214825W001

Figure 2-21. Groundwater Hydrograph Operating Above Maximum Threshold



elevation in the Elk Grove area. The time scale starts with January 1970. The hydrographs show the maximum and minimum thresholds defined by <u>Appendix B of the SCGA GMP</u> that were established via the Water Forum Solution Original SacIGSM Forecast groundwater modeling, included by reference in the 2006 SCGA GMP. <u>These thresholds are</u> shown in Figure 2-23 and Figure 2-24, and are considered representative of hydrologic years 1986 and 1977 for the maximum (high) and minimum (low) thresholds, respectively.

In addition, the hydrographs illustrate along the bottom the hydrologic classification of each water year, based on the Sacramento Valley Water Year Index (DWR, 2016). During the 10+ year period for this Alternative's sustainability evaluation, the index shows three years above normal and eight years below normal, including critical conditions during 2014 and 2015. Above normal or wet conditions occurred during 2005, 2006, and 2011.

Water level trends were assessed via linear regression of spring data beginning in 2005, and the slope of the regression line was divided into three primary groups: rising and falling trends (0.001 or greater and -0.001 or lower) and flat (0.000). Figure 2-25 shows the locations for these water level trends according to various colors and solid symbols. In addition, open symbols show the recent water level data (since 2010) relative to the local range of Water Forum-set threshold values. Appendix 2C – Groundwater Hydrographs includes specific information on each well and hydrograph and a rating of performance as to the causes for upward or downward water level trends.



Figure 2-23. Upper Threshold Contours from Water Forum Solution Model



Figure 2-24. Lower Threshold from Water Forum Solution Model

#### 2.6.1.4 Use of Minimum and Maximum Thresholds

The two threshold figures represent the modeled groundwater table (upper unconfined layer) topography under the Water Forum Solution conditions using 2030 water demand and land use conditions and implementation of conjunctive use programs. Knowing that groundwater storage losses and groundwater level declines were planned to occur, the Original SacIGSM Water Forum Solution Forecast models were the best source for defining potential long term groundwater level management thresholds in the future. The SCGA intended to update its GMP in 2014/15 (i.e., delayed due to SGMA), including an update to the Water Forum Solution model using the most recent calibration model year for initial conditions, and the latest Water Forum changed conditions. This update process would eventually result in real world thresholds that groundwater elevations would fluctuate within or above over time due to hydrologic differences and, as a goal and over a long term average period, maintain an elevation at or above the maximum threshold.

#### 2.6.1.5 Available Trigger Points

The SCGA GMP included specific trigger points (see SCGA GMP Table 4-1. Monitoring Actions and Trigger Points for each Basin Management Objective) and corrective actions if groundwater levels declined to unacceptable levels (defined by local stakeholders). If stakeholders become concerned or wells are impacted by lowering groundwater levels, the bandwidths would become the baseline for effective enforcement for the specific area of concern. To date, these triggers have not been exercised by the SCGA Board because no undesirable results have been reported by local stakeholders that are the direct result of non-regulatory pumping practices of SCGA member agencies, or their stakeholders.

#### 2.6.1.6 Summary of Hydrograph Trends

The evaluation of separate hydrographs provides a unique story to each location and is sensitive to the uncertainties of groundwater level measurements, well construction data, groundwater layer(s) being measured, and interference with pumping wells located nearby. Below is a summary of the types of hydrograph trends taking place in the South American Subbasin assuming the monitoring data provided is an average measurement of the regional aquifer's behavior. The secondary groupings of wells were not plotted but show similar characteristics, as presented in Table 2-7. For example, the proportions of water level trends for the primary wells are similar to the proportions for the primary plus secondary wells.

#### 2.6.1.6.1 Flat to Rising Water Levels

In general, flat to rising water levels<sup>25</sup> above or within the threshold range<sup>26</sup> mostly occur within the west-central area of the South American Subbasin in the vicinity of the cone-of-depression that has been present for many decades, and along the American River. The Elk Grove cone has been the focus of groundwater management starting with SCWA Zone 40's creation during the 1980s, the Water Forum during the 1990s, and then Sacramento Central Groundwater Authority since 2006. The attenuation of this cone-of-depression is evidence of beneficial management practices and outcomes by SCGA and its member agencies.

#### Falling Water Levels

Falling water levels<sup>27</sup> below the thresholds<sup>28</sup> occur in the northeastern portion of the subbasin in the vicinity of three groundwater remediation projects, including the Aerojet Superfund Site, the US Air Force Mather Field Superfund Site, and the McDonnell Douglas<sup>29</sup> Inactive Rancho Cordova Test Site (IRCTS) at Mather Field and south of Security Park. Note that the Aerojet remediation extends eastward nearly to the boundary of the South American Subbasin and has extracted 5 to 8 times more groundwater than the IRCTS and Mather Site, as shown **Figure 2-25**. In addition, California American Water Company and GSWC produce groundwater from numerous wells that are located to the west of these remediation projects.

These remediation projects are intended to contain the migration of contaminated groundwater by drawing groundwater levels down and reducing flow gradients. The expectation is that other projects have been or will be installed to address the currently untreated source areas within the center of the Aerojet Site. Thus, the mission of these regulatory projects intentionally causes falling water levels (below basin-wide thresholds) and steeper gradients in these discrete areas of the South American Subbasin.

Falling water levels below threshold also occur further south on the eastern side of the subbasin to the Cosumnes River. These wells are located downgradient of the remediation projects, including Sacramento County's Kiefer Landfill. This area is also affected by lower surface water discharges to Deer Creek from the El Dorado Irrigation District's (EID) wastewater

<sup>&</sup>lt;sup>25</sup> Green diamond or blue up triangle

<sup>&</sup>lt;sup>26</sup> Open black circle or square

<sup>&</sup>lt;sup>27</sup> Orange down triangle

<sup>&</sup>lt;sup>28</sup> Black X

<sup>&</sup>lt;sup>29</sup> Subsidiary of The Boeing Company

treatment plant (see **Figure 2-9**). Since 2011, the EID discharge has been reduced by 40 percent. Recent drought conditions and agricultural pumping in the Cosumnes Subbasin (i.e., fall 2015 represents the highest stress year in the 10+ years of data analysis) have also likely affected this area by less recharge to the Cosumnes River and Deer Creek.

Falling water levels below the thresholds also occur along the Cosumnes River on the southeastern side of the South American Subbasin. These wells are located along the subbasin boundary and heavily influenced by the large cone of depression in the Cosumnes Subbasin, as discussed above.

While discrete areas of the subbasin show falling water levels below Water Forum thresholds, one area can be attributed to the required regulatory projects that intentionally lower water levels for plume containment, and these actions are outside of SCGA's control. The southern boundary area of the South American Subbasin is influenced by reduced flows in Deer Creek by EID and by activities in the adjacent Cosumnes Subbasin and also outside of SCGA's control. SCGA will continue to track the extraction volumes of remediation projects and work with the remediation entities to maximize the beneficial use of the treated groundwater. SCGA will work with the Cosumnes subbasin as they develop their GSP to collaborate on solutions for the Cosumnes subbasin cone of depression.

Note that water levels in 13 of the 47 primary wells were below the thresholds during 2000 through 2005, prior the start of SCGA. Water levels in 19 wells were within the bandwidth and were above the thresholds at 13 wells. (Water levels were not measured in two primary wells prior to the start of SCGA.)



Figure 2-25. Water Level Trends

### 2.6.2 Groundwater Storage

The threshold to prevent the South American Subbasin's loss of storage due to over-pumping by its non-regulatory water use sectors (i.e., urban, agricultural, and rural use categories) is the long-term average sustainable yield of 273,000 AF/year. As shown in **Table 2-2**, basin-wide non-regulatory groundwater extractions have not exceeded this sustainable yield over the last 10+ year period. A detailed look at actual storage change, based on measured groundwater levels, provides a general understanding of where groundwater storage is changing in the basin. Regulatory and non-regulatory pumping, waste<u>water</u> discharge to surface water, irrigation practices, and hydrologic changes (i.e., stream and river flows, rainfall, and evapotranspiration) are all captured in this evaluation. A brief explanation of the contributing factors to storage changes in different parts of the South American Subbasin is provided below.

#### 2.6.2.1 Calculation of Change in Storage

**Figure 2-26** is a contour map of the differences between the water level contours for Fall 2015 and Fall 2005. This difference map was created by subtracting the grid values (water level elevations) for Fall 2005 from the grid values for Fall 2015. The map excludes the contours from the Folsom area, north of Highway 50 because water level was not measured in this area during Fall 2005.

**Figure 2-26** shows similar groundwater behavior information as **Figure 2-25**. However, **Figure 2-26** shows average increases and decreases of aquifer storage: an area of higher positive difference, as much as 15 feet (green contours), is located in the west-central portion of the South American Subbasin in the vicinity of the historic, relatively deep cone of depression.



Figure 2-26. Groundwater Difference Contours Showing Changes in Storage
Notably higher increases are also present along the American River, as much as 20 feet, likely due to increased flow periods over the last 10+ year period.

Declining water level areas (orange and red contours) in **Figure 2-26** occur on the eastern side of the subbasin. The larger area of decline, as much as 30 feet, is centered near the intersection of Highway 50 and Sunrise Boulevard, and is within the overall area of the Aerojet Superfund Site, the US Air Force Superfund project at Mather Field to the southwest, and the IRCTS project at Mather Field and along Douglas Road to the southeast. A second area of 30foot decline is located on the north side of the Jackson Highway with its center between remediation projects at Kiefer Landfill and along Douglas Road on the south side of the IRCTS. <u>The size of the gray diamond indicates the relative amounts of groundwater remediation</u> <u>occurring within this area of the subbasin.</u>

Reduced areas of storage are also located along the Cosumnes River within the South American Subbasin and further south within the Cosumnes Subbasin. These areas of decrease are likely related to agricultural production of groundwater, while municipal (Galt & Herald) production likely contributes to the area along Highway 104. The reasons for areas of significant storage losses attributed to the Cosumnes Subbasin appear complex, and may be due to fewer measurements in the subbasin. Nevertheless, this low level area extends northwestward into the South American Subbasin.

The areas of higher and lower water levels show a relatively small change in storage in comparison to the thick aguifer system (>1000 feet) beneath the South American Subbasin. For the 70-foot interval between the vertical limits (-45 to 25 feet msl) of the volume calculation, the higher water level (cut) area and volume were smaller than the lower water level (fill) area. The change in storage is estimated to be approximately 40,000 acre feet for the period between 2005 and 2015 or an average loss of 4,000 acre feet per year. This estimate is based on a 7.5 percent specific yield (DWR, 1974), which is consistent with other values of 7.0 and 7.6 percent (USGS, 1991, 1989). The volume estimate excluded the band of higher water level on the east side of the subbasin (Figure 2-26) because this higher-level area arises from a well in Folsom that was measured in 2015 but not in 2005. This average change in storage is comparable to the SacIGSM value of 6,200 acre-feet per year in Table 2-6 but smaller than the C2VSim value of 19,000 acre-feet per year, notwithstanding the differences in time periods. DWR (1974) estimated changes in storage for Sacramento County for a 7-year period, 1962 through 1698. Extracting the South American Subbasin portion (248,000 acres) from the total area of valley and hill lands (628,000 acres) produced an average loss of -9,000 acre feet per year (39 percent of the total). The DWR changes in storage were guite variable and ranged from a loss of 196,200 acre-feet per year in 1966 to a gain of 303,400 acre-feet per year in 1967. The

Chapter 2. Evaluating 10 Years of Operating within Sustainable Yield South American Subbasin Alternative Submittal Sacramento Central Groundwater Authority

average Water Year Index (WYI) for this 7-year period equated to above normal while the average WYI for the recent 11-year period is below normal.

Factoring this change <u>in storage</u> over the entire aquifer <u>storage</u> would likely <u>result in less than</u> <u>one</u> percentage decrease in storage for the South American Subbasin. Moreover, much of this small decrease can be attributed to groundwater remediation in the northeast and to the Cosumnes Subbasin in the southwest. \_This finding is consistent with the SacIGSM water budget provided in Table 2-6. (Note: Over 100,000 acre-feet of storage has been lost from the portion of the Cosumnes Subbasin shown on Figure 2-26, based on the above method.)

# 2.6.3 Degraded Water Quality

Quantitative water quality degradation thresholds that could affect pumping activities in the basin include:

- TDS not exceeding 1000 mg/L
- VOCs exceed established maximum contaminant levels
- Nitrates exceed primary drinking water standard (40 mg/l)

These constituents are sustainability indicators to conduct management actions in the subbasin. Below is an independent evaluation of available water quality data and studies representing the subbasin, to establish the current state of the subbasin and trends over the past 10+ years.

## 2.6.3.1 Current State of Water Quality

The overall quality of groundwater is adequate for most purposes within the South American Subbasin, notwithstanding the areas of known contamination and ongoing remediation activities in the northeastern portion of the subbasin. Groundwater quality assessments have been conducted within the subbasin, starting with the investigation of the Folsom-East Sacramento area (DWR, 1964), the investigation of the southern Sacramento Valley (USGS, 2008), and the assessment of the Sacramento-Amador Subwatershed (CH2M, 2016). <u>Three</u> Four basin management reports (BMRs) have been produced for SCGA and have included illustrations for the <u>geographic</u> occurrence of various water quality constituents, including total dissolved solids (TDS), iron, manganese, nitrate, and arsenic (RMC, 2014; SCGA).

In general, dilute and aggressive recharge water enters the groundwater system on the east side of the South American Subbasin. This water develops a mixed cation-bicarbonate composition (DWR, 1964, 1974; RMC 2015) as the carbon dioxide-rich water dissolves the calcium, magnesium, and sodium from the sediments. <u>Carbon dioxide is derived from the atmosphere and from the root zone to produce acidic conditions.</u> The concentrations of these

constituents increase as the groundwater migrates down-gradient and deeper into the aquifer system. The flow paths and residence times are not long enough for the groundwater to evolve to a sulfate- or chloride-rich composition, although the very deep unusable groundwater will be dominated by a sodium-chloride composition from the original marine deposition.

**Figure 2-27A** through **Figure 2-27F** illustrate variations in concentrations with time for the above constituents, plus chloride. The water quality data were obtained from the Geotracker GAMA website via a California Department of Health (CDPH) link for the South American Subbasin. These data were subdivided by sampling date into six 3-year intervals, beginning with 1998, and these six time intervals were plotted as "box and whisker" where the box represents the concentration range for the middle 50 percent of the data and the two whiskers each represent either the upper or lower 25% of the data. The concentration scale is on the right side of each illustration. The blue columns show the number of samples for each 3-year periods, with the scale on the left side. The database included numerous non-detects (ND) for nitrate, iron, manganese, and arsenic and the ND values were quite variable. As such, ND values were not included in these box and whisker plots.

The following table provides some general characteristics of these water quality constituents.

	TDS*	Chloride*	Nitrate*	lron‡	Manganese <u>‡</u> *	Arsenic‡
1998-2000 Median	170	8	11	170	11	6.8
2013-2015 Median	210	12	14	270	14	9.8
Non-Detects			18 – 25%	41 – 79%	20 – 57%	10 – 36%

Table 2-8. General Groundwater Quality Characteristics

\* Concentrations units in milligrams per liter or parts per million (ppm) ‡ Concentration units in micrograms per liter or parts per billion (ppb)

The concentration of these constituents show variable to slight increasing trends that are likely not related to the overproduction of groundwater. Rather, these naturally-occurring constituents, except for nitrate, could be expected to increase as the groundwater flow system became more dynamic during the last century of production, and due to wells that are drilled deeper to increase production capacity. Iron and manganese are known to be present in the deeper groundwater and development of this groundwater resource must include plans for treatment.

Arsenic is a constituent known to occur naturally in the aquifer sediments and some trace of arsenic would be expected to occur in shallow groundwater wells. This occurrence was not a





Figure 2-27. Groundwater Quality Box and Whisker Plots

significant issue until the public drinking water standard was lowered from 50 ppb to 10 ppb. The SCWA abandoned many of their older public supply wells in their Laguna service area by replacing with deeper wells designed for centralized treatment of iron and manganese. Private domestic well owners are notified and encouraged through outreach to have their water tested once a year for nitrates and arsenic. The BMRs provide an illustration on the <u>geographic</u> occurrence of arsenic as well as the other constituents.

## 2.6.3.2 Assessment Developed by GAMA Program

The Ground-Water Ambient Monitoring and Assessment program (GAMA) has addressed conditions throughout much of California via a spatially-unbiased selection protocol for wells and a comprehensive suite of laboratory analyses. A total of 83 wells were sampled from five regions in the Southern Sacramento Valley during 2005, including 16 wells within the South American Subbasin (USGS, 2008). All of these wells were measured in the field for specific conductance, an indirect measurement of TDS, and analyzed for isotopes (deuterium, oxygen-18, and tritium). Selected wells were analyzed for volatile organics (13), pesticides (6), and inorganic compounds and noble gases (5).

The GAMA assessment did not identify any eminent issues with the groundwater quality of the South American Subbasin, and recognizes the groundwater contaminant clean-up efforts taking place. The assessment reported that one of the five wells exceeded the secondary drinking water standard for manganese (230 ppb versus 50 ppb) and this well is located along the Sacramento River. Another of these wells exceeded the standard for 1,2,3-trichloropropane (0.006 ppb versus 0.005 ppb) and this well is located along the American River on the west side of Rancho Cordova, in the vicinity of former orchards and other agricultural lands as wells as downgradient of the Aerojet and Mather Field plumes. This volatile organic compound (VOC) is a cleaning solvent and is associated with pesticides. While the report indicated that the South American Subbasin had the highest frequency of VOC and pesticide detections compared to the other four subbasins, the source of contamination is influenced by past application and disposal practices and not associated with groundwater use or its management. The three most frequent VOCs included trichloromethane (chloroform), trichloroethylene (TCE), and tetrachloroethylene (PCE). The highest frequency pesticide included 2-chloro-4-isopropylamino-6-amino-s-triazine and atrazine.

## 2.6.3.3 Assessment Developed for Sacramento-Amador Subwatershed

The 2016 CH2M Hill assessment of the Sacramento-Amador Subwatershed relied on the 2006 GMP for its overall description of groundwater quality of the South American Subbasin and focused on the most recent sampling data for nitrate (317 wells) and salinity (TDS values for

447 wells). Some of these data were several decades old. They restated what is in the GMP as follows:

- Better quality groundwater is present in the upper aquifer system although arsenic can exceed its drinking water standard at some locations
- Higher TDS is present in the lower aquifer system
- Treatment may be required for iron and manganese
- Contaminant plumes emanate from several sources, including the Aerojet Superfund Site, the Mather Field Superfund Site, the Inactive Rancho Cordova Test Site (IRCTS), the former Army Depot, the former Southern / Union Pacific railyards, and Kiefer Landfill.

The Assessment text did not differentiate between the South American and Cosumnes Subbasins or the Amador County watershed to the Cosumnes Subbasin but the figures provide details for the South American Subbasin. Nitrate was found to exceed the drinking water standard during the 1980s in a group of wells along Snodgrass Slough on the east side of the Courtland / Delta Area. Nitrate concentrations are lower for other wells with more recent samples and this decrease is attributed to changes in agricultural land use. TDS was found to exceed the drinking water standards at several locations along Snodgrass Slough and within the Pocket area of Sacramento. An increasing TDS trend was shown for two locations between Elk Grove and the Pocket. The Assessment designated the Courtland / Delta Area as an area of high vulnerability to groundwater contamination by nitrate. The Assessment was completed to satisfy the regulatory requirements of the Irrigated Lands Program, with oversight from the State Regional Water Quality Control Board. All agricultural lands not under an existing point source discharge program, are subject to this program, and will require monitoring activities for the protection of drinking water supplies. Water quality degradation due to groundwater pumping, as defined and regulated through SGMA, is not occurring in the subbasin.

# 2.6.4 Land Subsidence

The current threshold for ground subsidence is 0.007 feet per foot of groundwater "drawdown" in the subbasin, as described in the 2006 GMP. Instead of "drawdown", the threshold should have referred to an overall 'water level decline' in the basin, as shown in Figure 2-28, since drawdown is present around any pumping well in operation. Similar to groundwater levels, the focus of land subsidence was on the cone\_-of\_-depression\_near Elk Grove. The correlation described below to arrive at the acceptable level of subsidence was performed on a well within the cone. The first trigger of subsidence is the measurement of subsidence in either the North American Subbasin or South American Subbasin. Below is the latest quantitative and descriptive understanding of ground subsidence in the South American Subbasin, and a reporting of information based on monitoring currently taking place in the southwest portion of the subbasin near the Delta.

#### 2.6.4.1 Land Subsidence Monitoring and Subbasin Designation

The South American Subbasin has been designated as an area with a medium to high potential for subsidence, based on a ranking process (DWR, 2014) that included groundwater conditions and the presence of historic and/or recent subsidence with some consideration of the CASGEM Overall Basin Priority. Groundwater conditions are ranked medium-high because water levels in 13 of 35 long-term monitoring wells (greater than 10 years) had water levels at or below historic lows. (One of these wells appears to be located within the Eastern San Joaquin Subbasin along the boundary with the South American Subbasin.) This ranking compared a well's historic spring low through 1998 to the recent spring low between 2008 and 2014. Actual subsidence was listed as historic – unknown period or amount, and a current subsiding trend at a continuous GPS station (P274) on the west side of the intersection of Interstate 5 and Twin Cities Road – 0.11 feet of subsidence versus a DWR threshold value of 0.1 foot. Moreover, the DWR Interactive Map provides a link to the GPS data which shows a trend between 5 and 10 inches but does not provide a time frame for this range. This trend designation may not be valid, based on a review of the daily GPS data (see Appendix 2D - Location and Data of Measured Subsidence Data for locations and data). Overall, positive trends were found for the daily values of 2006 and 2007, although the 2007 coefficient was less than half of 2006. Negative trends were found for 2008 through 2012, followed by positive trends during 2013 through 2015, although the 2014 coefficient is guite low due to highly variable daily readings for five or six months. (Note: The northern component of the GPS data shows a distinct positive trend while the eastern component of the data shows a more variable, but distinct negative trend.)





Subsidence at the GPS station was determined to be attributed to "oxidation of organic deposits", which is common in the Delta. According to the Delta Atlas (DWR, 1995), agricultural activities promote this oxidation which leads to subsidence, and the Atlas (and topographic maps) shows that land surface elevations are as much as 10 feet below sea level throughout most of the Courtland / Delta Area. The GPS station is located east of this sub-sea level area, within 3 miles.

As discussed above, the GMP identified a subsidence threshold of 0.007 feet of subsidence per foot of groundwater decline, based on a well (SWP-58 / 383884N1214167W001) in Elk Grove with falling water levels (~50 feet) and a bench mark (S9) with 0.35 feet of subsidence between 1947 and 1966. This well is located 7.6 miles north-northeast of the GPS station. Water levels at the well continued to decline (~20 feet) through 1983 and then increased (~30 feet) by 2004 – the last year of record. Subsidence typically includes a significant elastic component so this 10-foot net rise in water levels could have reduced the subsidence by 0.07 feet (0.84 inches) to 0.28 feet.

Based on current management and pumping practices, subsidence due to groundwater production in the South American Subbasin is <u>likely</u> minimal. Most of the wells with low water levels (11 of 13) are located in the eastern half of the subbasin where aquifers are likely to be coarser grained than the western half of the subbasin. Thick accumulations of interbedded aquitard and aquifer layers are not as prevalent as other locations within the Central Valley. As such, the production of groundwater will not likely induce a dewatering of aquitard layers or the collapse of these layers to produce significant subsidence.

During 2008, DWR and the US Bureau of Reclamation authorized a subsidence project throughout the Sacramento Valley using GPS technology (Frame Surveying & Mapping, 2008). Eight stations were located within the northeastern portion in the South American Subbasin in the vicinity of the declining water levels. These stations can be surveyed periodically to evaluate the potential for subsidence.

# 2.6.5 Depletions of Interconnected Surface Water

The Original SacIGSM has been <u>used to assess</u> impacts occurring to the subbasin's rivers and streams. The two trigger points for management actions have been a 5% and 25% increase over the Original SacIGSM Water Forum Solution Model loss rate based on total flow in the river.

The positive changes in groundwater elevations in the Elk Grove cone-of-depression have served to benefit rivers and persistent recharge sources hydraulically connected with the South

American Subbasin by reducing the gradient (or slope) of the hydraulic barrier from that included in the Original SacIGSM Water Forum Solution Model.

Below is the current understanding of potential areas where changes in river loss rates (positive and negative) from rivers and streams to groundwater in the subbasin could occur.

#### 2.6.5.1 Potential Changes in River Losses Due to Groundwater Pumping

Surface water provides substantial recharge to the groundwater resources of the South American Subbasin, as described above in the section on groundwater modelling. The most direct connections would occur with the uppermost groundwater at the same or somewhat deeper horizons as the rivers. The connection would become less direct with <u>increasing</u> depth<u>s</u> to water, depending on aquifer material and the presence and continuity of aquitard material. Levees along the American and Sacramento Rivers would limit the interconnection to the groundwater by reducing the floodplain. Levee cut-off walls would further restrict interconnections to the uppermost groundwater. Deeper groundwater is not readily connected to surface water, as evidenced by the two Aerojet plumes that have flowed under the American River and are being contained by extraction wells within the North American Subbasin.

The Cosumnes River is the last unregulated river in California, and its headwaters are relatively small and low in elevation compared to other rivers in California. These conditions do not allow a significant amount of runoff to flow into the valley and this flow has historically not lasted throughout the summer. Moreover, groundwater production on both sides of the river lowered the water table many decades ago and the <u>middle reaches of the</u> river have become disconnected from the groundwater system – long before the creation of the Water Forum or the Sacramento Central Groundwater Authority. Nevertheless, the Cosumnes River floodplain is a significant recharge area for the South American and Cosumnes Subbasins. This recharge is derived from flow down Deer Creek and the Cosumnes River and from irrigation waters that are applied to fields throughout the floodplain. The amount of recharge per subbasin is dependent on the directions and gradients of groundwater flow and on aguifer characteristics.

Restoration of flows in the Cosumnes River was not a specific goal of the 2006 SCGA GMP, although the SCGA GMP identifies an interest in this topic along with conjunctive use management and enhanced recharge in a reference to a Memorandum of Agreement between the Sacramento County Water Agency, The Nature Conservancy, and the Southeast Sacramento County Agricultural Water Authority. In addition, the Sacramento Regional County Sanitation District (SRCSD) has promoted the use of recycled water in the Elk Grove area for many years. The SRCSD released a draft Environmental Impact Report (RMC, 2016) in July 2016 for the use of 50,000 acre-feet per year of recycled water from its wastewater treatment plant. This project will contribute to groundwater storage and flows in the downstream portions of the

Cosumnes River, as well as the nearby Sacramento River, via in-lieu recharge by not pumping irrigation wells, recharge via deep percolation of the recycled water, and return flows to the Cosumnes River. Hydraulically connected recharge sources affected by the deepening of the Cosumnes Subbasin cone-of-depression, including <u>upper and lower</u> reaches of the Cosumnes River, are being impacted and require evaluation and updated modeling studies through a joint study effort between both subbasins as the Cosumnes GSP development takes place.

# 2.6.6 Seawater Intrusion

The South American Subbasin is not likely to experience seawater intrusion due to extractions of groundwater or groundwater management actions.

The Sacramento River does experience tidal fluctuations, approximately 3 feet per day, but does not contain seawater in the vicinity of the South American Subbasin. According to the Sacramento-San Joaquin Delta Atlas (DWR, 1995), salinity intrusions have not advanced beyond Brannan Island, 14 miles downstream of the Delta Cross Channel (southwestern limit of the South American Subbasin), during the period of 1944 through 1990, based on a chloride concentration of 1000 mg/l. During an earlier period (1921 to 1943), prior to the operation of the Shasta Dam, salinity intrusions occurred throughout the Delta and, in 1931, salinity intrusion extended 9 miles up the Sacramento River along the western boundary of the South American Subbasin (2 miles upstream of Courtland). More recent work indicates that salinity intrusions are unlikely to reach the western limit of the South American Subbasin, based on low electrical conductivity values (less than 200 micromhos per centimeter or 140 mg/l TDS) during August 1992, December 1999, July 2004, and June 2005.

# 2.7 Summary of Findings

This report has shown through multiple lines of evidence that the South American Subbasin, as a whole, has been operating within a locally-defined, long-term average sustainable yield for the past 10+ years as a result of stewardship practices of SCGA, its member agencies, and local agencies in the Delta Area.

<u>Groundwater</u> development <u>began during the early 1900s with the installation</u> of wells, and <u>became an important resource for</u> for urban and agricultural water supply. <u>This nominal 100-year time period is very short relative to the flow of groundwater and relative to geologic time</u>. Prior to <u>groundwater development</u>, the aquifer's deeper stored groundwater remained volumetrically and chemically static for millennia. Recent groundwater extractions and changes in surface water flow patterns have created a highly dynamic environment where both volumetric and chemical stabilities are constantly changing to reach new equilibria. The presented data in this report reflects these changes in a manner that is consistent with locally-defined groundwater management thresholds.

This report has also presented the necessary factual data to represent changes taking place as a result of using groundwater for beneficial purposes. In the case of groundwater levels, positive and negative changes are occurring throughout the basin, and will continue to occur, especially as the subbasin's groundwater levels strive to reach new equilibria. Water quality is also in flux, but at rates expected of an aquifer system with groundwater movement occurring through geologic strata now being exposed to groundwater with natural differences in chemical makeup.

Sustainability Indicators for the South American Subbasin show both positive and negative rates of change in the SGMA URs, with none of the negative URs considered to be directly related to non-regulatory groundwater extractions in the South American Subbasin. Additionally, changes occurring from outside influences are being ameliorated by adaptive management actions by its member agencies in cooperation with SCGA. All locally-adopted thresholds evaluated against the Sustainability Indicators indicate that none of the negative changes result in basin-wide undesirable results.

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# A. List of Appendices

Appendix 1A – SCGA Groundwater Management Plan
Appendix 1B – Water Forum Stakeholder Outreach Summary for Public Draft Alternative
Appendix 1C – Public Comment Letters and Responses
Appendix 1D – Delta Reclamation District MOU and Alternative Support Letter

Appendix 2A – Water Forum Agreement Groundwater Management Element	A-11
Appendix 2B – Detailed Pumping Data	A-13
Appendix 2C – Groundwater Hydrographs	A-15
Appendix 2D – Location and Data of Measured Subsidence Data	A-17

# Appendix 1A – SCGA Groundwater Management Plan

Final Draft Note: SCGA GMP is Available on SCGA Website

# Appendix 1B – Water Forum <u>Stakeholder</u> Outreach Summary for Public Draft <u>Alternative</u>

#### Sacramento Central Groundwater Authority Alternative Submittal for the South American Sub-basin Stakeholder Outreach Process

#### Summary Report November 23, 2016

#### Prepared by the Water Forum and the Consensus Building Institute

#### **O**VERVIEW

The Sacramento Central Groundwater Authority (SCGA) is proposing to put forward an Alternative Submittal for the South American Sub-basin to comply with the state's recently passed Sustainable Groundwater Management Act (SGMA).

Given the discussions and comments at SCGA Board and SGMA Subcommittee meetings earlier this year, SCGA staff asked the Water Forum to organize an intensive stakeholder outreach process to ensure interested parties have an opportunity to understand and share their perspectives on the South American Sub-basin Alternative Submittal (Alternative). The intent of the outreach process is to inform SCGA staff and board as they move forward with later stages of Alternative development and consideration.

This report, prepared by Water Forum staff and the Consensus Building Institute (CBI), a nonprofit organization that mediates and facilitates a wide range of complex public policy dialogues, is a summary of the key themes raised during the outreach process. It does not include comments submitted to SCGA as part of its more formal public comment process.

#### PROCESS

To foster in-depth discussions within and across stakeholder groups, the Water Forum and CBI designed an outreach process grounded in two distinct phases: first, a series of bi-lateral meetings between key stakeholder groups and SCGA staff and consultants, and then a cross-stakeholder workshop with SCGA to reflect back and discuss key themes from the bi-laterals. Water Forum Executive Director Tom Gohring convened the discussions; CBI Senior Mediator Bennett Brooks served as facilitator.

The effort focused on six stakeholder groups with a significant interest in and perspectives on the Alternative and the broader SGMA process: Cosumnes Coalition, Omochumne-Hartnell Water District, Sloughhouse Resource Conservation District, Elk Grove Water District/Florin Resource Conservation District, Sheldon residents and the Sacramento County Farm Bureau.

Most of the bi-laterals were small focused dialogues, while the meeting with the Farm Bureau was a broader workshop attended by numerous interested parties. The bi-laterals were held in October and early November; the cross-stakeholder workshop was held November 7. SCGA

staff and consultants (Darrell Eck, Jonathan Goetz, and Rodney Fricke) participated in all meetings, providing a detailed overview of the Alternative and participating in discussions with stakeholders.

The process was designed to foster feedback and engagement. It was not convened by the Water Forum with the intent to either promote or detract from the Alternative.

#### Key Feedback

The bi-lateral meetings and workshop proved to be an effective vehicle for deepening stakeholders' understanding of the Alternative and clarifying numerous uncertainties regarding the process and analysis. It also provided an important opportunity to highlight ongoing uncertainties related to the Alternative process, gauge the level of stakeholder support for the submittal and brainstorm some potential strategies for addressing concerns.

In general, stakeholders offered a range of views on the Alternative. Some entities and individuals were supportive (some broadly, others with qualifications). Some voiced significant concerns, with at least one entity explicitly recommending SCGA develop a Groundwater Sustainability Plan (GSP) instead. Still others were non-committal, using the meetings to get a better sense of the ramifications of the Alternative process without weighing in definitively on the merits of the approach. There was also general interest among many, though not all, regarding a possible "parallel process" (discussed in further detail below) to address concerns unable to be addressed through the more constrained Alternative filing process.

Below is a discussion synthesis, highlighting the key themes and findings that emerged from the conversations. It is not intended to serve as a meeting transcript. One important note: The discussions were deliberately structured to surface and discuss stakeholder concerns. Necessarily, this summary provides greater emphasis on reflecting these issues.

#### Areas of strength:

Discussions with stakeholders highlighted several benefits of the Alternative approach. For one, some stakeholders said, the Alternative builds on the technical work and structure already incorporated into the existing Groundwater Management Plan (GMP); building off the GMP provides a pathway to streamlined compliance with SGMA while avoiding the costs and allocation of resources associated with developing a GSP. These stakeholders also expressed confidence in SCGA as a public entity with a 10-year track record as a professional and responsive organization, and they noted that the Alternative offers the potential to focus the next five years on further implementation of groundwater management actions rather than on planning activities that would be the focus of GSP development.

Another advantage, some said, is the potential for the Alternative process to foster regional collaboration; moving forward with the existing GMP, these individuals said, provides a platform for minimizing cross-entity conflicts. Stakeholders also saw the Alternative as providing a solid basis for dialogue with Cosumnes Sub-Basin interests on cross-basin

coordination. Finally, to the extent the Alternative fosters ongoing implementation and serves as a catalyst for beyond-GMP actions (e.g., addressing longstanding concerns with the Cosumnes River), the Alternative process is seen as a potential vehicle for setting standards of good stewardship within the region.

#### Areas of concern:

Stakeholder discussions highlighted several areas of concern. Most broadly, these concerns centered on the look-back nature of the Alternative, the uncertainty surrounding the ability to make changes in the approach outlined in the GMP, and the limited time for in-depth stakeholder dialogue on the Alternative itself. Below is a summary of these key topics.

• **De facto baseline.** Inherent in the 10-year look back is the requirement to assess groundwater sustainability in the context of the existing GMP. To some, this approach is seen as appropriate given the apparent progress made on maintaining sustainable groundwater levels. Others, however, see this approach as troubling as it seems to lock in a *de facto* baseline that will then shape and constrain groundwater sustainability dialogues as they move forward. Some stakeholders, for example, said this is problematic as it appears to hard-wire in a sustainable yield figure before neighboring sub-basins (e.g., those with a 2022 GSP deadline) have an opportunity to conduct the technical work that may necessitate reconciliation with South American Sub-basin data.

There are also concerns that the current baseline does not adequately address and assign the benefits of recharge activities currently occurring along the Cosumnes River. (One stakeholder recommended that SCGA conduct a joint study of groundwater isotopes to determine the movement of water under and near the Cosumnes River.) Additionally, a number of stakeholders voiced concern that the Alternative pathway lacks forward-looking actions to address changed conditions (e.g., shifting land use patterns, climate change impacts, etc.) that have either occurred since the GMP was adopted or are likely to occur in the coming years.

Governance challenges. There is recognition among stakeholders that the Alternative filing raises a number of governance challenges. While some suggested there may be viable pathways to address many of these concerns (several stakeholders said that recent actions by the SCGA Board has demonstrated to them that governance issues have and likely will continue to be satisfactorily resolved), other stakeholders cited several specific considerations. Some stakeholders strongly suggested that there is the need to reconcile the jurisdictional overlap with entities (Sloughhouse RCD, Omochumne-Hartnell WD) already filed to be GSAs north of the Cosumnes River. There was also concern that the current SCGA board structure, focus and functions may not be sufficient to guide implementation into the future. (For example: Sloughhouse RCD is not currently represented on the board.) Some also said they fear a loss of autonomy and voice as future decisions regarding groundwater management and any associated pumping restrictions and/or fees would shift from individual entities responsible for

managing groundwater usage within their jurisdictions to the larger SCGA board. This was seen as a particularly acute concern from some agricultural interests who fear getting out-voted by urban interests and worry about an influx of top-down and high-cost regulations. Others said they worry about paying for other water users' overdraft. Finally, for some entities, there is unwanted complexity and costs associated with jurisdictions being split across two sub-basins.

• *Environmental concerns.* A key requirement of the Alternative is the demonstration that the sub-basin has been sustainable for the past 10 years. To some, this assertion is too easily misread as an "all is well" message regarding the Cosumnes River. This triggers several concerns. For one, they said, it makes it challenging to galvanize the funding and political will necessary to address longstanding environmental problems on the Cosumnes (in-stream flow needs, protecting fall run Chinook, etc.); some stakeholders expressed concern that the Alternative creates an impression that the Cosumnes River is not having problems related to groundwater. Secondly, it picks at a lingering frustration regarding the failure of parties to fully implement the Memorandum of Agreement (MOA) entered into by the Sacramento County Water Agency (SCWA), The Nature Conservancy, and the Southeast Sacramento County Agricultural Water Authority to manage water and environmental resources along the Cosumnes River. Finally, the Alternative is seen as constraining opportunities to protect important groundwater-dependent ecosystems along the river as discussed and required by SGMA.

Some stakeholders pointed out, however, that the 10-year lookback framework of the Alternative essentially creates a 2005 baseline for Cosumnes River conditions, which would be more rigorous than the 2015 baseline required under a GSP.

- Sustainability indicator/undesirable results. The Alternative is inherently a look-back which makes the case that the sub-basin has been sustainable over the past 10 years and does not have any of the six undesirable results described under SGMA. In reviewing the technical data with SCGA staff, several stakeholders voiced concern that falling groundwater levels are potentially problematic and inconsistent with SGMA objectives, even if some areas are caused by remediation pumping. In particular, stakeholders pointed to areas along the Cosumnes River and in the northeast section of the sub-basin. (Other stakeholders acknowledged that the lower groundwater levels are signs of potential concern, but do not rise to the level of undesirable effects.) Additionally, some said the groundwater disconnect with the Cosumnes River is likely expanding (both in terms of depth and length) and could lead to worsening impacts on groundwater dependent ecosystems. Finally, several stakeholders voiced concerns that pumping in the Cosumnes Sub-basin is negatively impacting groundwater sustainability in the South American Sub-basin.
- Lack of proactive focus. For some, the crux of their concerns with the Alternative are rooted in their sense that the reliance on the 2006 GMP (and DWR's direction that the

Alternative must be backwards-looking only and not incorporate new programs) unnecessarily limits the scope of future activities within the sub-basin. There is, for example, uncertainty regarding the extent to which the SCGA Board can adapt the plan moving forward to address changed conditions. Does the GMP, some wonder, freeze actions only to those already articulated in the GMP? There are also concerns that the Alternative filing sidesteps what some described as a fundamentally more comprehensive planning approach envisioned under SGMA's GSP planning process, one that looks forward from 2015 to identify the water use needs and land use changes that will drive future groundwater demand. Finally, there is a strong interest among a number of stakeholders in an SCGA staff and board that is more proactive in supporting groundwater management and exercising leadership, including greater support of river restoration projects.

- Other considerations. Not surprisingly, discussions with and across stakeholder groups generated extensive feedback on numerous other issues. Below is a quick summary of some of these additional considerations.
  - Stakeholder engagement. While stakeholders welcomed the outreach effort, some suggested the overall outreach was "too little, too late, too fast," and they suggested more time was needed for stakeholders to be made aware of and adequately review and consider the merits of the Alternative. Others, it should be noted, expressed satisfaction with the process given the technical work required, the focused bi-laterals and the impending January 1, 2017, deadline, less than six months after the release of the DWR regulations.
  - Future land use. Some stakeholders voiced concern that the Alternative has the potential to constrain and/or shape future land use, whether that means impacting cropping patterns, limiting the economic viability of agricultural lands, accelerating urbanization or constraining land use conversions.
  - Process considerations. Stakeholders raised several questions and concerns regarding the Alternative process itself, including: (1) DWR's timeline for reviewing the submittal; (2) ramifications of the Alternative's overlap with GSA filings by Sloughhouse RCD and Omochumne-Hartnell WD; (3) the structure, legal underpinning and implications of the review process; (4) the details and basis for coverage under the California Environmental Quality Act (CEQA); and (5) the nature of County Board of Supervisors involvement, if any.
  - Trust-related considerations. Some stakeholders suggested that past and ongoing dynamics – incomplete execution of the Consumes River-focused MOA, limited funding/implementation of GMP actions (e.g., well protection program); cross-basin tensions, etc. – undermine their confidence in and willingness to support the Alternative process.
  - Level of detail. Stakeholders pointed to several aspects of the Alternative filing that they felt lacked sufficient detail. For example, some noted the need to articulate greater clarity on the process and timing for cross-basin coordination on technical analyses. There were also recommendations to more fully

document remediation sites within the sub-basin and clarify SCGA's ability to accurately track water usage by agriculture.

#### Strategies Moving Forward

Though the primary focus of stakeholder outreach centered on explaining and seeking feedback on the Alternative, discussions also included initial brainstorming on strategies to address issues raised during the dialogues. Below is a brief synthesis of the ideas discussed. It is important to note that these ideas are not intended to represent an agreed-upon package of actions. Rather, they reflect individual ideas raised and discussed and are provided to inform future deliberations and be comprehensive in reporting out the stakeholder outreach process.

- **Range of reactions.** As noted earlier, participants offered a range of reactions regarding next steps. At least one entity strongly recommended scrapping the Alternative process and developing a GSP instead. Several groups encouraged SCGA staff to pursue the Alternative but flagged areas needing to be addressed or clarified. Still others offered contingent support pending SCGA's commitment to meaningfully address perceived deficiencies (either within the Alternative, as possible, or on a parallel path). Finally, some stakeholders opted not to characterize their level of support.
- Various strategies for addressing concerns. Some stakeholder comments focused on suggesting specific changes to the Alternative to address concerns. These changes tended to be few and narrower in scope and focused on topics such as better delineating groundwater contamination sites within the sub-basin, better articulating recent changes to land use and irrigation methods in the Cosumnes and South American Sub-basins or more strongly emphasizing the importance of the existing well protection program. More typically, participants suggested approaches that fall beyond the scope of the Alternative (and the 10-year look-back). These include the following:
  - Actively work to communicate to the SCGA Board and stakeholders the scope of actions included with the 2006 GMP and the latitude they provide to address longstanding environmental concerns and changed conditions. This was a key issue that emerged during the cross-stakeholder dialogue.
  - Articulate a clear commitment to engage in cross-basin coordination agreements. Such commitments would identify a process to seek a technically sound and mutually agreeable approach to resolve issues ranging from confirming sustainable yield to establishing an accurate mechanism for recharge accounting.
  - Engage in dialogue to address the jurisdictional overlap between the Alternative and Sloughhouse RCD and Omochumne-Hartnell WD GSA filings in the South American Sub-basin. Some participants advocated for SCGA (and other entities, such as the County of Sacramento) to support the Sloughhouse RCD proposed basin boundary changes. Others suggested a dialogue to establish a mutually agreed upon area with a separate or overlapping governance structure that

better represents the agricultural interests of each area with overlapped GSA filings.

- Articulate a clear commitment to partnering with others to increase groundwater recharge in and near the Cosumnes River and to complete the Cosumnes River pre-wetting project.
- Consider governance changes within SCGA to ensure that areas potentially impacted by the Alternative have an adequate voice. Potential changes include, among others, broadening representation on the SCGA board, revisiting SCGA board decision-making protocols and considering mechanisms for assigning fees.
- Explore the concept of management zones as a construct for characterizing specific sustainability challenges (and potential remedies) within more narrowly defined areas. Such an approach could be helpful, several stakeholders said, both to address underlying water management needs and provide assurances that remedies will be targeted at the appropriate water users.
- Articulate a credible outreach strategy to, as best as possible, ensure water users are fully informed of groundwater management activities and providing ongoing input into the implementation of the Alternative. This was seen as particularly important to engage stakeholders who will be responsible for shouldering the costs of any groundwater management actions.
- Merit of parallel path. While some stakeholders were opposed to the Alternative (as noted earlier), there was interest among some in exploring the viability of a "parallel path" to address concerns that do not fit within the construct of the 10-year look-back. The exact look and feel of a parallel process was not well defined, but the discussion centered on a process (external to the Alternative filing) by which SCGA would articulate and commit to tackle a wide range of concerns as described above. Discussions would need to start in the very near-term to buttress stakeholder confidence in the Alternative process.

Tom Gohring (Water Forum) noted that the Alternative's board-approval process may offer a potentially viable mechanism to track and assure implementation of a parallel path, given SGMA's requirements that areas filing Alternatives still need to submit annual reports and more substantial 5-year assessments to confirm ongoing sustainability. The table diagram below highlights similarities and distinctions between the two paths.



#### **FINAL THOUGHTS**

The Water Forum is appreciative of the opportunity to support SCGA and stakeholders in this important dialogue and remains open to providing its resources, staff and consultants to further constructive dialogue in the months ahead.

# Appendix 1C – Public Comment Letters and Responses

# 1.1 Introduction

SCGA appreciates and acknowledges the extraordinary effort of its stakeholders in reviewing the draft Alternative Submittal document and taking the time to address questions and concerns in their letters to SCGA. To fully respond to the stakeholders, this appendix includes a table of responses to comments and questions, and a copy of the Water Forum Public Outreach Report and all public letters received during the 30 day Public Draft review period. The image of each page of comments includes inserted brackets with number and letter nomenclature to identify the source of each question/concern to assist in identifying cross referencing the reviewers comments and the response provided in the preceding table.

The Water Forum Outreach Report is considered an umbrella document to the public letters since many of the same questions are raised in both documents. The order of documents begins with the Water Forum report followed by individual letters grouped by stakeholder category. The numbering of each comment refers to the ID of the Public Comment letter and the comment number for the letter.

For example:

- C(WF)-1 refers to the first comment in the Water Forum Outreach Report.
- C1-3 refers to the third comment in the first letter (listed below as the Cosumnes Coalition).

The order and numerical number assigned to each comment letter is as follows:

## ID Interested Party

- WF Water Forum Outreach Report
- 1 Cosumnes Coalition (Trout\_UnImtd) Trout Unlimited and Partners in Cosumnes Coalition
- 2 Florin Resources Conservation District
- 3 Omochumne-Hartnell Water District
- 4 KRONICK, MOSKOVITZ, TIEDEMANN & GIRARD representing Sloughhouse Resources Conservation District
- 5 EKI representing Sloughhouse Resources Conservation District
- 6 Suzanne Pecci representing Sheldon area Residents
- 7 Carl Werder representing Agricultural Residential Users of Groundwater

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# **1.2** Public Letter Comments and Responses

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Commenter	Comment No.	Page No. Section No.		Category	Comments and Responses		
Sacramento Area Water Forum Successor Effort	C(WF)-01	0	2.2	SGMA-Statute	Some see the Alternative approach as troubling as it seems to lock in a de facto baseline that will then shape and constrain groundwater sustainability dialogues as they move forward. Some stakeholders, for example, said this is problematic as it appears to hard-wire in a sustainable yield figure before neighboring sub-basins (e.g., those with a 2022 GSP deadline) have an opportunity to conduct the technical work that may necessitate reconciliation with South American Sub-basin data.		
				SCGA Response	The Alternative's "approach" to SGMA compliance is not intended to and does not constrain future discussions between neighboring basins; it is an analysis and report concerning basin conditions over the last ten (10) years in accordance with the provisions of SGMA. The Water Forum established sustainable yields for the three major groundwater basins in Sacramento County and this should be a starting point for both basins. It is also important to understand that member agencies have been financing, building, and operating facilities integral to sustainable groundwater management. The basis for investment in these facilities is the Water Forum Agreement's sustainable yield.		

1

The parameters defining sustainable yield are going to be different for each subbasin. If an adjacent subbasin desires to conduct technical studies which include the South American Subbasin, the SCGA Board of Directors can decide to revisit the sustainable yield at any time and, as in the past, cooperate in regional technical studies.

Commenter	Comment No.	Page No. Section No.	Category	Comments and Responses
Sacramento Area Water Forum Successor Effort	C(WF)-02	0	SCGA-Policy	There are concerns that the current baseline does not adequately address and assign the benefits of recharge activities currently occurring along the Cosumnes River.
			SCGA Response	In this case, the term "baseline" implies there is some fixed set of groundwater conditions defining a beginning point to measuring change in sustainability indicators over time. SCGA is not proposing the use of a baseline set of conditions, and states that it is managing groundwater to numeric thresholds negotiated by local stakeholders and documented in the 2006 GMP.
				Past scientific studies completed by SCGA to report groundwater conditions (e.g., Biennial Basin Management Reports and 2015 RMC Recharge Mapping and Field Study TM) are utilized to provide a snapshot in time to compare against the 2006 GMP thresholds using the GMP management area, and not the South American Subbasin. Additionally, the SacIGSM model (used for the development of the Water Forum Agreement and development of the 2006 GMP and the 2011 South Basin GMP) includes assumptions for recharge activities along the Cosumnes River Corridor which are then reflected in model-based reporting.
Sacramento Area Water Forum Successor Effort	C(WF)-03	0		A number of stakeholders voiced concern that the Alternative pathway lacks forward-looking actions to address changed conditions (e.g., shifting land use patterns, climate change impacts, etc.) that have either occurred since the GMP was adopted or are likely to occur in the coming years.
			SCGA Response	The content of the Alternative is constrained by SGMA (and the GSP Emergency Regulations) to show 10 years of groundwater operations within a subbasin's sustainable yield. A GSP will likewise be constrained to list only those actions which address quantified undesirable results over the 20 year compliance period.
				Neither of these SGMA compliance approaches prohibit an agency from adapting to changed conditions and partnering with other GSAs to take combined adaptive actions to address changed conditions and issues of regional and environmental importance as better science is conducted and understood.
Commenter	Comment No.	Page No. Section No.	Category	Comments and Responses
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ommenter				
Sacramento Area Water Forum Successor Effort	C(WF)-04	0		Some stakeholders strongly suggested that there is the need to reconcile the jurisdictional overlap with entities (Sloughhouse RCD, Omochumne-Hartnell WD) already filed to be GSAs north of the Cosumnes River.
			SCGA Response	Comment noted. The Alternative is declaring that SCGA's member agencies have been actively managing groundwater in the South American Subbasin which has resulted in a net benefit to the subbasin.
Sacramento Area Water Forum Successor Effort	C(WF)-05	0		There was concern expressed by some that the current SCGA board structure, focus and functions may not be sufficient to guide SGMA implementation into the future. (For example: Sloughhouse RCD is not currently represented on the board.)
			SCGAResponse	Comment noted. The SCGA board is intended to represent all stakeholders in the subbasin. If a local agency or groundwater user desires to be included as a board member, this matter should be brought before SCGA's board. The diversity of the board is intended to be distributed across all groundwater use sectors, not favoring one over another.
Sacramento Area Water Forum Successor Effort	C(WF)-06	0		Some indicated they fear a loss of autonomy and voice as future decisions regarding groundwater management and any associated pumping restrictions and/or fees would shift from individual entities responsible for managing groundwater usage within their jurisdictions to the larger SCGA board.
			SCGAResponse	There has been no loss of member agency autonomy over the past 10 years, and the SCGA Board has open public meetings that provide stakeholders the opportunity to voice concerns over loss of autonomy now and into the future. The diversity of the SCGA board provides a platform for balanced discussion. The Alternative does not change the existing model of associating who should bear the cost of groundwater management, or the financial considerations afforded to agricultural users of groundwater.

Commenter	Comment No.	Page No. Section No.	Category	Comments and Responses
Sacramento Area Water Forum Successor Effort	C(WF)-07	0	CEQA	Some said they worry about paying for other water users' overdraft. For some entities, there is unwanted complexity and costs associated with jurisdictions being split across two sub-basins.
			SCGA Response	SCGA's water purveyors and groundwater users (all with representation on the board) work towards a common goal of improving groundwater conditions and not exceeding the sustainable yield. Throughout the Alternative's 10- y e a r period, no instance of long-term "overdraft" (i.e., pumping exceeds the amount of recharge) has occurred.
				Cross-basin splits as a result of SGMA are occurring for many California agencies up and down the Central Valley. SCGA maintains a high degree of transparency for purposes of communication and
Sacramento Area Water Forum Successor Effort	C(WF)-08	0 2.7.5.1	SGMA-Process	Some claim that the Alternative is easily misread as an "all is well" message regarding the Cosumnes River.
			SCGA Response	The Alternative (Section 2.7.5.1) is constrained to evaluating the 10-year change in water levels beneath the Cosumnes River.
				In addition, the following statement is included in Chapter 2:
				opportunities for integrated water management including groundwater recongical resource and presents environmental flows. Past actions from the 2006 GMP include "recognition, enhancement, and maintenance of the ecological values of the Cosumnes River."

Commenter	Comment No.	Page No. Section No.	Category	Comments and Responses
ommenter				
Sacramento Area Water Forum Successor Effort	C(WF)-09	0		Some claim that the Alternative creates the impression that the Cosumnes River is not having problems related to groundwater and picks at a lingering frustration regarding the failure of parties to fully implement the Memorandum of Agreement for the Management for Water and Environmental Resources Associated with the Lower Cosumnes River (MOA) entered into by the Sacramento County Water Agency (SCWA), The Nature Conservancy, and the Southeast Sacramento County Agricultural Water Authority to manage water and environmental resources along the Cosumnes River.
			SCGA Response	See response to comment C(WF)-08. SCGA was not a party to the MOA.
Sacramento Area Water Forum Successor Effort	C(WF)-10	0		Some claim that the Alternative is seen as constraining opportunities to protect important groundwater- dependent ecosystems along the river as discussed and required by SGMA.
			SCGA Response	Comment noted. The Alternative itself is not applying constraints or actions on the groundwater or surface water resources. SCGA's board may consider new science (i.e., improved Ag and Ag-Res estimates of water use) regarding groundwater- dependent ecosystems and climate change, and in addressing quantifiable concerns, to the extent that groundwater management actions can benefit.
Sacramento Area Water Forum Successor Effort	C(WF)-11	0		Some expressed concern that falling groundwater levels are potentially problematic and inconsistent with SGMA objectives, even if caused by remediation pumping.
			SCGA Response	Comment noted. Falling groundwater elevations are an expected outcome of the negotiated sustainable yield, conjunctive use operations in dry year conditions, groundwater remediation, and drought conditions in the natural streams and rivers.

Commenter		Comment No.	Page No. Section No.	Category	Comments and Responses
Sacramen Water For Successor	to Area <sup>-</sup> um Effort	C(WF)-12	0		Some expressed the belief that the groundwater disconnect with the Cosumnes River is likely expanding (both in terms of depth and length) and could lead to worsening impacts on groundwater dependent ecosystems. Finally, several stakeholders voiced concerns that pumping in the Cosumnes Sub-basin is negatively impacting groundwater sustainability in the South American Sub-basin.
				SCGA Response	See response to Comment C(WF)-08. The Alternative analyzes groundwater levels in the area of the Cosumnes River and the potential impacts to surface water.
Sacramen Water For Successor	to Area <sup>-</sup> um Effort	C(WF)-13	0		Some expressed uncertainty regarding the extent to which the SCGA Board can adapt the plan moving forward to address changed conditions. Does the GMP, some wonder, freeze actions only to those already articulated in the GMP?
				SCGA Response	SGMA prohibits renewal of existing GMPs after January 1, 2015 under most circumstances. SCGA as a JPA, however, has broad common powers and authorities to manage groundwater if the SCGA Board elects to do so.
Sacramer Water Fo Successor	nto Area rum r Effort	C(WF)-14	0		The Alternative filing sidesteps what some described as a fundamentally more comprehensive planning approach envisioned under SGMA's GSP planning process, one that looks forward from 2015 to identify the water use needs and land use changes that will drive future groundwater demand.
				SCGA Response	An Alternative analyzing and demonstrating ten (10) years of a subbasin operating within its sustainable yield is authorized by SGMA as a substitute to a GSP if the Alternative satisfies the objectives of SGMA. Similar to SCGA's current objectives, SGMA's objectives are to protect and manage groundwater to prevent excessive groundwater extraction that causes undesirable results and long-term overdraft. The Alternative will not be approved by the California Department of Water Resources if it does not satisfy the objectives of SGMA.

Commenter	Comment No.	Page No. Section No.	Category	Comments and Responses
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Sacramento Area Water Forum Successor Effort	C(WF)-15	0		The Alternative has the potential to constrain and/or shape future land use, whether that means impacting cropping patterns, limiting the economic viability of agricultural lands, accelerating urbanization or constraining land use conversions.
			SCGA Response	Comment noted. The Alternative analyzes the regions management of groundwater over the past 10 years. The Alternative does not prescribe future land use, and both SCGA's JPA and SGMA itself restrict land use issues to the land use agencies.
Sacramento Area Water Forum Successor Effort	C(WF)-16	0		Some noted the need to articulate greater clarity on the process and timing for cross- basin coordination on technical analyses. There were also recommendations to more fully document remediation sites within the sub-basin and clarify SCGA's ability to accurately track water usage by agriculture.
			SCGA Response	The Alternative is a 10-year technical evaluation of the groundwater operations within the South American Subbasin. Coordination agreements and cross basin policies may be proposed through other SCGA Board actions. Detailed documentation of remediation sites for the Alternative is not possible given the number of sites, and the nature of working with each party in developing an accurate site characterization. With regard to tracking agriculture's use of groundwater, SCGA's use of monthly satellite imagery for actual evapotranspiration as input into a State DWR-authored calibrated soil moisture model provides a very high degree of accuracy at a significantly lower cost than installing and reading meters.
Sacramento Area Water Forum	C(WF)-17	0		Recommendation of scrapping the Alternative process and developing a GSP instead.
			SCGA Response	As stated in the State July 26, 2016 Finding of Emergency (Gov. Code, § 11346.1, subd. (b); Cal. Code Regs., tit.1, § 50.), page 13, "Alternatives are required by SGMA to accomplish the same goals as a GSPthe Department requires evidence that the geology and hydrology of the basin is sufficiently understood, that reasonable interpretations have been based on that information, and that the potential for undesirable results is understood and that effects that might give rise to undesirable effects are avoidable. Alternatives must be able to demonstrate, among other things, adequate information about the basin setting, the potential for undesirable results, and the monitoring system used to obtain the data used to make these interpretations."

7

Commenter	Comment No.	Page No. Section No.	Category	Comments and Responses
Sacramento Area Water Forum Successor Effort	C(WF)-18	0		There was interest among some in exploring the viability of a "parallel path" to address concerns that do not fit within the construct of the 10-year look-back.
			SCGA Response	Comment noted. The concerns raised and identified in the "parallel path" can be addressed by the SCGA Board and other regional stakeholders going forward.
Trout Unlimited and Partners in Cosumnes Coalition	C1-01	0	SGMA-Statute	SCGA is submitting to the Department of Water Resources (DWR) to be exempt, at least temporarily, from the planning and management activities mandated by SGMA, pursuant to a provision of the statute which permits the submittal of "an analysis of basin conditions that the basin has operated within its sustainable yield over a period of at least 10 years."
			SCGA Response	SCGA may submit a SGMA-authorized Alternative to a GSP, and is not seeking to be exempt from SGMA or necessary planning and management activities.
				SCGA is authorized to continue management of the basin pursuant to the 2006 GMP; this foundational document includes the means to address all of the issues raised in the Alternative's Public Draft Comments related to the remediation, basin coordination, and the Cosumnes River. Upon State approval of the Alternative, an Alternative "check-in" report is to be submitted every five (5) years to validate the continued sustainability of the subbasin.

Commenter	Comment No.	Page No. Section No.	Category	Comments and Responses
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Trout Unlimited and Partners in Cosumnes Coalition	C1-02	0	SGMA-Statute	We believe that the authors of SGMA intended this [Alternative Submittal] "exemption" to be available to basins with a long track record of successful groundwater management, with a SGMA-relevant definition of "sustainable yield," with active monitoring programs in place to assess ongoing impacts on groundwater dependent ecosystems and relevant trends, with a relatively stable land use environment, and with a sound understanding of potential climate change impacts on the basin and a framework of measures in place to monitor and address those impacts.
			SCGA Response	See response to Comment C1-01. The Alternative contains a conservative analysis of sustainability over a 10-year operation period, as that period contains and ends in one of the worst droughts in California since 1977.
Trout Unlimited and Partners in Cosumnes Coalition	C1-03	0 2.4	SGMA-Statute	The SCGA "alternative" speaks only to the overall amount of water pumped, not to the acknowledged challenges and opportunities that SGMA is intended to address.
			SCGA Response	See C(WF)-03
				The Alternative speaks to all twelve water budget elements with pumping also being used to evaluate whether subbasin operations are within the long term average sustainable yield of the groundwater subbasin
Trout Unlimited and Partners in Cosumnes Coalition	C1-04	0	Edits-Language	The Coalition asks for an acknowledgement by SCGA in the "alternative" filing that SCGA's existing Groundwater Management Plan identifies the Cosumnes River as highly significant, both for the importance of its ecological resources and for its recharge capability.
			SCGA Response	See response to Comment C(WF)-08.

Commenter	Comment No.	Page No. Section No.	Category	Comments and Responses
Trout Unlimited and Partners in Cosumnes Coalition	C1-05	0	SGMA-Process	Werequest that the "alternative" filing include a statement of intent to develop programs and policies that achieve enhanced recharge and ecological benefits in tandem.
			SCGA Response	Comment Noted. See response to Comment C1-03.
Trout Unlimited and Partners in Cosumnes Coalition	C1-06	0	SCGA-Policy	We encourage SCGA to continue to engage interested parties in the "parallel track" discussions, with the goal of committing SCGA (or the appropriate agency) to participate in The annual flow augmentation/channel pre-wetting program identified in the February 2005 3-party Memorandum of Agreement [i.e. "Memorandum of Agreement for the Management for Water and Environmental Resources Associated with the Lower Cosumnes River: A Collaboration of the Sacramento County Water Agency, The Nature Conservancy, and Southeast Sacramento County Agricultural Water Authority".]
			SCGA Response	See response to Comment C(WF)-18.

Commenter	Comment No.	Page No. Section No.	Category	Comments and Responses
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Trout Unlimited and Partners in Cosumnes Coalition	C1-07	0	SCGA-Policy	We encourage SCGA to continue to engage interested parties in the "parallel track" discussions, with the goal of committing SCGA (or the appropriate agency) to participate in Pro-active multi benefit recharge and monitoring activities, such as support of Omochumne Hartnell Water District's off season irrigation project and participation in exploring wireless network monitoring and analysis options being developed in coordination with UC Water.
			SCGA Response	See response to Comment C(WF)-18.
Trout Unlimited and Partners in Cosumnes Coalition	C1-08	0	SCGA-Policy SCGA Response	We encourage SCGA to continue to engage interested parties in the "parallel track" discussions, with the goal of committing SCGA (or the appropriate agency) to participate inInitiating a broad dialog between the SCGA board and staff and interested parties, including the Coalition, about multi benefit goals for the future. Potential shared interests might include participation in regional storm water resource planning efforts, providing technology and knowledge resources to SCGA Board member organizations, and supporting mutually identified recharge project grant applications with letters of support or technical information. See response to Comment C(WF)-18.

Commenter	Comment No.	Page No. Section No.	Category	Comments and Responses
Trout Unlimited and Partners in Cosumnes Coalition	C1-09	0	SCGA-Policy	The Coalition is ultimately less interested in the pathway by which SCGA achieves formal SGMA compliance than in seeing a rapid and effective shift by SCGA toward that pro-active groundwater regime.
			SCGA Response	Comment noted.
Florin Resource Conservation District	C2-01	0	Edits-Language SCGA Response	Recommend Executive Summary not exceeding 4 – 5 pages, summarizing what is in Alternative and why it should be approved. Executive Summary chapter added.
Florin Resource Conservation District	C2-02	0.4 TOC	Edits-Language	Pg. vi - Include Functional Equivalency (FE), Florin and Memorandum of Understanding (MOU) in the List of Acronyms.
			SCGA Response	Addition made.

Commenter	Comment No.	Page No. Section No.	Category	Comments and Responses
ommenter				
Florin Resource Conservation District	C2-02	0	Edits-Language	Compile Document as if one submittal with single TOC, etc.
			SCGA Response	The purpose of having Chapter 3 – Functional Equivalency somewhat independent of other chapters is to clearly distinguish and highlight that Chapter 3 is an administrative requirement of the GSP Regulations and can be reviewed independent (separated) from 10-year analysis of Chapters 1 and 2. Final submittal will be a single submittal, but will still have separate table of contents reflecting GSP Regulations for ease in review by state.
Florin Resource Conservation District	C2-04	0.2 TOC	CEQA	Pg. ii, the Notice for Public Comment cites that staff believes the Submittal is categorically exempt from CEOA pursuant to CCR Title14, Section 15308. In the final document, we suggest that the reference to a categorical exemption include the actual text of the CCR section in addition to the CCR section number so that the reader doesn't have to look it up.
			SCGA Response	Comment noted.
Florin Resource Conservation District	C2-05	1.6 1.1.5	Edits-Language	Pg. 1-6, section 1.1.5, 2nd paragraph - The last sentence does not read correctly.
			SCGA Response	Corrections made.

Commenter	Comment No.	Page No	. Section No.	Category	Comments and Responses
Florin Resource Conservation District	C2-06	1.9	1.2	Edits-Language SCGA Response	Pg. 1-9, section 1.2, item 10 - The reference to SGMA is misplaced since SGMA wasn't around in 1995. Suggest rephrasing. Corrections made.
Florin Resource	C2-07	1.14	1.5.1	SGMA-Process	Pg. 1-14, section 1.5.1, 1st paragraph - The first sentence states SCGA has prepared the Alternative to
Conservation District					conform with SGMA's promotion and support for local actions to sustainably manage groundwater subbasins, recognizing and preserving the authority of cities and counties to manage groundwater pursuant to their police powers. The EGWD disagrees with this statement. Per Water Code section 10725, a groundwater sustainability agency (GSA) is granted powers by SGMA once the GSA adopts and submits to the Department of Water Resources a groundwater sustainability plan or prescribed alternative plan. The powers granted by SGMA are sufficient to manage the groundwater basin in compliance with SGMA.
				SCGA Response	Comment noted, with clarification that language used is taken directly from SGMA's Uncodified Findings (b)5.
Florin Resource Conservation District	C2-08	1.17	1.5.6	Edits-Language SCGA Response	Pg. 1-17, Section 1.5.6 -All of the information contained on this page should be merged into Chapter 3. Comment noted.

Commenter	Comment No.	Page No. Section No.	Category	Comments and Responses
ommenter				
Florin Resource Conservation District	C2-09	2.1 2.1	Edits-Language	Pg. 2-1, section 2.1, 1st paragraph, last sentence - We suggest also referencing California Water Code 10721 (x) for the list of six (6) undesirable results (URs).
			SCGA Response	Corresponding edits have been made.
Florin Resource Conservation District	C2-10	2.9	SCGA-Boundaries	Pg. 2-9, second paragraph - The hypothesis [for establishing the sustainable yield], and the purpose of the hypothesis is unclear. This should be modified and explained further.
			SCGA Response	Corresponding edits have been made.

Florin Resource Conservation District	C2-11	2.11	Edits-Technical	Pg. 2-11, the last paragraph - states the blue line is on top and the orange line is on bottom in Figure 2-5, where actually the figure has the orange line (Subtracted Area) on top and the blue line (Delta) on bottom.
			SCGAResponse	Corresponding edits have been made.
				]

Commenter	Comment No.	Page No	. Section No.	Category	Comments and Responses
Florin Resource Conservation District	C2-12	2.16	2.3.2	Edits-Language	Pg. 2-16, second sentence in section 2.3.2 doesn't read correctly.
				SCGA Response	Corresponding edits have been made.
Florin Resource Conservation District	C2-13	2.2	Fig 2-8	Edits-Technical	Pg. 2-20, Figure 2-8 - The other sources of contamination shown on the figure should be addressed and discussed in this Section. Are there other remediation activities that our outside the control of SCGA as they may relate to groundwater management?
				SCGA Response	See response to Comment C(WF)-16
Florin Resource Conservation District	C2-14	2.23		Edits-Language	Pg. 2-23, first paragraph sentence doesn't read well. We suggest that this paragraph be re-written.
				SCGA Response	Corresponding edits have been made.

Commenter	Comment No.	Page No. Section No.	Category	Comments and Responses
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Florin Resource Conservation District	C2-15	2.28 2.4.3	Edits-Language	Pg. 2-28, Subsection 2.4.3 title - This subsection title should be different than the Section 2.4 title.
			SCGA Response	The title of Section 2.4 was changed.
Florin Resource Conservation District	C2-16	2.28 Many	Edits-Technical	Pgs. 2-28 to 2-31 - It is unclear whether the author is indicating that the two different models are comparable, or not. This is a general problem that should be addressed in other areas of the Submittal as well. The author should make a clear point or assertion, and then follow that point with the proof or documentation. In this case, for example, the data shown in Table 2-6 is interesting, but what does it really tell the reader?
			SCGA Response	Corresponding edits have been made.
Florin Resource Conservation District	C2-17	2.33	Edits-Language	Pg. 2-33, last paragraph, third sentence - We suggest adding the following underlined language for clarification. "As groundwater extractions increase, the Cosumnes River and Deer Creek floodplain provides increased recharge along hydraulically connected reaches near the confluence of the two surface water sources and the Delta; "
			SCGA Response	Corresponding edits have been made.

Commenter	Comment No.	Page No	o. Section No.	Category	Comments and Responses
Florin Resource Conservation District	C2-18	2.34	2.5.1	Edits-Technical	Pg. 2-34, last paragraph of section 2.5.1 - This paragraph is confusing. The first sentence relates only to 2010, but do the minimum groundwater level variations relate to all the forecast periods (1990, 2000, 2010, 2020, & 2030)? Do these numbers relate to Figure 2-16? If so, we are unable to correlate the numbers to the figure.
				SCGA Response	Corresponding edits have been made. The groundwater levels are related to estimated conditions during 2010 for both the Central Basin and the Delta area.
Florin Resource Conservation District	C2-19	2.52		Edits-Language SCGA Response	Pg. 2-52, last paragraph, second sentence - This sentence should read Figure 2-26, not Figure 2-25. Corresponding edits have been made.
Florin Resource	C2-20	2.64	2.8	Edits-Language	Pa. 2-64. Section Title - The word Brief should be deleted from the title.
Conservation District	02-20	2.07	2.0	Larts-Language	

SCGA Response Corresponding edits have been made.

Commenter	Comment No.	Page No. Section No.	Category	Comments and Responses
ommenter				
Florin Resource Conservation District	C2-21	2.64 2.8	Edits-Language	Pg. 2-64, Section 2.8 - This section should be stronger and more compelling. This section is essentially the final argument of why we think the Alternative Submittal should be accepted and approved by the DWR.
			SCGA Response	Corresponding edits have been made.
Florin Resource Conservation District	C2-22	2.64	Edits-Language	Pg. 2-64, Second paragraph, first sentence should be revised to read "water supply requirements, in geologic time [cross out "geologic time"] this is a very short time geologically [adding the word geologically]."
			SCGA Response	Corresponding edits have been made.
Florin Resource Conservation District	C2-23	2.2 2	Edits-Technical	Verbal Comment - Contaminant Plumes shown require a complete list of current actions for each site.
			SCGA Response	See response to Comment C(WF)-16.

Commenter	Comment No.	Page No. Section No.	Category	Comments and Responses
Florin Resource Conservation District	C2-24	2.17 2.3.3	Edits-Language SCGA Response	Verbal Comment - Pg.2-17, Section 2.3.3, Last sentence unclear to adaptively "manage to" remediation activities Corresponding edits have been made.
Omochumne Hartnell Water District	C3-01	0	Edits-Technical SCGA Response	The Alternative Submittal relies on sustainable yield numbers that were developed in the 1990's during the Water Forum process, and have not been significantly updated in the last 20 years. The Alternative relies on the best available science, water resources policies, and environmental review in the region. Sustainable yield is a target and is considered a fixed value over time unless changes are warranted by improved science and policy.

Commenter	Comment No.	Page No. Section No.	Category	Comments and Responses
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Omochumne Hartnell Water District	C3-02	0	Edits-Technical	The supporting data surrounding recharge, yield, and management in OHWD's service area is particularly limited. We believe to meet the necessary requirements of SGMA, a more detailed analysis of flow and yield surrounding the Cosumnes River, together with the consideration of more recent data and studies that have been completed since the Water Forum process, is required. The District provided a comprehensive overview of this more recent data in its basin boundary modification [BBM] request, the findings of which are incorporated by reference herein.
			SCGA Response	The level of detail required for the Alternative is limited to existing data and the ability of this data to show sustainability. SCGA acknowledges regional interests may conduct future studies along the Cosumnes River. The BBM was based on 1) an existing, broad description of groundwater conditions in Sacramento County and did not provided specific details on the Cosumnes Subbasin, 2) groundwater levels along various sections across the river valley, and 3) a reconnaissance-level geophysical study that purportedly identified a buried stream channel that should be the basis for the BBM. DWR illustrated numerous buried stream channels throughout Sacramento County in Figures 3 and 5 of its 1974 Bulletin 118-3, but did not identify these channels as flow boundaries that would support a BBM. Additionally the BBM data is lacking in terms of considering the full reporting of SCWA's significant modeling work on the Cosumnes River to support the CEQA document for the Zone 40 WSMP.

Commenter	Comment No.	Page No. Section No.	Category	Comments and Responses
Omochumne Hartnell Water District	C3-03	0	Edits-Technical	The District has raised concerns in the past about the accuracy of SCGA's modeling and yield data in the District's service area. While the District recognizes SCGA's commitment to the protection of the South American Basin, we are concerned that the current alternative submission is not based on the best available data.
			SCGA Response	The last model update was performed for purposes of South Area Water Council's development of the South Basin (Cosumnes Subbasin) 2011 Draft and Final GMP (not adopted, see Appendix B http://sscawa.org/sscawa/projectdocs/SOUTH_BASIN_GMP_FINAL_2011.pdf). Two baseline model runs were developed: a calibration model using the best available monitoring data in the region with known deficiencies in the Cosumnes Subbasin monitoring data, and a future forecast model (future baseline) to evaluate management scenarios affecting both the South American and Cosumnes Subbasins. These same model runs have been used in the preparation of the Alternative.
				A recent scientific study developed by OHWD/SRCD for purposes of a Basin Boundary Modification includes a detailed evaluation of groundwater elevations along the Cosumnes River corridor. The majority of this data has also been considered and used in the Alternative's development of hydrograph and groundwater contour information.
Omochumne Hartnell Water District	C3-04	0 2.2.3	Edits-Technical	The yield data developed by the Water Forum process included acreage that is not currently included as part of the Alternative Submittal. We have serious concerns that this process does not fit the criteria of an alternative submittal since the previous sustainable yield studies do not match the actual American River sub-basin.
			SCGA Response	Comment is noted. The sustainable yield evaluation is an acceptable pumping amount not dependent on land use or agricultural acreage. Growth assumptions used in the development of the sustainable yield are identified in the Alternative as the 1990 General Plan and the Farm Bureau's projection of agricultural growth (See Section 2.2.3).

Commenter	Comment No.	Page No. Section No.	Category	Comments and Responses
ommenter				
Omochumne Hartnell Water District	C3-05	0	Edits-Technical	The Alternative Submittal also includes acreage which was not previously studied. Though the submittal indicates that this acreage has been "subtracted" from the plan area, SCGA does not maintain or monitor wells in that region, and so has very little data upon which to evaluate the accuracy of the sustainable yield numbers it has calculated.
			SCGA Response	Comment noted. All of the acreage included in the Alternative was included in the Water Forum technical studies used as the basis for the sustainable yield.
				Agricultural and agricultural-residential water demands were estimated based on existing and project land uses in the subtracted areas.
Omochumne Hartnell Water District	C3-06	0	Edits-Technical	The District is working with fellow Southeast Sacramento County Agricultural Water Authority members, the City of Galt, Sloughhouse RCD, and other stakeholders to identify a governance plan and prepare a GSP for the San Joaquin Valley Cosumnes sub-basin. SCGA's potential submittal of an alternative plan raises questions on how to ensure that technical information used to develop the two basin plans are consistent and compatible, given the five-year difference in deadlines between alternative plan submittals and GSPs.
			SCGA Response	See response to Comment C(WF)-01.

Commenter	Comment No.	Page No. Section No.	Category	Comments and Responses
Omochumne Hartnell Water District	C3-07	0	Edits-Technical	We urge that any alternative plan submission by SCGA makes it clear that SCGA will be coordinating closely with OHWD and other stakeholders to gather additional information regarding the yield and recharge activity around the Cosumnes Subbasin boundary, and will update its alternative plan submittal as that additional information becomes available.
			SCGA Response	See response to Comment C(WF)-08.
Omochumne Hartnell Water District	C3-08	0	Edits-Technical	The District notes that SCGA directed staff at its November 9 meeting to "draft a resolution addressing specified stakeholder requests" for consideration at the agency's December 2016 meeting. No draft of that resolution has yet been circulated, and the District reserves its right to provide further comments on the alternative submittal and corresponding resolution when that resolution comes before the SCGA Board.
			SCGA Response	See response to Comment C(WF)-18. The Alternative is a technical document evaluating past data to represent the subbasin's sustainable yield and demonstrate that operation of the groundwater subbasin over a 10-year period within the sustainable yield.

<u>Commenter</u>	Comment No.	Page No. Section No.	Category	Comments and Responses
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KRONICK, MOSKOVITZ, TIEDEMANN & GIRARD	C4a-01	0	SGMA-Process	The Alternative Plan is Based on Inconsistent Outdated. and Confusing Analyses and Data and Fails to Satisfy SGMA
representing Sloughhouse Resources Conservation District				
			SCGA Response	Comment noted. See response to EKI Comments.
				The Alternative is based on the best available data, including water levels through early 2016 for all wells in the DWR database and on water quality data through 2015 in the Geotracker GAMA database.
KRONICK, MOSKOVITZ, TIEDEMANN & GIRARD	C4a-02	0		The Alternative is subject to CEQA (i.e., SGMA expressly exempts GSPs from CEQA, but not Alternatives)
representing Sloughhouse Resources Conservation District				
			SCGA Response	Comment noted. See response to Comment C4a-01.

Commenter	Comment No.	Page No. Section No.	Category	Comments and Responses
KRONICK, MOSKOVITZ,	C4a-02	0	SGMA-Statute	SGMA Expressly Exempts Groundwater Sustainability Plans from CEQA, but Not Alternative Plans.
GIRARD				The Authority has not complied with the California Environmental Quality Act, Public Resources Code 21000 et seq. (CEQA), in its preparation and adoption of the Alternative Plan.
representing Sloughhouse Resources Conservation District				
			SCGA Response	Comment noted. Staff will present an environmental determination for the Alternative to the SCGA Board for consideration and recognition.
KRONICK, MOSKOVITZ, TIEDEMANN & GIRARD	C4a-03	0	CEQA	The Authority's Adoption and Implementation of the Alternative Plan Could Reasonably And Foreseeably Cause Significant Environmental Impacts.
representing Sloughhouse Resources Conservation District				
			SCGA Response	See response to C(WF)-01. The Alternative Submittal's report and analysis relies in part on the existing Central Sacramento County Groundwater Management Plan (CSCGMP) adopted in 2006, and its contribution to maintaining groundwater extractions under the sustainable yield. The Alternative Submittal does not propose any actions or projects, but references actions and projects conducted as implementation of the adopted 2006 CSCGMP. The Alternative Submittal is authorized by and compliant with SGMA objectives and requirements and provides assurance of the maintenance, enhancement and protection of the environment and groundwater as a natural resource referencing provisions already approved as part of the adopted 2006 CSCGMP. No construction activities nor significant effects on the environment will occur as a result of this Alternative Submittal.

<u>Commenter</u>	Comment No.	Page No. Section No.	Category	Comments and Responses
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KRONICK, MOSKOVITZ, TIEDEMANN & GIRARD representing Sloughhouse Resources Conservation District	C4a-04	0	SGMA-Statute	The Alternative Plan brings new areas under groundwater management for the first time.
			SCGA Response	The Alternative Submittal does not create nor rely on the creation of any new groundwater management governance or programs. See response to Comment C4a- 03.

Commenter	Comment No.	Page No. Section No.	Category	<u>Comments and Responses</u>
KRONICK, MOSKOVITZ, TIEDEMANN & GIRARD	C4a-05	0	CEQA	Alternative Plan includes SCGA entering into an MOU with other local agencies defining management roles and actions for certain areas -
representing Sloughhouse Resources Conservation Distric	t			Execution of that MOU as part of the Alternative Plan is further evidence of the applicability and need for CEQA review. Furthermore, the MOU is not described and apparently left until later, perhaps even after adoption of the Alternative Plan, which is unlawful segmentation of a project under CEQA. The entire Alternative Plan project, including its MOU component, should be described and analyzed according to CEQA before either is adopted or executed.
			SCGA Response	The Alternative Submittal identifies a draft Memorandum of Understanding and Agreement (MOU) that was provided to Delta area entities after SCGA outreach concerning the concept of an Alternative Submittal for the South American subbasin. The content of the MOU is included in Appendix 1C of the Alternative Submittal. The MOU does not create any new governance or groundwater management programs.
KRONICK, MOSKOVITZ, TIEDEMANN & GIRARD representing Sloughhouse Resources Conservation Distric	C4a-06	0	Edits-Technical	Alternative Plan "locks-in" a numeric sustainable yield value for the basin that will affect management. land use. and other environmental variables throughout the area. including in neighboring basins "Locking-in" the 273,000 af sustainability value for the South American basin will essentially require neighboring basins to conform their data and assumptions to the Alternative Plan's sustainable yield value and groundwater recharge assumptions for the South American subbasin. This will impact quantities of groundwater and recharge available to each basin from shared sources of recharge water. A prime example is the Cosumnes River, whose surface flows recharge groundwater and which serves as the boundary between the South American and Cosumnes subbasins.
			SCGA Response	See response to Comment C(WF)-01.

Commenter	Comment No.	Page No. Section No.	Category	Comments and Responses
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KRONICK, MOSKOVITZ, TIEDEMANN & GIRARD representing Sloughhouse Resources Conservation	C4a-07	0	Data	SCGA's Alternative Plan is claiming seventy-five percent of all recharge from the Cosumnes [and] that SCGA has claimed use to all the recharge of Deer Creek for the South American subbasin as well, amounting to another 5,400 af. These assumptions are not supported and obviously inaccurate. As part of its basin boundary modification application, the District submitted evidence that the area south of the Cosumnes is much more highly connected to the river than more distant areas in the South American subbasin.
District				The Alternative did not make any encoding laim $(750/)$ on the percentage of response from the Cocumpos
			SUGA Response	The Atternative did not make any specific claim (75%) of the percentage of recharge from the Cosumnes River or Deer Creek. SCGA recognizes the importance of the Cosumnes River floodplain as a significant source of recharge to both the South American and Cosumnes Subbasins. The 75-percent claim is promoted by Kronick and is based on an incomplete and erroneous understanding of a technical memorandum (TM) by RMC Water and Environment (2015). TM Figure 2 is a map depicting simulated annual recharge across the SCGA area, including areal recharge from precipitation and applied water (irrigation), river flow, and subsurface flow. The recharge volume from river flow is applicable to the water table and uppermost groundwater while subsurface flow is applicable for the entire thickness of the aquifer system, which can vary in depth to more than 1000 feet. TM Figure 2 shows subsurface flow entering the SCGA area (recharge) from the east and west, and subsurface flow exiting the SCGA area (discharge) to the north and south. Kronick erroneously combined the Cosumnes River recharge with the subsurface discharge into the Cosumnes Subbasin to derive the value of 75 percent. Application of Kronick logic to the American River erroneously suggests that the North American Subbasin is claiming 124 percent of the recharge from the American River. River recharge/discharge and subsurface recharge/discharge are separate components of a water budget and can not be used as a basis for allocation between subbasins.

<u>Commenter</u>	Comment No.	Page No. Section No.	Category	Comments and Responses
KRONICK, MOSKOVITZ, TIEDEMANN & GIRARD representing	C4a-08	0	CEQA	The Alternative Plan will affect the unique and sensitive groundwater contamination and fisheries issues in the basin which have been recognized by the California Supreme Court.
Sloughhouse Resources Conservation District			SCGA Response	See response to Comment C(WF)-14. The Alternative analyzes the region's management of groundwater over the past 10 years.
KRONICK, MOSKOVITZ, TIEDEMANN & GIRARD representing Sloughhouse Resources Conservation District	C4a-09	0	Edits-Technical	The Alternative Plan may worsen groundwater quality - The continued expansion and impacts of groundwater pollution and the potential for it to spread, or for remediation efforts to remove more groundwater than assumed in the Alternative Plan, means that adoption of the Alternative Plan may exacerbate potential water quality impacts or remove more groundwater than is sustainable because SCGA will fail to adjust its groundwater management actions and expectations to accommodate the apparent increase in groundwater pumping required by current remediation efforts. The Alternative shows that remediation efforts are ongoing and have developed capture zones to contain the contaminated groundwater. SCGA has tracked the status of the remediation efforts, as shown by the previous Basin Management Reports, and will continue to work with the responsible parties to find beneficial uses of the remediated groundwater within the South American Subbasin.

Commenter	Comment No.	Page No. Section No.	Category	Comments and Responses
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KRONICK, MOSKOVITZ, TIEDEMANN & GIRARD representing Sloughhouse Resources Conservation District	C4a-10	0	Public Outreach	The District strongly believes establishing the long-term groundwater management framework for the southern part of the County and the interface and coordination between the Cosumnes subbasin and the South American subbasin is not something that should be done in haste without full understanding and agreement among the neighboring stakeholders. The Authoritymoving at break-neck speed before any other stakeholders can understand its proposed Alternative Plan, and without fully assessing its potential environmental impacts as required by CEQA.
	04-10			Alternative. The Alternative does not prevent inter-basin communication or coordination as the Cosumnes subbasin SGMA efforts develop.
RRUNICK, MOSKOVITZ, TIEDEMANN & GIRARD representing Sloughhouse Resources Conservation District	C4a-12	0	SGMA-Statute	why rush something as monumental as implementation of the new Groundwater Act?
			SCGA Response	See response to Comment C(WF)-14.

Commenter	Comment No.	Page No. Section No.	Category	Comments and Responses
KRONICK, MOSKOVITZ, TIEDEMANN & GIRARD	C4a-13	0	Edits-Technical	SCGA has provided little true collaboration and involvement and no ability for a reassessment of the sustainable yield value of 273,00 [sic] af, even though we know that conditions today are not as they were assumed 15 years ago when that number was "negotiated" and it applies to a different geographic area.
representing Sloughhouse Resources Conservation District			SCGA Response	SCGA has been and will be available for good-faith and collaborative discussion of technical and governance issues. However, SRCD has not demonstrated collaboration with its 'all-or-nothing' approach in its pursuit of a basin boundary modification. Sustainable yield values were developed via a groundwater model for most of Sacramento County, including values that can be applied to the South American Subbasin as well as the Cosumnes Subbasin. Conditions were expected to be different and the model utilized many decades of historic hydrologic data to address these potential changes. Two notable changes during the last 15 years include the rise of water levels, which improve conditions within the Elk Grove cone of depression and the severe decline of water levels in the vicinity of Galt which produces a significant cone of depression within the Cosumnes Subbasin.
KRONICK, MOSKOVITZ, TIEDEMANN & GIRARD representing Sloughhouse Resources Conservation District	C4a-14	0	SGMA-Statute	In sum, why rush with something as monumental as implementation of the new Groundwater Act? Under the Act, a groundwater sustainability plan is not due for another 5 years, more than enough time to fully address all issues and stakeholders in an appropriate manner. Given the magnitude of the issue, the ad-hoc and essentially after-the-fact meetings that have recently occurred should be the beginning of a grand collaboration, not the end of a rushed unilateral process conducted in the shadows and without the light of CEQA.
District			SCGA Response	See response to Comments C(WF)-14, C4a-02, C4a-03, and C4a-10.

Commenter	Comment No.	Page No. Section No.	Category	Comments and Responses
ommenter				
EKI representing Sloughhouse Resources Conservation District	C4b-01	0	Edits-Technical	The Alternative does not meet the standard of functional equivalency. Below we have detailed the technical requirements of a GSP in italics (referenced by section number of the GSP Regulations), and summarized how, in many cases, the Alternative provides incomplete and inadequate information relative to what is required by the GSP Regulations. Given the clear discrepancies identified below, it is unlikely that sufficient revision could be made to the Alternative Plan to bring it into compliance with the intent and specific requirements of a GSP by the deadline of 1 January 2017.
			SCGA Response	The Alternative was not intended to 'read' like a GSP, but to present a "story", as requested by DWR, about the previous and on-going groundwater management activities in the subbasin. Functional equivalency is provided via references to existing documents within the SCGA archives and from the literature. Much of the GSP content appears to be required for basins that have not previously been subject to groundwater management and the content is necessary to demonstrate an adequate understanding of the groundwater resources. Groundwater in the South American Subbasin has been studied for many decades, starting in the early 1960s with a water quality investigation of the Folsom-East Sacramento area (DWR, 1964).
EKI representing Sloughhouse Resources Conservation District	C4b-02	0	Edits-Technical	The Alternative Plan states (page 2-62) that "groundwater production on both sides of the [Cosumnes] river lowered the water table many decades ago and the river has become disconnected from the groundwater system". Then, in a seemingly contradictory statement in the next paragraph, the Alternative Plan states "Hydraulically connected recharged sources affected by the deepening of the Cosumnes Subbasin cone-of-depression, including reaches of the Cosumnes River, are being impacted " (page 2-63).
			SCGA Response	The middle reaches of the Cosumnes River became disconnected from the groundwater system in the early 1900's at a time when groundwater was less expensive to convey and treat (in the case of municipal uses) than surface water while the upper reaches and the lower reaches have remained connected to groundwater with the points of connection varying with hydrologic and pumping conditions. The upper reaches benefit from the flow of relatively large volumes of runoff from the foothills onto the relatively thin wedge of sediments on the east side of the valley. The lower reaches are located in proximity to the Delta and benefit from this high water table area.

Commenter	Comment No.	Page No. Section No.	Category	Comments and Responses
EKI representing Sloughhouse Resources Conservation District	C4b-03	0	Edits-Technical	The DWR has identified the South American Subbasin as an area with medium to high potential for subsidence (page 2-59). The Alternative Plan appears to challenge DWR's assessment, by taking issue with the data that DWR is using and linking to on its website. However, the Alternative Plan offers little actual data to refute the risk (i.e., only subsidence data prior to and through 1966 are shown in Figure 2-28 and the text only discusses water level trends through 2004). Comment noted. Figure 2-28 was utilized by the Water Forum process and the 2006 GMP to define the threshold for subsidence. Land surface elevation surveys were a not conducted after 1966, and water levels were not measured at the well after 2004. The Alternative provided an update on available information for the well since the Water Forum studies.
EKI representing Sloughhouse Resources Conservation District	C4b-04	0	Edits-Technical	The Alternative Plan acknowledges that wells in the basin are having to be drilled deeper and that some extracted groundwater must be treated for iron and manganese (page 2-36, 2-56). However, no data or maps are presented that show the spatial or vertical distribution of water quality. As such, it is not possible to corroborate the Alternative Plan's findings that there are no observed or potential impacts to water quality.
			SCGA Response	Maps of water quality conditions are present in the three Basin Management Report, referenced by the Alternative, and can be found at the SCGA website. The Alternative was intended to provide a new evaluation of the available data.

Commenter	Comment No.	Page No. Section No.	Category	Comments and Responses
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EKI representing Sloughhouse Resources Conservation District	C4b-05	0	Edits-Technical	When the change in storage is analyzed for the South American Subbasin in the Alternative Plan, it is hypothesized that the observed 100-foot change in aquifer thickness would likely produce a single digit percentage decrease in storage for the basin (page 2-54). However, the calculation is not completed to demonstrate the validity of this statement. Nor is the calculated change in storage compared to earlier water budget analyses or modeled change in storage findings (Table 2-6 and Figures 2-14 and 2-15).
			SCGA Response	See the revised text.
EKI representing Sloughhouse Resources Conservation District	C4b-06	0	Edits-Technical	We also note that, although the Water Forum Solution EIR describes a "Well Protection Program" that the SCGA was supposed to initiate to support entities that would have to deepen their wells as a result of projected (and accepted) groundwater level declines, the program has remained unfunded "due to the economic recession" (page 2-36).
			SCGA Response	SCGA has not received any complaints about dry wells in the South American Subbasin.

<u>Commenter</u>	Comment No.	Page No. Section No.	Category	Comments and Responses
EKI representing Sloughhouse Resources Conservation District	C4b-07	0	Edits-Technical	The Evaluation of Undesirable Results is Incomplete - The analysis of undesirable results relies heavily on the Environmental Impact Report (EIR) that was associated with the Water Forum Solution, and therefore prepared for the Central Basin (page 2- 35). The Alternative Plan is confusing and inaccurate, because it refers to the EIR as making findings relevant to the South American Subbasin (page 2-36).d
			SCGA Response	The use of the Water Forum EIR was intended to document the past effort by the Water Forum to evaluate various potential impacts due to the development of groundwater resources within Sacramento County. This approach was quite similar to the requirements of SGMA. Section 2.5.4 of the Alternative refers to "Undesirable Effects" not to the SGMA term of undesirable results. Where possible, information about the South American Subbasin was extracted from the Water Forum EIR information. SGMA sustainability indicators are discussed in Section 2.7
EKI representing Sloughhouse Resources Conservation District	C4b-08	0	Edits-Technical	The Alternative Plan characterizes these areas of water level decline as "discrete" (page 2-50) and attempts to attribute the blame on remediation pumping, reduced groundwater recharge, pumping in the neighboring Cosumnes Sub basin and other factors "outside of SCGA's control" (page 2-50). However, the point of the Alternative Plan is to demonstrate that there has been long-term successful management of the South American Subbasin within the sustainable yield and that there is, in fact, "control" over conditions within the basin that give assurance for the continued sustainable management of the South American Subbasin into the future.
			SCGA Response	Groundwater remediation activities subject to State and Federal regulatory orders are not within SCGA's control; SGMA identifies that it does not authorize a local agency to impose any requirement (except for limited fee authority) of SGMA on the state or any agency, department or officer of the state (Water Code 10726.8(e)). SCGA could not be expected to foresee the changes in effluent discharge to Deer Creek by the El Dorado Irrigation District. This flow in Deer Creek is a component of recharge to the South American Subbasin, as evidenced by the 2015 groundwater contour map. Groundwater from across the South American Subbasin is flowing toward the cone of depression in the Cosumnes Subbasin.

Commenter	Comment No.	Page No. Section No.	Category	Comments and Responses
ommenter				
EKI representing Sloughhouse Resources Conservation District	C4b-09	0	Edits-Technical	The long-term water level declines observed throughout much of the South American Subbasin (in many cases below the operating thresholds) do not appear consistent with a finding of sustainable basin operation. Our independent review of the available data found even more wells with the South American Subbasin that had declining water level trends (see Figure 1, attached).
			SCGA Response	Most of the water level decline occurs on the eastern side of the subbasin, in the vicinity of multiple groundwater remediation programs, and along the Cosumnes River where overdraft pumping in the Cosumnes Subbasin is affecting water levels in the adjacent South American Subbasin. Some of the decline is also inherent to drought conditions, beginning in 2012.
				SCGA was established to continue the efforts to abate the cone of depression in the vicinity of Elk Grove and water levels have risen in this area. The development of thresholds was focused on the Elk Grove area, and the outer areas were subject to the same groundwater modeling. Thresholds for 13 of 45 primary wells (29%) were higher than groundwater levels during 2000 to 2005, prior to the start of SCGA (no water levels for 2 wells). Similarly, 9 of 37 secondary wells (24%) showed water levels below the thresholds prior to SCGA, and these wells are located in the vicinity of groundwater remediation.
				EKI Figure 1 shows well locations with declining water level trends and uses 28 yellow dots to recognize similar wells (declining water levels) that were shown on Figure 2-25 of the Alternative Submittal and 10 red dots for similar wells (declining levels) that were not shown on Figure 2-25. The Alternative Submittal evaluated all available data within the DWR database systems, including the 10 red-dot wells. Figure 2-25 showed water level trends for 2005 through early 2016, based on linear regression of the data, for a primary grouping of wells. One of the red-dot wells (385707N1211868W001) was shown as an increasing trend because a positive trend was produced by the 22 measurements since April 2005. This positive trend is due to several relatively low elevations (5 of 6) during 2005 through 2007. Overall, water level elevations at Well 385707N1211868W001 have been declining since the 1960s and have shown a declining trend since 2008.
				The other nine red-dot wells were included in a secondary groupings of wells and not shown on Figure 2-25 because their water level data were incomplete. The secondary groupings included 1) wells with water levels up to 2004/05, before the start of SCGA, 2) wells with partial data, up to 2013, and 3) wells with data before SCGA and recent data, after 2013. Three red-dot wells have data up to 2005, five wells have data up to 2013, and one well has data before 2005 and after 2013. The status of the secondary wells was included in the PowerPoint presentation at several public meetings, including the SCGA Board meeting in October and the subsequent Outreach meetings. A total of 44 wells have been identified as secondary wells and some of these wells showed an increasing trend or no trend for the period 2005 to early 2016.
				Observations on water levels within the South American Subbasin were mostly based on the primary wells and the inclusion of the secondary wells did not change the conclusions. For example, 28 percent of the primary wells showed rising water levels since 2005, and 28% of both primary and secondary wells showed rising water levels were present in 60 percent of the primary wells but in 57 percent of both primary and secondary wells.

Commenter	Comment No.	Page No. Section No.	Category	Comments and Responses
EKI representing Sloughhouse Resources Conservation District	C4b-10	0	Edits-Technical	The water budgets, as presented in the Alternative Plan, do not meet the standards identified for water budgets by DWR, which include a historical water budget that covers at least 10 years, a current water budget, and a future water budget that considers 50 years of hydrology.
			SCGA Response	DWR requirements for water budgets are focused on the groundwater sustainability plan. This Alternative presents available information prior to the January 1, 2017 deadline for Alternative submittals.
Commenter	Comment No.	Page No. Section No.	Category	Comments and Responses
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EKI representing Sloughhouse Resources Conservation District	C4b-11	0	Edits-Technical	The water budget is compared to a water budget for the South American Subbasin that is estimated using the C2VSim Model; this estimate shows a 19,049 AFY deficit (Tables 2-5 and 2-6). Little concern is expressed in the Alternative Plan for the estimated deficits and no mention is made that a potential difference in the water budget results could be because they are, in fact, calculated for different geographic basins (i.e., while the water budgets are presented as an "apples to apples" comparison, they are not).
			SCGA Response	The initial water budget calculation for purposes of the Alternative is acknowledged as being a deficit and from coming from multiple sources of evidence. An actual "manual" calculation using the difference contours indicates an approximate 4,000 AF/year deficit on average over the 10 year period. This amount of deficit during a very dry hydrologic period is acceptable and not significant considering a single municipal well typically extracts more than 1,000 AF/year. Subsurface losses are also recognized as occurring as a result of Cosumnes Subbasin extractions continuing to impact the South American Subbasin. To date, no undesirable results have been brought before the SCGA Board due to storage losses.
EKI representing Sloughhouse Resources Conservation District	C4b-12	0	Edits-Technical	A basin water budget is presented for the Central Basin (plus the Delta Area) based on the Updated SacIGSM Model for the years 2000-2009, with a resulting annual deficit of 6,213 AFY (Table 2-6). The text confusingly refers to this water budget as being for the South American Subbasin when it actually represents the water budget for the Central Basin plus the Delta Area - no corrections are made to "subtract" the appropriate areas south of the Cosumnes River (page 2-28).
			SCGA Response	The text recognizes this discrepancy by the statement in Section 2.4.3, "with the understanding that each model is currently being updated to reflect the updated groundwater basin delineations and to bring calibration periods to the SGMA baseline year of 2015"

Commenter	Comment No.	Page No. Section No.	Category	Comments and Responses
EKI representing Sloughhouse Resources Conservation District	C4b-13	0	Edits-Technical	The Alternative Plan is unclear as to which 10-year period it is relying on to demonstrate operation of the South American Subbasin within its sustainable yield.
			SCGA Response	The Alternative states that 2005 to 2015 is the period of operation for the sustainable yield comparison as evidenced by the listing of pumping volumes for 2005 to 2015 and the comparison of water level data for 2005 and 2015. Groundwater models could not be updated to include data through 2015 so the last 10 years of modeling were presented in the evaluation, including 2000 to 2009 for C2VSim and 2002 to 2011 for SacIGSM.
EKI representing Sloughhouse Resources Conservation District	C4b-14	0	Edits-Technical	Missing from the estimate of sustainable yield is the impact of the 40% reduction in Deer Creek flows and associated groundwater recharge that have occurred in recent years (page 2-21), or any projected impacts of climate change on basin function.
			SCGA Response	Climate change and flow reductions in Deer Creek are changed conditions which show up in the Alternative as decreases in groundwater levels and storage.

Commenter	Comment No.	Page No. Section No.	Category	Comments and Responses
ommenter				
EKI representing Sloughhouse Resources Conservation District	C4b-15	0	Edits-Technical	The sustainable yield is described as being equivalent to "the long term average extraction in the Central Basin " (page 2-10), the Alternative Plan then acknowledges (page 2-19) that groundwater extraction for remediation (reported to be 31,400 AFY for the Aerojet Superfund Site alone) was not included as a demand on the basin when the 273,000 AFY was negotiated. The Alternative Plan further states that pumping for remediation has had the effect of "lowering groundwater levels in the South American Subbasin" (page 2-21), a statement that is supported by the mapped changes in water levels presented in the Alternative Plan and corroborated by our independent analysis.
			SCGA Response	Comment noted. Conclusionary statements state that adaptive management measures have been in place since 2000 to keep remediated groundwater from leaving the South American Subbasin. To this end, multiple agreements have permitted the diversion, treatment, and use of diverted remediated water from the Sacramento River to offset groundwater pumping in the SCWA Zone 40 service area. The expectation is to capture 100% of the treated water as water demands increase over time.
EKI representing Sloughhouse Resources Conservation District	C4b-16	0	Edits-Technical	The Alternative Plan fails to analyze and discuss other factors that significantly affect basin sustainable yield such as the potential differences in natural and augmented recharge to the basin in the added or subtracted areas. For instance, the Central Basin included areas south of the Cosumnes River so that essentially all of the immediate riparian floodplain habitat of the river was within the Central Basin. Presumably, this meant a greater fraction of the recharge from the Cosumnes River flows would be accounted for within the Central Basin than in the basin to the south. Now, however, the basin boundary runs down the middle of the river and so half of that original floodplain, riverine recharge area is now outside the South American Subbasin and within the Cosumnes Subbasin. The Alternative Plan fails to analyze what this change means or how it impacts the Water Forum's estimate of sustainable yield.
			SCGA Response	The sustainable yield numbers agreed to by the Water Forum represent the set of groundwater conditions acceptable to the three groundwater basin stakeholders. This implies that the Water Forum's South Subbasin interests agreed to the Central Basin groundwater conditions using 2005 baseline development conditions, regardless of basin boundaries. The same set of groundwater conditions were used in the Alternative's adjustment of the boundaries and recalculation of the Sustainable Yield (i.e., set of locally-defined groundwater conditions and pumping amounts negotiated as being acceptable to all stakeholders)

Commenter	Comment No.	Page No. Section No.	Category	Comments and Responses
ommenter				
EKI representing Sloughhouse Resources Conservation District	C4b-17	0	Edits-Technical	[The] technical basis for the 273,000 AFY is not presented (except through reference to an assortment of documents from the pre-GMP era), and the value is carried forward in the Alternative as the sustainable yield of the South American Subbasin without any validation that this value (based on the additional 20 years of data that are now available) is actually an accurate estimate of the basin's sustainable yield as defined by SGMA.
				The Alternative Plan's use of this historical sustainable yield estimate is further complicated and undermined in that it was developed for a different basin (i.e., for the "Central Basin") and only a cursory assessment is made of the impact of adding and subtracting areas to align the Central Basin with the South American Subbasin that is the subject of the Alternative Plan. The analysis that is presented indicates that there is at least 7,100 AFY of groundwater pumping demand added as a result of basin realignment (page 2-13), but no estimates are presented that assess the impacts of this increased pumping on the sustainable yield estimate.
			SCGA Response	Comment noted. Please refer to technical documents included in the Water Forum EIR and the Groundwater Management Element of the Water Forum Agreement. Regional stakeholders
EKI representing Sloughhouse Resources Conservation District	C4b-18	0 1	SCGA-Policy	The public outreach section of Chapter 1 (page 1-12) merely presents a list of regular SCGA Board and SGMA Subcommittee meetings at which the Alternative Plan was agendized and mentions four other stakeholder meetings that have occurred or were planned. The section contains no details as to what types of information have been presented to the public and stakeholders related to the Alternative Plan and what feedback the SCGA has received. It appears that those details are intended to be included in the final submittal, but their omission at this stage makes it impossible to judge whether the final submittal will adequately characterize the nature of outreach and Public Draft Comments or in any way respond to or adjust to concerns and issues raised by the public and stakeholders.
			SCGA Response	Detailed minutes of each Board or Subcommittee meeting are posted on the SCGA website and SCGA staff are available to clarify any questions concerning past meetings. The Water Forum also prepared a summary report on the discussions at the October/November Outreach meetings. SCGA encourages interested parties to attend all public meetings rather if they desire a high level of understanding the current status of knowledge pertaining to any agendized item.

Commenter	Comment No.	Page No. Section No.	Category	Comments and Responses
EKI representing Sloughhouse Resources Conservation District	C4b-19	0	SGMA-Statute	While a brief description of the SCGA is provided in Chapter 1, its role as a Groundwater Sustainability Agency (GSA) within the South American Subbasin is not mentioned, which seems a strange omission.
			SCGA Response	Comment noted. SCGA is submitting the Alternative as a qualified local agency pursuant to SGMA.
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EKI representing Sloughhouse Resources Conservation District	C4b-21	0	2006 GMP SCGA Response	The SCGA is putting forth a dated document to serve as the foundational document for the Alternative Plan because the 2006 GMP was originally intended to be updated five years after adoption (i.e., in 2011). With enactment of SGMA, it would seem that the logical course of action would be preparation of a SGMA-compliant GSP as an obvious alternative to further reliance on the outdated 2006 GMP (updates to which were not allowed under SGMA after January 2015). Comment noted. The five year timeframe between GMPs was set as the goal. Voluntary update of the GMP was deferred since groundwater conditions were not declining and no undesirable effects were reported by groundwater users and interested stakeholders of the subbasin.
Final				42 December 14, 2017

Commenter	Comment No.	Page No. Section No.	Category	Comments and Responses
ommenter				
EKI representing Sloughhouse Resources Conservation District	C4b-22	0	SCGA-Boundaries	Many of the maps and other information used in the Alternative Plan that are sourced from the 2006 GMP are outdated and inconsistent with the boundaries of the South American Subbasin.
			SCGA Response	Comment noted. SGMA constrains the Alternative to using maps and reports published prior to January 2015. Updated figures using the most current subbasin boundaries will be produced over the next five year reporting period, as the State develops their subbasin specific data for each subbasin and GSP area.
Carl Werder representing Agricultural Residential Users of Groundwater	C5-01	3.2		Chapter 3, page 3-2, paragraph under the heading "GMP and Changed Conditions" states in part, "includes the Water Forum Agreement's 2030 land and water use assumption as envisioned". The Water Forum looked at land and water usage together since they are connected, shouldn't this alternative also reveal what has occurred concerning land development as it relates to groundwater usage over the past ten years? Urban subdivisions that rely on groundwater have major impacts on groundwater and therefore urban development should be addressed as to what has occurred over the past ten years in the Draft Alternative.
			SCGA Response	SCGA reports the total amount of urban and agricultural pumping each year, and every two years as part of the Basin Management Reports. Based on these reports, urban groundwater use is shown to have decreased over the ten year period as a result of conjunctive use programs, water conservation, and use of recycled water. In addition, there are many cases where once-irrigated agricultural lands are replaced with less water intensive urban uses.
				Since 1990 (i.e., CO-20 of the 1990 County General Plan), all urban development has been conditioned on providing supplemental water supplies and not relying solely on groundwater as a water supply. The acquisition of surface water contracts, appropriative water rights, and recycled water use have met this policy over the Alternative's 10 year evaluation period.

Commenter	Comment No.	Page No. Section No.	Category	Comments and Responses
Carl Werder representing Agricultural Residential Users of Groundwater	C5-02	3.3		Chapter 3, page 3-3, item number 2 states, "Bureau of Reclamation's construction of island ring levees to reclaim submerged lands." The levees were originally constructed by Reclamation Districts and since have been taken over by the Corps of Engineers along the Sacramento River. Please remove Bureau of Reclamation and replace it with Reclamation Districts.
			SCGA Response	Edits to Alternative have been made.
Carl Werder representing Agricultural Residential Users of Groundwater	C5-03	0		Urban demand from 2005 to 2030 will increase from approximately 70,000 AF in dry years to 90,000 AF in wet years. These figures also show surface water increasing to cover this additional demand over the 25 year period. I question this reliance on additional surface water since most if not all surface water in California is already tied up. These [2006 GMP Executive Summary] figures as depicted give the false impression that the accounts are in balance, when they clearly are not, please correct these figures.
			SCGA Response	The amounts of surface water shown exist and are consistent with surface water entitlements and conjunctive use programs evaluated and agreed-upon in the 2000 Water Forum Agreement. Existing CVP water contracts (i.e., Fazio and SMUD), appropriative water rights on the Sacramento and American Rivers, remediated groundwater discharged to the American River, and recycled water from the Regional Sanitation District all exist and contribute to reducing groundwater use in urban use sectors. In many cases, only partial entitlements have been exercised in the past and reported as being smaller due to dry year hydrology shortages, phasing of infrastructure and insufficient water demands.

<u>Commenter</u>	Comment No.	Page No. Section No.	Category	Comments and Responses
ommenter				
Carl Werder representing Agricultural Residential Users of Groundwater	C5-04	0		Additional urban development will decrease areas that potentially could provide groundwater recharge.
			SCGA Response	Comment noted. State law now requires the conservation element of general plans to identify land that may accommodate floodwater for purposes of groundwater recharge. (California Government Code §65302(d)(3).)
Carl Werder representing Agricultural Residential Users of Groundwater	C5-05	0		Urban development demand for water by 2030 is estimated to be approximately 100,000 AF/year more than now according to 2.5.2.1 Urban, page A-85. Where is this water coming from?
			SCGA Response	Comment noted. The Alternative (i.e., storage and groundwater levels) reflects the conjunctive use program which has been in effect since the early 1990's. Factual data used in Alternative Section 2.7.2.1 (Calculation of Change in Storage) clearly shows that groundwater levels (and storage) have increased significantly in areas underlying new urban growth, and at the deepest point of the South American Subbasin's cone of depression, as it changes over time.

Commenter	Comment No.	Page No. Section No.	Category	Comments and Responses
Carl Werder representing Agricultural Residential Users of Groundwater	C5-06	0		Figure 2-20, Existing Production Wells page A-72. How come production wells in the Vineyard Area are not shown?
			SCGA Response	Comment is noted. Updated figures combining the most current M&I well locations and dasymetric well location data of private and public wells, to be provided by State DWR, will be produced over the next five year reporting period, as the State develops this data for each GSP area.
Carl Werder representing Agricultural Residential Users of Groundwater	C5-07	0		One overall problem with the Alternative Submittal is the lack of updated and corrected information. This problem gives the reader the impression that the information provided is the latest accurate information as of the date of this submittalTherefore, throughout this document there should have been footnotes to indicate changes and updates as to the information provided so that the reader can see how things have changed from when the document in question was written to what has occurred to date.
			SCGA Response	Comment noted. Additional qualifying of data has been made where appropriate.

Commenter	Comment No.	Page No. Section No.	Category	Comments and Responses
ommenter				
Carl Werder representing Agricultural Residential Users of Groundwater	C5-08	0		Recommend adding the Cosumnes River MOA to the documents of the Alternative Submittal since any actions concerning this river directly affect groundwater that will be managed by SCGA.
			SCGA Response	The Cosumnes River MOA has expired and is not relevant in describing the factual evidence of sustainability over the 2005 to 2015 period. In addition, SCGA was not a party to this agreement.
Carl Werder representing Agricultural Residential Users of Groundwater	C5-09	0		This alternative submittal needs a summary of how the predicted outcomes proposed by the Water Forum have come to fruition over the past ten years.
			SCGA Response	Comment noted. See Executive Summary section of Alternative.

Commenter	Comment No.	Page No. Section No.	Category	Comments and Responses
			<b>•</b> •	

Carl Werder representing Agricultural Residential Users of Groundwater	C5-10	0		The general public is not and has not been informed adequately concerning this Alternative Submittal and its effects on their cost of water use in the future, as would have been under a CEQA document. I recommend that notices be placed to better inform the public that this Alternative Submittal is available for their review and I would like the SCGA Board to see a list of places notice was given for Public Draft Comments back in October.
			SCGA Response	See Alternative Section 1.4 Public Outreach on all efforts to engage interested parties and the public in the Alternative review process. See also response to Comments C(WF)-14, C4a-02, C4a-03, and C4a-10. The Alternative will have no direct effect on the cost of water to the water consumer or private well owner since it is not a policy document, a rate study, or a project feasibility study. The future implications of no approved Alternative (i.e., SCGA having to follow the SGMA GSP track) has not been fully answered by the state with regard to the cost of facilitating the development of a GSP.

Suzanne Pecci representing Sheldon area Residents	C6-01	0	SCGA-Policy	SCGA will be the platform for stability and afford a framework for future formations of local GSAs such as SRCD and OHWD, who have expressed such ambitions if they choose to go forward in the future.
			SCGA Response	Comment noted. Over the past 10 years, SCGA has consistently encouraged all local agencies wishing to separate themselves from SCGA to provide a sufficient understanding to its board of how the choice of becoming an independent groundwater management agency will provide the best chance for the entire basin to remain sustainable at the least cost.

Commenter	Comment No.	Page No. Section No.	Category	Comments and Responses
Suzanne Pecci representing Sheldon area Residents	C6-02	0		As South County is not near build-out, the agriculture and domestic well owners need a fully funded program to mitigate the effects of quantified but unavoidable impacts resulting from increased levels of pumping. A funding program should be based on the sectors of the region benefiting most economically from the increased groundwater pumping to include home development, entertainment/sports facilities, large shopping complexes and manufacturing facilities. The program will help to assure the continued thriving of the Ag and Ag Res rural communities.
			SCGA Response	Comment noted. The 2006 GMP includes a Central Basin Well Protection Program. This program was developed to respond to forecasted lowering of groundwater elevations in the Elk Grove area (i.e., "deepest part of the cone of depression). The Alternative indicates the steady rise in groundwater elevations over the past 10 years in the Elk Grove area. As a result of these early indications and an evaluation of costs to administer, the Well Protection Program was placed on hold until a direct nexus between groundwater use and impacts to private wells can be determined.

Total Comments = 108

### 1.3 Public Comment Letters

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### Water Forum Outreach Summary Report

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Sacramento Central Groundwater Authority Alternative Submittal for the South American Sub-basin Stakeholder Outreach Process

> Summary Report November 23, 2016

### Prepared by the Water Forum and the Consensus Building Institute

#### OVERVIEW

The Sacramento Central Groundwater Authority (SCGA) is proposing to put forward an Alternative Submittal for the South American Sub-basin to comply with the state's recently passed Sustainable Groundwater Management Act (SGMA).

Given the discussions and comments at SCGA Board and SGMA Subcommittee meetings earlier this year, SCGA staff asked the Water Forum to organize an intensive stakeholder outreach process to ensure interested parties have an opportunity to understand and share their perspectives on the South American Sub-basin Alternative Submittal (Alternative). The intent of the outreach process is to inform SCGA staff and board as they move forward with later stages of Alternative development and consideration.

This report, prepared by Water Forum staff and the Consensus Building Institute (CBI), a nonprofit organization that mediates and facilitates a wide range of complex public policy dialogues, is a summary of the key themes raised during the outreach process. It does not include comments submitted to SCGA as part of its more formal public comment process.

### PROCESS

To foster in-depth discussions within and across stakeholder groups, the Water Forum and CBI designed an outreach process grounded in two distinct phases: first, a series of bi-lateral meetings between key stakeholder groups and SCGA staff and consultants, and then a crossstakeholder workshop with SCGA to reflect back and discuss key themes from the bi-laterals. Water forum Executive Director Tom Gohring convened the discussions; CBI Senior Mediator Bennett Brooks served as facilitator.

The effort focused on six stakeholder groups with a significant interest in and perspectives on the Alternative and the broader SGMA process: Costumnes Coalition, Omochumme-Hartnell Water District, Sloughhouse Resource Conservation District, Elk Grove Water District/Florin Resource Conservation District, Sheklon residents and the Sacramento County Farm Bureau.

Most of the bi-laterals were small focused dialogues, while the meeting with the Farm Boreau was a broader workshop attended by numerous interested parties. The bi-laterals were held in October and early November; the cross-stakeholder workshop was held November 7. SCGA

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staff and consultants (Darrell Eck, Jonathan Goetz, and Rodney Fricke) participated in all meetings, providing a detailed overview of the Alternative and participating in discussions with stakeholders.

The process was designed to foster feedback and engagement. It was not convened by the Water Forum with the intent to either promote or detract from the Alternative.

### KEY FEEDBACK

The bi-lateral meetings and workshop proved to be an effective vehicle for deepening stakeholdiers' understanding of the Alternative and clarifying numerous uncertainties regarding the process and analysis. It also provided an important opportunity to highlight ongoing uncertainties related to the Alternative process, gauge the level of stakeholder support for the submittal and brainstorm some potential strategies for addressing concerns.

In general, stakeholders offered a range of views on the Alternative. Some entities and individuals were supportive (some broadly, others with qualifications). Some voiced significant concerns, with at least one entity explicitly recommending SCGA develop a Groundwater Sustainability Plan (GSP) instead. Still others were non-committal, using the meetings to get a better sense of the ramifications of the Alternative process without weighing in definitively on the menits of the approach. There was also general interest among many, though not all, regarding a possible "parallel process" (discussed in further detail below) to address concerns unable to be addressed through the more constrained Alternative filing process.

Below is a discussion synthesis, highlighting the key themes and findings that emerged from the conversations. It is not intended to serve as a meeting transcript. One important note: The discussions were deliberately structured to surface and discuss stakeholder concerns. Necessarily, this summary provides greater emphasis on reflecting these issues.

### Areas of strength:

Discussions with stakeholders highlighted several benefits of the Alternative approach. For one, some stakeholders said, the Alternative builds on the technical work and structure already incorporated into the existing Groundwater Management Plan (GMP); building off the GMP provides a pathway to streamlined compliance with SGMA while availing the costs and allocation of resources associated with developing a GSP. These stakeholders also expressed confidence in SCGA as a public entity with a 10-year track record as a professional and responsive organization, and they noted that the Alternative offers the potential to focus the next five years on further implementation of groundwater management actions rather than on planning activities that would be the focus of GSP development.

Another advantage, some said, is the potential for the Alternative process to foster regional collaboration; moving forward with the existing GMP, these individuals said, provides a platform for minimizing cross-entity conflicts. Stakeholders also saw the Alternative as providing a solid basis for dialogue with Cosumes Sub-Basin interests on cross-basin

November 23, 2016

FINAL

coordination. Finally, to the extent the Alternative fosters ongoing implementation and serves as a catahyst for beyond GMP actions (e.g., addressing longstanding concerns with the Cosumnes River), the Alternative process is seen as a potential vehicle for setting standards of good stewardship within the region.

### Areas of concern:

Stakeholder discussions highlighted several areas of concern. Most broadly, these concerns centered on the look back nature of the Alternative, the uncertainty surrounding the ability to make changes in the approach outlined in the GMP, and the limited time for in-depth stakeholder dialogue on the Alternative itself. Below is a summary of these key topics.

De facto baseline. Inherent in the 10-year look back is the requirement to assess
groundwater sustainability in the context of the existing GMP. To some, this approach is
seen as appropriate given the apparent progress made on maintaining sustainable
groundwater levels. Others, however, see this approach as troubling as it seems to lock
in a *de facto* baseline that will then shape and constrain groundwater sustainability
dialogues as they move forward. Some stakeholders, for example, said this is
problematic as it appears to hard-wire in a sustainable yield figure before neighboring
sub-basins (e.g., those with a 2022 GSP deadline) have an opportunity to conduct the
technical work that may necessitate reconciliation with South American Sub-basin data.

There are also concerns that the current baseline does not adequately address and assign the benefits of recharge activities currently occurring along the Cosumee River. (One stakeholder recommended that SCGA conduct a joint study of groundwater isotopes to determine the movement of water under and near the Cosumes River.) Additionally, a number of stakeholders voiced concern that the Alternative pathway lacks forward-looking actions to address changed conditions (e.g., shifting land use patterns, climate change impacts, etc.) that have either occurred since the GMP was adopted or are likely to occur in the coming years.

Governance challenges. There is recognition among stakeholders that the Alternative filing raises a number of governance challenges. While some suggested there may be viable pathways to address many of these concerns (several stakeholders said that recent actions by the SCGA Board has demonstrated to them that governance issues have and likely will continue to be satisfactorily resolved), other stakeholders cited several specific considerations. Some stakeholders strongly suggested that there is the need to reconcile the jurisdictional overlap with entities (Sloughhouse RCD, Omochume-Hartnell WD) already field to be GSAs north of the Cosumnes River. There was also concern that the current SCGA board structure, focus and functions may not be sufficient to guide implementation into the future. (For example: Sloughhouse RCD is not currently represented on the board). Some also said they fear a loss of autonomy and voice as future decisions regarding groundwater management and any associated pumping restrictions and/or fees would shift from individual entities responsible for

November 23, 2016

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WF-01

WF-02

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managing groundwater usage within their jurisdictions to the larger SCGA board. This was seen as a particularly acute concern from some agricultural interests who fear getting out-voted by unban interests and worry about an influx of top-down and highcost regulations. Others said they worry about paying for other water users' overdraft. Finally, for some entiries, there is unwanted complexity and costs associated with jurisdictions being split across two sub-basins.

WF-07

· Environmental concerns. A key requirement of the Alternative is the demonstration that the sub-basin has been sustainable for the past 10 years. To some, this assertion is WF-08 too easily misread as an "all is well" message regarding the Cosumnes River. This triggers several concerns. For one, they said, it makes it challenging to galvanize the funding and political will necessary to address longstanding environmental problems on the Cosumnes (in-stream flow needs, protecting fall run Chinook, etc.); some stakeholders expressed concern that the Alternative creates an impression that the Cosumnes River is not having problems related to groundwater. Secondly, it picks at a lingering frustration regarding the failure of parties to fully implement the WF-09 Memorandum of Agreement (MOA) entered into by the Sacramento County Water Agency (SCWA), The Nature Conservancy, and the Southeast Sacramento County Agricultural Water Authority to manage water and environmental resources along the Cosumnes River. Finally, the Alternative is seen as constraining opportunities to protect WF-10 important groundwater-dependent ecosystems along the river as discussed and required by SGMA

Some stakeholders pointed out, however, that the 10-year lookback framework of the Alternative essentially creates a 2005 baseline for Cosumnes River conditions, which would be more rigorous than the 2015 baseline required under a GSP.

- Sustainability indicator/undesirable results. The Alternative is inherently a look-back which makes the case that the sub-basin has been sustainable over the past 10 years. and does not have any of the six undesirable results described under SGMA. In reviewing the technical data with SCGA staff, several stakeholders voiced concern that WF-11 falling groundwater levels are potentially problematic and inconsistent with SGMA objectives, even if some areas are caused by remediation pumping. In particular, stakeholders pointed to areas along the Cosumnes River and in the northeast section of the sub-basin. (Other stakeholders acknowledged that the lower groundwater levels are signs of potential concern, but do not rise to the level of undesirable effects.) Additionally, some said the groundwater disconnect with the Cosumnes River is likely expanding (both in terms of depth and length) and could lead to worsening impacts on WF-12 groundwater dependent ecosystems. Finally, several stakeholders voiced concerns that pumping in the Cosumnes Sub-basin is negatively impacting groundwater sustainability in the South American Sub-basin.
- Lock of proactive focus. For some, the crux of their concerns with the Alternative are
  rooted in their sense that the reliance on the 2006 GMP [and DWR's direction that the

November 23, 2016

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Alternative must be backwards-looking only and not incorporate new programs] unnecessarily limits the scope of future activities within the sub-basin. There is, for example, uncertainty regarding the extent to which the SCGA Board can adapt the plan moving forward to address changed conditions. Does the GMP, some wonder, freeze actions only to those already articulated in the GMP? There are also concerns that the Alternative filing sidesteps what some described as a fundamentally more comprehensive planning approach envisioned under SGMA's GSP planning process, one that locks forward from 2015 to identify the water use needs and land use changes that will drive future groundwater demand. Finally, there is a strong interest among a number of stakeholders in an SCGA staff and board that is more proactive in supporting groundwater management and exercising leadership, including greater support of river restoration projects.

- Other considerations. Not surprisingly, discussions with and across stakeholder groups generated extensive feedback on numerous other issues. Below is a quick summary of some of these additional considerations.
  - Stakeholder engagement. While stakeholders welcomed the outreach effort, some suggested the overall outreach was "too little, too late, too fast," and they suggested more time was needed for stakeholders to be made aware of and adequately review and consider the merits of the Alternative. Others, it should be noted, expressed satisfaction with the process given the technical work required, the focused bi-laterals and the impending January 1, 2017, deadline, less than six months after the release of the DWB regulations.
  - Future fand use. Some stakeholders voiced concern that the Alternative has the
    potential to constrain and/or shape future land use, whether that means
    impacting cropping patterns, limiting the economic viability of agricultural lands,
    accelerating urbanization or constraining land use conversions.
  - Process considerations. Stakeholders raised several questions and concerns regarding the Alternative process itself, including: (1) DWR's timeline for reviewing the submittal; (2) ramifications of the Alternative's overlap with GSA filings by Sloughhouse RCD and Omochumne-Hartnell WD; (3) the structure, legal underpinning and implications of the review process; (4) the details and basis for coverage under the California Environmental Quality Act (CEQA); and (5) the nature of County Board of Supervisors involvement, if any.
  - Trust-related considerations. Some stakeholders suggested that past and ongoing dynamics – incomplete execution of the Consumes River-focused MOA, limited funding/implementation of GMP actions (e.g., well protection program); cross-basin tensions, etc. – undermine their confidence in and willingness to support the Alternative process.
  - Level of detail. Stakeholders pointed to several aspects of the Alternative filing that they fold lacked sufficient detail. For example, some noted the need to articulate greater clarity on the process and timing for cross-basin coordination on technical analyses. There we re also recommendations to more fully.

November 23, 2016

FINAL

WF-13

WF-14

WF-15

WF-16

document remediation sites within the sub-basin and clarify SCGA's ability to accurately track water usage by agriculture. UWF-16, Continued

#### Strategies Moving Forward

Though the primary focus of stakeholder outreach centered on explaining and seeking feedback on the Alternative, discussions also included initial brainstorming on strategies to address issues raised during the dialogues. Below is a brief symbolis of the ideas discussed. It is important to note that these ideas are not intended to represent an agreed-upon package of actions. Rather, they reflect individual ideas raised and discussed and are provided to inform future deliberations and be comprehensive in reporting out the stakeholder outreach process.

- Range of reactions. As noted earlier, participants offered a range of reactions regarding
  next steps. At least one entity strongly recommended scrapping the Alternative process
  and developing a GSP instead. Several groups encouraged SCGA staff to pursue the
  Alternative but flagged areas needing to be addressed or clarified. Still others offered
  contingent support pending SCGA's commitment to meaningfully address perceived
  deficiencies (either within the Alternative, as possible, or on a parallel path). Finally,
  some stakeholders opted not to characterize their level of support.
- Various strategies for addressing concerns. Some stakeholder comments focused on suggesting specific changes to the Alternative to address concerns. These changes tended to be few and narrower in scope and focused on topics such as better delineating groundwater contamination sites within the sub-basin, better articulating recent changes to land use and irrigation methods in the Cosumnes and South American Sub-basins or more strongly emphasizing the importance of the existing well protection program. More typically, participants suggested approaches that fall beyond the scope of the Alternative (and the 10 year look back). These include the following:
  - Actively work to communicate to the SCGA Board and stakeholders the scope of actions included with the 2005 GMP and the latitude they provide to address longstanding environmental concerns and changed conditions. This was a key issue that emerged during the cross-stakeholder dialogue.
  - Articulate a clear commitment to engage in cross-basin coordination agreements. Such commitments would identify a process to seek a technically sound and mutually agreeable approach to resolve issues ranging from confirming sustainable yield to establishing an accurate mechanism for recharge accounting.
  - c Engage in dialogue to address the jurisdictional overlap between the Alternative and Sloughhouse RCD and Omochume: Hartnell WD GSA filings in the South American Sub-basin. Some participants advocated for SCGA (and other entities, such as the County of Sacramento) to support the Sloughhouse RCD proposed basin boundary changes. Others suggested a dialogue to establish a mutually agreed upon area with a separate or overlapping governance structure that

November 23, 2016

WF-17

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better represents the agricultural interests of each area with overlapped GSA filings.

- Articulate a clear commitment to partnering with others to increase groundwater recharge in and near the Cosumnes River and to complete the Cosumnes River pre-wetting project.
- Consider governance changes within SCGA to ensure that areas potentially impacted by the Alternative have an adequate voice. Potential changes include, among others, broadening representation on the SCGA board, revisiting SCGA board decision-making protocols and considering mechanisms for assigning fees.
- Explore the concept of management zones as a construct for characterizing specific sustainability challenges (and potential remedies) within more narrowly defined areas. Such an approach could be helpful, several stakeholders said, both to address underlying water management needs and provide assurances that remedies will be targeted at the appropriate water users.
- Articulate a credible outreach strategy to, as best as possible, ensure water users are fully informed of groundwater management activities and providing ongoing input into the implementation of the Alternative. This was seen as particularly important to engage stakeholders who will be responsible for shouldering the costs of any groundwater management actions.
- Merit of parallel path. While some stakeholders were opposed to the Alternative (as
  noted earlier), there was interest among some in exploring the viability of a "parallel
  path" to address concerns that do not fit within the construct of the 10-year look-bade.
  The exact look and feel of a parallel process was not well defined, but the discussion
  centered on a process (external to the Alternative filing) by which SCGA would articulate
  and commit to tackle a wide range of concerns as described above. Discussions would
  need to start in the very near-term to buttress stakeholder confidence in the Alternative
  process.

Tom Gohning (Water Forum) noted that the Alternative's board approval process may offer a potentially viable mechanism to track and assure implementation of a parallel path, given SGMA's requirements that areas filing Alternatives still need to submit annual reports and more substantial 5-year assessments to confirm ongoing sustainability. The table diagram below highlights similarities and distinctions between the two paths.



### FINAL THOUGHTS

The Water Forum is appreciative of the opportunity to support SCGA and stakeholders in this important dialogue and remains open to providing its resources, staff and consultants to further constructive dialogue in the months ahead.

November 23, 2016

WF-18

# Comment Letter No. 1 (Env\_Cosumnes Coalition)



November 11, 2016

Dartell Eck Executive Director Sacramento Central Groundwater Authority (SCGA) 827 Th Street, Room 301 Sacramento, CA 95814 e-mail: eckd@saccounty.net

#### Sent via E-mail

### Subject: Cosumnes Coalition Comments on the SCGA Draft "Alternative Submittal"

### Dear Mr. Eck

Trout Unlimited (TU) and its partners in the Cosumnes Coalition appreciate this opportunity to comment on SCGA's "Atternative Submittal". The Cosumnes Coalition is a group of partners formed to restore and preserve the ecological, cuttural, recreational, municipal, and agecutural values of the Cosumnes Watershed. The partners include Trout Unlimited, American River Conservancy, Cosumnes Culture and WaterWays, Fishery Foundation, and Landmark Environmental Consultants. We are very interested in the proposed approach to Sustainable Broundwater Management (SGMA) compliance, given the well-defined impacts of groundwater levels on the timing of the re-connection of flows of the Cosumnes River, which affects aation ingration, and the groundwater dependent ecosystems (GOE's) such as righting therests.

SCGA is submitting a request to the Department of Water Resources (DWR) to be exempt, at least temporarily, from the planning and management activities mandated by SGMA, pursuant to a provision of the statute which permits the submittal of "an analysis of basin conditions that the basin has operated within its sustainable yield over a period of at least 10 years."

The Coalition has concerns about this approach. We believe that the authors of SGMA intended this "exemption" to be available to basins with a long track record of successful groundwater management, with a SGMA-relevant definition of "sustainable yield," with a tabies monitoring programs in place to assess origoing impacts on groundwater dependent ecosystems and relevant trends, with a relatively stable land use environment, and with a sound understanding of potential climate change impacts on the basin and a framework of measures in place to monitor and address those impacts. The SCGA "attemative" speaks only to the overall amount of water pumped, not to the acknowledged challenges and opportunities that SGMA is intended to address.

Notwithstanding these concerns, we find very encouraging the recent efforts by SCGA to engage stakeholders in discussion and exploration of projects and measures that would address broader SGMA concerns. The Coalition's utilimate position on the SCGA "attemative," and how that position is expressed to the California Department of Water Resources, will

Page tot2

depend on the success of these efforts over the next few months to identify and commit to the implementation of a set of measures that anticipate and address those SGMA concerns.

Specifically, the Coalition asks for an acknowledgement by SCGA in the "alternative" filing that SCGA's existing Groundwater Management Plan identifies the Cosumnes River as highly significant, both for the importance or its ecological resources and for its rectarge capability. We also request that the "alternative" filing include a statement of intent to develop programs and policies that achieve enhanced recharge and ecological benefits in tandem. C1-05

We also encourage SCGA to continue to engage interested parties in the "parallel track" discussions, with the goal of committing SCGA (or the appropriate agency) to participate in the rollowing activities:

 The annual flow augmentation/channel pre-wetting program identified in the February 2005 3party Memorandum of Agreement\*.

 Pro-active multi benefit recharge and monitoring activities, such as support of Omochumne Hartneti Water District's off season irrigation project and participation in exploring wiretess network monitoring and analysis options being developed in coordination with UC Water

 Initiating a broad dialog between the SCGA board and staff and interested parties, including the Coalition, about mult benefit goals for the future. Pidential shared interests might include participation in regional storm water resource planning efforts, providing technology and knowledge resources to SCGA Board member organizations, and supporting mutually identified recharge project grant applications with letters of support or technical information.

SGMA envisions – and we believe the challenges faced by SCGA compel – a pro-active approach to groundwater management. The Coalition is utimately less interested in the pathway by which SCGA achieves formal SGMA compliance than in seeing a rapid and effective shift by SCGA toward that pro-active groundwater regime. We look forward to supporting that transition.

Respectfully submitted,

Dr. Jur Mare

Melinda Frost-Hurzel Cosumnes River Monitoring Coordinator Trout Unlimited/Cosumnes Coalition Mike Eaton Cosumnes GDE Advisor Cosumnes Coalition

\*\*Memorandum of Agreement for the Management for Waker and Environmental Resources Associated with the Lower Countmese River: A Collaboration of the Saccamento County Water Agency, The Nature Conservancy, and Southwards Sacramento County Agricultural Water Adhorty\*

Page 2 of 3

C1-01

C1-02

C1-03

C1-06

C1-09

Elena cle Lary

Elena De Lacy Stewardship Director American River Conservancy Cosumnes Coalition



Kimberly Petree Executive Director Cosumnes Culture and WeterWeys Cosumnes Coalition



Trevor Kennedy Executive Director Fishery Foundation of California Cosumnes Coalition

Kon Many

Karen Quidachay President Landmark Environmental Inc Cosumnes Coalition







Page 3 of 3

# Comment Letter No. 2 (EGWD\_FRCD)



November 1, 2016

Darrell Eck Executive Officer Sacramento Central Groundwater Authority 827 7<sup>th</sup> St. Rm. 301 Sacramento, CA. 95814

DRAFT SOUTH AMERICAN SUBBASIN ALTERNATIVE SUBMITTAL - ELK GROVE WATER DISTRICT COMMENTS

The Elk Grove Water District has reviewed the subject document (Submittal), dated October 12, 2016 and offers the following comments.

In general, this document is well written and we appreciate the efforts of the Sacramento Central Groundwater Authority (SCGA) staff and GEI Consultants. Inc. The technical content and data included in the Submittal should be compelling in our proposal to the Department of Water Resources.

In this regard, there are a few things that may make this document even more C2-01 persuasive. First, given its length and complexity, an Executive Summary, not exceeding 4-5 pages, should be prepared to concisely summarize what is in the Submittal and why it should be approved. Such an Executive Summary would also make it easier for the SCGA Board Members to understand what they will be asking to approve in December.

Also, from a structural standpoint, all three chapters should be compiled as a single C2-02 report or submittal. These chapters are currently structured such that Chapters 1 and 2 appear to be one submittal and Chapter 3 is another submittal. The author should merge the two Tables of Contents into one table preceding Chapter 1.

We understand that there are certain elements yet to be prepared that are not yet C2-03 included in the Draft Submittal and these are highlighted in yellow. We will review these as these are made available.

9257 Elk Grove Blvd. Elk Grove, CA 95624 (916) 685-3556 Fax (916) 685-5376

November 1, 2016 Darrell Eck

#### SOUTH AMERICAN SUBBASIN ALTERNATIVE SUBMITTAL - ELK GROVE WATER DISTRICT COMMENTS Page 2

Our specific comments on this Draft Submittal are as follows:

- 1. Pg. ii, the Notice for Public Comment cites that staff believes the Submittal is categorically exempt from CEQA pursuant to CCR Title14, Section 15308. In the final document, we suggest that the reference to a categorical exemption include the actual text of the CCR section in addition to the CCR section number so that the reader doesn't have to look it up.
- 2. Pg. vi Include Functional Equivalency (FE), Florin and Memorandum of Understanding (MOU) in the List of Acronyms.
- 3. Pg. 1-6, section 1.1.5, 2<sup>nd</sup> paragraph The last sentence does not read correctly.
- C2-04 4. Pg. 1-9, section 1.2, item 10 - The reference to SGMA is misplaced since SGMA
- wasn't around in 1995. Suggest rephrasing. 5. Pg. 1-14, section 1.5.1, 1<sup>st</sup> paragraph - The first sentence states SCGA has Thru prepared the Alternative to conform with SMGA's promotion and support for local actions to sustainably manage groundwater subbasins, recognizing and preserving the authority of cities and counties to manage groundwater pursuant to their police C2-16 powers. The EGWD disagrees with this statement. Per Water Code section 10725, a groundwater sustainability agency (GSA) is granted powers by SGMA once the GSA adopts and submits to the Department of Water Resources a groundwater sustainability plan or prescribed alternative plan. The powers granted by SGMA are sufficient to manage the groundwater basin in compliance with SGMA.
- 6. Pg. 1-17, Section 1.5.6 All of the information contained on this page should be merged into Chapter 3.
- 7. Pg. 2-1, section 2.1, 1st paragraph, last sentence We suggest also referencing California Water Code 10721(x) for the list of six (6) undesirable results (URs).
- 8. Pg. 2-9, second paragraph The hypothesis, and the purpose of the hypothesis is unclear. This should be modified and explained further.
- 9. Pg. 2-11, the last paragraph It erroneously states the blue line is on top and the orange line is on bottom in Figure 2-5, where actually the figure has the orange line (Subtracted Area) on top and the blue line (Delta) on bottom.
- 10. Pg. 2-16, second sentence in section 2.3.2 doesn't read correctly.
- 11. Pg. 2-20, Figure 2-8 The other sources of contamination shown on the figure should be addressed and discussed in this Section. Are there other remediation activities that our outside the control of SCGA as they may relate to groundwater management?
- 12.Pg. 2-23, first paragraph sentence doesn't read well. We suggest that this paragraph be re-written.
- 13.Pg. 2-28, Subsection 2.4.3 title This subsection title should be different than the

9257 Elk Grove Blvd. Elk Grove, CA 95624 (916) 685-3556 Fax (916) 685-5376

November 1, 2016 Darrell Eck

### SOUTH AMERICAN SUBBASIN ALTERNATIVE SUBMITTAL – ELK GROVE WATER DISTRICT COMMENTS

Page 2

Section 2.4 title.

- 14. Pgs. 2-28 to 2-31 It is unclear whether the author is indicating that the two different models are comparable, or not. This is a general problem that should be addressed in other areas of the Submittal as well. The author should make a clear point or assertion, and then follow that point with the proof or documentation. In this case, for example, the data shown in Table 2-8 is interesting, but what does it really tell the reader? C2-16
- 15. Pg. 2-33, last paragraph, third sentence We suggest adding the following underlined language for clarification. "As <u>groundwater extractions increase</u>, the Cosumnes River and Deer Creek floodplain provides increased recharge along hydraulically connected reaches near the confluence of the two surface water sources and the Delta;..."
- 16-Pg. 2-34, last paragraph of section 2.5.1 This paragraph is confusing. The first sentence relates only to 2010, but do the minimum groundwater level variations relate to all the forecast periods (1990, 2000, 2010, 2020, & 2030)? Do these numbers relate to Figure 2-16? If so, we are unable to correlate the numbers to the figure.
- Pg. 2-52, last paragraph, second sentence This sentence should read Figure 2-26, not Figure 2-25.
- 18.Pg, 2-64, Section Title The word Brief should be deleted from the title.
- 19. Pg. 2-64, Section 2.8 This section should be stronger and more compelling. This section is essentially the final argument of why we think the Alternative Submittal should be accepted and approved by the DWR. It needs more punch.
- Pg. 2-64, Second paragraph, first sentence should be revised to read "...water supply requirements, in-geologic time this is a very short time geologically."

Again, the Elk Grove Water District appreciates the opportunity to comment on this Draft Submittal. Please call me at (916) 685-3556 if you have any questions or require additional information.

mal MARK J. MADISON

GENERAL MANAGER

MJM/bk

Cc: Tom Nelson, Vice Chair, Florin Resource Conservation District/Elk Grove Water District

9257 Elk Grove Blvd. Elk Grove, CA 95624 (916) 685-3556 Fax (916) 685-5376

### Comment Letter No. 3 (OHWD)

November 11, 2016 RE: Alternative Submittal under SGMA Omochumne Hartnell Water District Thank you for the opportunity to provide comments on SCGA's proposed submission of an Alternative Plan for the South American Subbasin. The District shares SCGA commitment to long-term protection and sustainable management of groundwater. The District's service area straddles the Cosumnes and South American subbasins, and the District has long been a key player in groundwater management around the Cosumnes River Н As a water district that represents agriculture and rural residential interest in the Cosumnes River region, OHWD has concerns about the Central Satramento Groundwater Authority proposed South W American Subbasin Alternative Submittal. Specifically, the Alternative Submittal relies on sustainable yield numbers that were developed in the 1990's during the Water Forum process, and have not been sign ficantly updated in the last 20 years. The supporting data surrounding recharge, yield, and management in OHWD's service area is particularly limited. We believe to meet the necessary requirements of SOMA, a more detailed analysis of flow and yield surrounding the Cosumnes River, together with the Mart A Kautz CRAIRMAN consideration of more recent data and studies that have been completed since the Water Forum process, is required. The Lelond Schneider District provided a comprehensive overview of this more recent VICE CHAIRMAN data in its basin boundary modification request, the findings of Renald R. Lowey which are incorporated by reference herein TREASURER The District has raised concerns in the past about the accuracy of Robert L. Mehon SCOA's modeling and yield data in the District's service area. 00000000 While the District recognizes SCGA's commitment to the Thomas Young Jr. protection of the South American Basin, we are concerned that the DERECTOR current alternative submission is not based on the best available data. For example, the yield data developed by the Water Forum Michael Wackman process included acreage that is not currently included as part of GENERAL MANAGER the Alternative Submittal. We have serious concerns that this process does not fit the criteria of an alternative submittal since Certhis Inelies BOARD SECRETARY the previous sustainable yield studies do not match the actual American River rub-barin. The Alternative Submittal also includes acreage which was not previously studied. Though the submittal indicates that this acreage has been "subtracted" from the plan area, SCGA does not maintain or monitor wells in that region, and so has very little data upon which to evaluate the accuracy of the sustainable yield numbers it has calculated. This omission is significant, as the District believes that

Phone: 916-682-5958 Street Address: 7513 Sloughhouse Road, Elk Grove, CA Mailing Address: P.O. Box 211, Wilton, CA 95693-0211 Email info@obwd.org

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recharge in this particular portion of the South American Subbasin contributes substantially to groundwater yield and flows in the Cosumnes Subbann.

The alternative submittal states that "[f]uture Cosumnes Subbasin Groundwater Sustainability Agencies (GSAs) will be asked to coordinate closely with SCGA in these areas because of the continued influence on the recharge and management of the South American Subbann." The District is working with fellow Southeast Sacramento County Agricultural Water Authority members, the City of Oalt, Sloughhouse RCD, and other stakeholders to identify a governance plan and prepare a GSP for the San Joaquin Valley Cosumnes sub-bann. SCGA's potential submittal of an alternative plan raises questions on how to ensure that technical information used to develop the two basin plans are C3-06 convirtent and compatible, given the five-year difference in deadlines between alternative plan submittals and GSPs. To that end, we urge that any alternative plan submission by SCGA makes it clear that SCGA will be coordinating closely with OHWD and other C3-07 stakeholders to gather additional information regarding the yield and recharge activity around the Corumnes SubBasin boundary, and will update its alternative plan submittal as that additional information becomes available

Finally, the District notes that SCCA directed staff at its November 9 meeting to "deaft a C3-08 resolution addressing specified stakeholder requests" for consideration at the agency's December 2016 meeting. No draft of that resolution has yet been circulated, and the District reserves its right to provide further comments on the alternative submittal and corresponding resolution when that resolution comes before the SCGA Board

Again, we appreciate the opportunity to provide comments on SCGA's alternative plan submittal for the South American Subbasin. We look forward to working cooperatively and constructively with SCGA and other stakeholders to comply with SOMA and ensure long-term sustainable management of groundwater in our region.

Thank you,



General Manager

Phone: 916-682-5958 Street Address: 7513 Sloughhouse Road, Elk Grove, CA Mailing Address: P.O. Box 211, Wilton, CA 95693-0211 Email info@ohied.org 1442244.2

C3-01

C3-02

C3-03

C3-04

C3-05

## Comment Letter No. 4 (Ag\_SRCD)



400 Capitol Mail; 27th Floor Decramento, CA 55514 T 916 321 4555

fanayeter Walter Pwater@kmlg.com November 10, 2016 Page 2

November 10, 2016

Sacramento Central Groundwater Authority Atts: Ramon Roybel 827 7<sup>th</sup> Street, Rm 301 Sacramento, CA 95814

Re: Public Comments on SCGA Draft Alternative Plan

### To Whom it May Concern:

This law firm represents the Stoughhouse Resource Conservation District (District). On behalf of the District, I submit the following comments on the Sacramento Central Groundwater Authority's (Authority or SCGA) alternative plan public review draft, dated October 12, 2016 (Alternative Plan). The District has many concerns, detailed below, which generally relate to the following major issues:

 The Authority has not completed with the California Environmental Quality Act, Public Resources Code 21000 et seq. (CEQA), in its preparation and adoption of the Alternative Plan.

(2) The Alternative Plan contains numerous outdated, erroneous, or unexplained assumptions data, and methods, which substantially undermine its conclusions.

(3) The Atternative Plan fails to demonstrate the South American subbasin has or will be operated sustainably to avoid undesirable results, and it fails to demonstrate compliance with the Sustainable Groundwater Management Act's ("SGMA") purposes, intent, and the "functional equivalency" standard for alternatives.

(4) The Authority's Alternative Plan process has been plagued by lack of public outroach, stakeholder involvement, and transparency from the beginning.

For these reasons, the District strongly urges the Authority to rethink its current actions and abandon its apparent strategy of barreling forward with a hastily prepared, technically flawed, and insufficient Alternative Plan.

The Alternative Plan is Based on Inconsistent, Outdated, and Confusing Analyses and Data and Falls to Satisfy SGMA

C4a-01

The District commissioned the professional engineering and scientific firm Erier & Kalinowski, Inc. (EX) to critically review the Alternative Plan. EX's review revealed significant gaps and flaws in the Alternative Plan's discussion, explanation of its methode, and, more importantly, with the analyses and data presented to attempt to demonstrate sustainability and functional equivalency as required by SGMA and its regulations. EXI concluded the Alternative Plan close.

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not settisfy functional equivalency and that SCGA has not demonstrated sustainable management over the past 10 years. EKI's comments are attached as Exhibit 1 and hereby incorporated as part of the District's comments on the Atternative Plan.

### The Alternative Plan is Subject to CEQA

The Authority's adoption and approval of the Alternative Plan for subsequent submittal to the California Department of 'Water Resources' ("DWR") would be a discretionary action within CEQA's definition of a project, as would be any subsequent discretionary actions that DWR related to the Alternative Plan. However, the Authority has not initiated any CEQA process in relation to the Alternative Plan. However, the Authority has not initiated any CEQA process in relation to the Alternative Plan. However, the Authority has not initiated any CEQA process in relation to the Alternative Plan. However, the Authority has not initiated any CEQA process in relation to the Alternative Plan. However, the Authority has not initiated any CEQA process in relation to the Alternative Plan. However, the Authority has not initiated any CEQA process in relation to CEQA. The District disagrees and opposes the Authority's approval of the Alternative Plan (i.e., CEQA 'project') until the Authority fully complies with the procedures of CEQA, ration attempt to shirk its CECA responsibilities by othing inapplicable exemptions or otherwise.

### SGMA Expressly Exempts Groundwater Sustainability Plans from CEQA, but Not Alternative Plans

In SGMA, the Legislature expressly created a statutory exemption from CEQA for the preparation and adoption of Groundwater Sustainability Plans. (Water Code section 10728.6.) The Legislature did not, however, create any similar exemption for the preparation and adoption of alternative plans. The Legislature's enactment of a statutory exemption for preparation and adoption of GSPs demonstrates the Legislature's understanding and intert that absent such an exemption, preparation and adoption of alternative plans and other actions under SGMA would oftenvise is subject to CEDA. Furthermore, the Legislature's distinction between GSPs and "alternative submittals," which it separately addressed in a different part of SGMA outside the chapter dealing with GSPs, is more evidence of an intert to distinguish GSPs from absentatives and to <u>not</u> grant alternative plans the same CEDA exemption granted to GSPs. This conclusion is supported by the fact that Chapter 6 of SGMA provides CEOA-like processes for public notice and participation, consultation with cities and counties, and a formal public hearing prior to GSP adoption. (See e.g., Water Code section 10727.8, 10728.4.) In contrast, SGMA provides no similar CEOA-like process with process with processes for the preparation and adoption of supported by the process of the preparation main adoption of alternative plans, and without CEOA review, no such process with process with process with process of the preparation.

#### The Authority's Adoption and Implementation of the Alternative Plan Could Reasonably And Foreseeably Cause Significant Environmental Impacts

"CEOA is a comprehensive scheme designed to provide long-term protection to the environment." (Mountain Lion Foundation v. Fash & Game Com. (1997) 16 Cal 4th 105, 112.) "Its purposes are mainfold, but chief among them is that of providing public agencies and the general public with detailed information about the effects of a proposed project on the environment." (San Franciscans for Reasonable Growth v. City and County of San Francisco (1984) 151 Cal App 3d 61, 72.) Environmental protection is the guiding concept in interpreting CEOA. "The foremost principle under CEOA is that the Legislature intended the act to be interpreted in such manner as to afford the fulless possible protection to the environment within

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C4a-03

November 10, 2016 Page 3

the reasonable scope of the statutory language." (Laurel Heights improvement Assn. v. Regents of University of California (1988) 47 Cat.3d 376, 390 (Laurel Heights), In Laurel Heights improvement Asan. v. Regents of the University of California (1993) 6 Cat.4" 1112, the California Supreme Court raiterated that the purpose of an EIR is "to inform the public and its responsible officials of the environmental consequences of their decisions before they are made." (Id. at p. 1123 orginal tatics.)

CEOA's concept of a "project" requiring an environmental study was aptly described in *Bozung* v. Local Agency Formation Corn. (1975) 13 Cal.3d 263. *Bozung* was concerned with a Local Agency Formation Commission decision to approve an annexation proposal. The commission argued that athough the development of the land following annexation might have an environmental effect, the mere approval of the proposal had no such effect. Similarly here, it appears SCGA's view may be that its adoption of the Alternative Plan is a paper exercise alone and without environmental impocts that would trigger CEQA review. Not so. As the Court In *Bozung* explained:

> The notion that the project itself must directly have such an effect was effectively sortatched in *Friends of Marmoth v. Board of Supervisors* (1972) 8 Call 3 d 247. The granting of a conditional use permit — a piece of paper — does not directly affect the environment any more than an annexation approval — another piece of paper. *Friends of Marmoth, of ocures,* said that the word "project" appears to emphasize activities *culminating* in physical changes to the environment. ..." (*Id.*, at p. 285. Itatics added.)

The Court accordingly held in *Bozung* that approval of the annexation — a necessary step in a chain of events which would culminate in physical impact on the environment — required an environmental impact report.

Similarly here, SCGA's Alternative Plan establishes fixed markers and a blueprint for future activities involving groundwater that could significantly affect the environment. The Alternative Plan could reasonably and foreseeably cause environmental impacts that require careful consideration by SCGA and DWR before approving the Alternative Plan. These potential impacts also deserve to be disclosed and provided to the public for review and comment prior to project approval. While this point seems obvious, especially in the context of the SGMA compliance and implementation that SCGA proposes to accomplish through the Alternative Plan. SCGA's Alternative Plan essentially admits this is the case by Inking future actions to the Alternative Plan. The Alternative Plane steationship and link to additional future activities is also made plain by its statement that "[future projects no doctions may be discussed and approved at SCGA Board Meetings. The Board has the discretion to determine whether a proposed project will create uncleasiable results within the subbasin, and the level of financial or policy support by SCGA." (Alternative FL-25.)

Alternative Plan brings new areas under groundwater management for the first time

C4a-04



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November 10, 2016 Page 4

For instance, the Atemative Plan states: "SCGA's JPA language defines the Authority's eastern boundary to be the El Dorado County line, which includes areas to the east of the GMP area boundary. SCGA will conduct management and funding actions consistent with the GMP in these "eastern fringe" areas." (Alternative Plan 3-1.) Thus, these fringe areas that currently are without any formal groundwater management regime will be brought under that regime through SCGA's adoption and implementation of the Alternative Plan.

Alternative Pian includes SCGA entering into an MOU with other local agencies defining management roles and actions for certain areas

C4a-05

The Alternative Plan also states that SCGA will enter into some form of discretionary contractual relationship with other locat agencies in part of the South American subbasin, which will define management roles and responsibilities. (See e.g., Alternative Plan 3-2) The SCGA-Data MOU (Appendix C) is provided for further confirmation of the level of cooperation and coordination that is occurring with Delta interests in the development and implementation of the Alternative, and the desire of these interests to achieve SGMA compliance."). Execution of that MOU as part of the Alternative Plan is further evidence of the applicability and need for CEQA review. Furthermore, the MOU is not described and epparently left until later, pethage even after adoption of the Alternative Plan, which is uniawful segmentation of a project under CEQA. The entire Alternative Plan project, including its MOU component, should be described and analyzed according to CEQA before either is adopted or executed.

Alternative Plan Tooks-In' a numeric sustainable yield value for the basin that will affect management, land use, and other, anylionmental variables throughout the area. Including in neighboring basing.

The Alternative Plan establishes and "locks-in" a sustainable yield value for the South American subbasin that will affect urban growth, land and water use, and the environment (including tah, wildlife, and plants). The Alternative Plan would create a situation where the approximate 273,000 af sustainable yield number it establishes will be used to manage water use in the South American subbasin. This means that development and growth that increases demands for water would be allowed so long as if ifs within this sustainable yield limit. Increases demands building blocks of land use decisions such as development and growth that increases demands drivers of future groundwater management additions. The SGGA's own technical memorandum on groundwater recharge admits that "[t]his information can be used to support land use decisions and to manage surface and groundwater resources." (Exhibit 2, December 2015 Technical Memorandum, p. 47.) As explained here and in the attached EKI analysis, there is considerable uncertainty regarding the valuet under CEQA.

The Alternative Plan will also significantly affect groundwater use and SGMA compliance activities in neighboring basins such as the Cosumes subbasin where the District is a GSA. SCGA's claim and action of 'locking-in' the 273,000 af sustainability value for the South American basin will essentially require neighboring basins to conform their data and assumptions to the Alternative Plan's sustainable yield value and groundwater recharge

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November 10, 2016 Page 5

assumptions for the South American subbasin. This will impact quantities of groundwater and recharge evaluate to each basin from shared sources of recharge water. A prime example is the Cosumes River, whose surface flows recharge groundwater and which serves as the boundary between the South American and Cosumnes subbasins.

Absent competing scientific evidence to the contrary, the District believes it is reasonable to assume that the flows of the Cosumnes River likely divide comowhat equally between the two basits, so that that the rectaining eace month to the South American subbasin and half goes south to the Cosumnes subbasin. However, this is not what SCGA's Atternative Plan and its current assumptions for management and development under it assume. Instead, a careful analysis of SCGA's assumptions reveals that the Alternative Plan and its numeric claims of south interican subbasin.

How unequal is this groundwater recharge apportionment? Figure 2 of SCGA's 2015 Technical Memorandum shows that SCGA has assumed approximately 278,800 at of recharge from various components, essentially equaling the 273,000 af sustainable yield value fixed in the Alternative Plan. The pie chart in Figure 2 shows that 88,100 af is attributed to recharge from the Cosumnes River and Deer Creek. A closer look at the segments of the Cosumes (from upstream to downstream) and the recharge values shows the following segments and splits:

Segment Stream Seepage (af)	Subsurface flow to Cosumnes subbesin	Seepage attributed to South American subbasin as recharge	Percent of seepage claimed by SCGA for South American subbasin	Percent of seepage assigned to Cosumnes subbasin as subbasin as subsurface flow
1,000	0	0	0	0
21,200	2,800	18,400	87%	13%
32,100	9,300	22,800	71%	29%
17,500	7,800	9,800	56%	44%
10,300	0	10,300	100%	0%
2,500	0	2,500	100%	0%
Total = 84,700 af	= 19,900 af	= 63,800 af	75.3%	23.5%

As the table above shows, SCGA's assumptions for sustainability in the Alternative Plan require a very high and disproportionate amount of the flow of the Cosumnes River to serve as recharge for only the South American subbasin. In fact, SCGA's Atternative Plan is claiming saveth-five percent of all recharge from the Cosumnos! Furthermore, Figure 2 demonstrates that SCGA has claimed use to all the recharge of Deer Creek for the South American subbasin as veril, amounting to another 5,400 at. These assumptions are not supported and obviously insecurate. As part of its besin boundary modification application, the District submitted evidence that the area south of the Cosumnes is much more highly connected to the river than more distant areas in the South American subbasin. Locking in such an erroneous and lopsided



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November 10, 2016 Page 6

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assumption on groundwater recharge in the area will significantly impact the sustainable use and management of groundwater in the Cosumness subbasin, and it has potential to significantly impact land use decisions such as devalopment, farming, or equaculture in the area, all of which must be based on the availability of water supplies such as groundwater.

The Atemative Pian will affect the unique and sensitive groundwater contamination and fisheries issues in the basin, which have been recognized by the California Supreme Court

C4a-08

The importance and sensitivity of proper management of the South American subbasin's groundwater was discussed by the California Supreme Court in Vineyard Area OliZowa for Responsible Growth, inc. v. Oty of Rancho Cardova (2007) 40 Calith 112. That case involved decertification of an EIR that inadequately addressed groundwater demands and proposed extractions for large-scale residential development in the South American subbasin. The opinion discussed the various assumptions for water in the area, including the Water Forum documents that serve as one of the bases for the 273,000 af sustainable yield number that SCGA sets forth in its Alternative Plan. The opinion found that groundwater corramination and other effects were unique and serious problems in the South American subbasin and that continued groundwater pumping and its affect on salmon in surface streams like the Cosumnes River were inadequately analyzed. These same environmental effects are at issue here and could be exacerbated by the Alternative Plan.

Accordingly, if SCGA adopts the Alternative Plan and locks in its groundwater management efforts at the 273,000 af sustainable yield and recharge assumptions rather then perform a new and more accurate analysis within the context of SGMA and CEOA, there may be significant impacts to the Cosumnes River that will not be disclosed or assessed, and there will be no attempts to mitigate or avoid such impacts. The Consumnes River is unique and unucual in that it is one of the only undermined (i.e., rise-flowing) inversion maining in California, and so differs rate recreational, fisheries, wildlife, scientific, and aesthetic values to all Californians, especially those in the region. Thus, SCGA should be very caulicus in adopting an Alternative Plan that foreseeably will significantly affect resources on this new.

While the issue requires further study, there are many reports and assessments from biologists and environmental groups that the Cosumnes River has been and centruses to be dewatered by groundwater pumphing in the South American and Cosumnes subbasins. (See Exhibit 3, 2004 article on Managing Surface Water-Groundwater to Restore Fall Flows in the Cosumnes River) The SCGA\*s proposed Atlementary Pan and its continued use of old and possibly incorrect data on recharge and sustainable yield, may impact the flows of the Cosumnes River by further draining it of surface flows. This would affect a host of environmental and human resources, including fish, widtlife, vegetabor, recreation, assterics, and water quality, among others.

EKI's analysis and graphics show that wells in many parts of SCGA's Alternative Plan area are declining and are below thresholds levels, meaning that these cones of depression will lower groundwater levels and potentially draw more groundwater from the Cosumes River. SCGA's own 2015 Technical Report appears to confirm that recharge and water will be drawn from the Cosumes. Thus, the Alternative Plan and the current regime and assumptions it will lock into

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C4a-07

November 10, 2016 Page 7

place will allow these impacts to the Cosumnes to occur and increase, creating significant environmental effects triggering CEQA.

### The Alternative Plan may worsen groundwater quality

The Alternative Plan itself acknowledges significant groundwater contamination problems that were not considered in the Water Forum effort that developed the 273,000 af sustainable vield number. The continued expansion and impacts of groundwater pollution and the potential for it to spread, or for remediation efforts to remove more groundwater than assumed in the Alternative Plan, means that adoption of the Alternative Plan many exacerbate potential water guality impacts or remove more groundwater than is sustainable because SCGA will fail to adjust its groundwater management actions and expectations to accommodate the apparent increase in groundwater surping required by current remediation efforts.

### The Alternative Plan will deprive the basin of the protoctions and sustainable management protocols provided by SGMA and the GSP process

SCGA is clearly trying to avoid proparation of the GSP under SGMA. The District does not understand why. SGMA establishes a robust regulatory framework for management of the South American Subbasin, which – absent adoption and approval of the Atsensative Plan – would include proparation of a GSP by a local agency or agencies acting as GSAs or by the SWRCB. SGMA and the implementing regulations contain detailed directions and requirements for assessing and managing basins to achieve SGMA's overall sustainability goals and prevent undesirable results such as groundwater depletion, subsidence, neduction of interconnected surface waters to the detriment of final and wildlife, and avoiding groundwater quality impacts. By adopting the Atternative Plan, however, the Authority would be removing the full protections and implementation of SGMA and GSP preparation from the South American subbeain, and depriving it of these additional environmental protections. Removal of the existing SGMA protection afforded by preparation and implementation of a property prepared GSP for the Basin may reasonably have foreseeable impacts on the environment that should be addressed under CEQA. This fact alone eliminates the applicability of any categorical exemption under CEQA.

In sum, the Atternative Plan is a programmatic document that essentially establishes the management framework and goals for the region by setting forth a programmatic framework and goal for groundwater monitoring and regulation that includes and will require future actions that affect the environment.

### Lack of Public Outreach and Involvement

The District strongly believes establishing the long-term groundwater management framework for the southern part of the County and the interface and coordination between the Cosumes subbasin and the South American subbasin is not something that should be done in hasis without full understanding and agreement among the neighboring stakeholders. Unfortunately, the Authority apparently has no qualms with moving at break-neck speed before any other stakeholders can understand its proposed Alternative Plan, and without fully assessing its potential environmental impacts as required by CEQA.

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November 10, 2016 Page 8

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One casualty of SCGA's cavalier approach is the public and important stakeholders such as the District, its constituents, and others. SCGA has provided little true collaboration and involvement and no ability for a reassessment of the sustainable yield value of 273.00 at, even though we know that conditions today are not as they were assumed 15 years ago when that number was "negotiated" and it applies to a different geographic area (see EK) comment re. same). SCGA's rushed attempt to paper over this lack of outreach and true public review by enlisting the Water Forum to hold a bunch of last minute meetings is insufficient and provides no real opportunity for undestanding the Abemative Pian or shaping or changing it in any way. If SCGA had performed CEQA review, at least the public would have been able to comment and sCGA would have been required to respond to comments, and if an EIR had been prepared attenuatives and mitigation for the imports identified above could have been expired.

### Conclusion

In sum, why rush with something as monumental as implementation of the new Groundwater Act? Under the Act, a groundwater sustainability plan is not due for another 5 years, more than enough time to fully address all issues and stakeholders in an appropriate manner. Given the magnitude of the issue, the ad-hoc and essentially after-the-fact meetings that have recently occurred should be the beginning of a grand collaboration, not the end of a rushed unilateral process conducted in the shadows and without the light of CEOA. The District urges the Authority to ebandon the Alternative Plan, and instead work collaboratively with the District and other stakeholders in the South American and Cosumnes subbasins to fully understand and address the complex issues and interaction between the two subbasins and environmental factors. Unless this more reascrable and methodical path is taken, the District Fass it will be forced to strongly oppose the Alternative Plan in whatever forums are available. Very truly yours.

KRONICK, MOSKOVITZ, TIEDEMANN & GIRARD A Professional Corporation

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HANSPETER WALTER

HW/SR

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Herling Engineers and Submitting 1970 Ogden Drive Bustryame, CA 94010 (550) 200-3150 Fair (1950) 952-8012

10 November 2016

- To: Sloughhouse Resource Conservation District
- From: Anona Dutton, P.O., C.Hg., Erler & Kalinowski, Inc. (EKI) Christopher Heppoer, Ph.D., P.G., EKI
- Subject: Preliminary Comments on Public Draft South American Subbasin Alternative Submittal Slongthbuse Resource Conservation District, California (IEKI 86008,60)

### Introduction

On behalf of Sloughhouse Resource Conservation District, EKI is pleased to provide preliminary comments on the Public Draft South American Subbasin Alternative Submittal (Alternative Plan) developed by the Secontentio Cerital Roundwater Authority (SCGA) and deted 12 October 2016. As time and resources did not allow for a comprehensive review of the Alternative Plan and the underlying technical documents, our comments simply focus on whether, at the most basic level, the Alternative Plan meets the standard of "functional equivalency" with the intent and specific requirements of the Groundwater Sustainability Plan (GSP) Regulations adopted by the California Department of Water Resources (DWR) under the Sustainable Groundwater Management Act (SGMA).

For reference, in some instances we have included specific language from SGMA or the GSP Regulations is staller and then provided comments on chapters and sections of the Alsemative Plan as they relate to that specific requirement.

### Comments on Chapter 1 - Introduction and Purpose

The SCGA's 2006 Groundwater Management Plan (GMP)<sup>3</sup> is introduced in the Alternative Plan's Chapter 1 (page 1-3) and remains the foundational document for the Alternative Plan even though it was developed for the SCGA-defined "Central Basich", which is not the same as the South American Subbasin subject to the provisions of SCGA, nor is it a DWR-defined (Bulletin 118) subbasin. As a result, many of the maps ad other information used in the Alternative Plan that are sourced from the 2006 GMP are outdated and inconsistent with the houndaries of the South American Subbasin.

C4b-22

Furthermore, it is surprising that the SCGA is purpling forth this dated document to serve as the foundational document for the Alternative Plan because the 2006 GMP was originally intended to be updated five yoars

<sup>1</sup> Sacramento County Water Ageney, Water Forum, and Meetgomery Watson Hatra, 2006, Central Sacrametto County Groundwater Management Plan, dated February 2006.

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### **EXHIBIT 1**

10 November 2016

unsubstantiated.

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Page 2

Sloughhouse Resource Conservation District Sloughhouse Resource Conservation District eki eki 10 November 2016 Page 3 after adoption (i.e., in 2011). This is made clear in the SCGA's own 2011-2012 Basin Management Report?, assessment is made of the impact of adding and subtracting arous to align the Central Basin with the South which recommended that the SCGA update the 2006 GMP. To date, however, no update to the 2006 GMP American Subbasin that is the subject of the Alternative Plan. The analysis that is presented indicates that C4b-21 has been made (page 2-48). With enactment of SGMA, it would seem that the logical course of action there is at least 7,100 AFY of groundwater pumping demand added as a result of basin realignment (page 2-13), but no estimates are presented that assess the impacts of this increased pumping on the sustainable would be preparation of a SGMA-compliant GSP as an obvious alternative to further reliance on the outdated 2006 GMP (updates to which were not allowed under SGMA after January 2015). vield estimate. C4b-19 While a brief description of the SCGA is provided in Chapter 1, its role as a Groundwater Sustainability Additionally, the Alternative Plan fails to analyze and discuss other factors that significantly affect basin. Agency (GSA) within the South American Subbasin is not mentioned, which seems a strange omission. sustainable yield such as the potential differences in natural and augmented secharge to the basin in the C4b-16 added or subtracted areas. For instance, the Central Basin included areas south of the Cosumnes River so The public outreach section of Chapter 1 (page 1-12) merely presents a list of regular SCGA Board and that essentialy all of the immediate riparian floodplain habitat of the river was within the Central Basin. SGMA Subcommittee meetings at which the Alternative Plan was agendized and mentions four other Presumably, this meant a greater fraction of the meharge from the Cosumes River flows would be stakeholder meetings that have occurred or were plarmed. The sortion contains no details as to what types C4b-18 accounted for within the Central Basin than in the basin to the south. Now, however, the basin boundary of information have been presented to the public and stakeholders related to the Alternative Plan and what rons down the middle of the river and so half of that original floodplain, riverine recharge area is now fredback the SCGA has received. It appears that those details are intended to be included in the final outside the South American Subbasin and within the Cosamues Subbasin. The Alternative Plan fails to submittal, but their omission at this stage makes it impossible to judge whether the final submittal will analyze what this change means or how it impacts the Water Feran's estimate of sustainable yield. adequately characterize the nature of outreach and public comments or in any way respond to or adjust to concerns and issues raised by the public and stakeholders. Further, although the sustainable yield is described as being equivalent to "the long term average extraction in the Central Basin ... " (page 2-10), the Alternative Plan then acknowledges (page 2-19) that groundwater Comments on Chapter 2 - Evaluating 10 Years of Operating Within the Sustainable Yield extraction for remediation (reported to be 31,400 AFY for the Aerojet Superfund Site alone) was not C4b-15 included as a demand on the basin when the 273,600 AFY was negotiated. The Alternative Plan further An Alternative submitted partnant to Water Cade Section 10733.6(b)(3) shall provide information that states that pumping for remediation has had the effect of "lowering ... groundwater lovels in the South demonstrates the basin has operated within its statianable yield over a period of at least 10 years. Data American Subbasin" (page 2-21), a statement that is supported by the mapped of changes in water levels submitted in support of this Alternative shall include continuous data from the end of that 10-year period presented in the Alternative Plan and corroborated by ocur independent analysis (see Figure 1). to current conditions (CSP Regulations \$338.2(c)(3)). C4b-14 Also missing from the estimate of sustainable yield is the impact of the 40% reduction in Door Creek flows Several general comments are presented below which collectively demonstrate that insufficient information and associated groundwater recharge that have occurred in recent years (page 2-21), or any projected is presented in Chapter 2 of the Alternative Plan to demonstrate that the South American Subhasin has impacts of climate change on basin function. operated within its sustainable yield over a period of at least 10 years. 2. It is unclear what 10-year period is being relied on for demonstration of operation within the 1. The stated value for the basin sustainable yield of 273,000 acre-feet per year (AFY) is C4b-13 sustainable vield. The Alternative Plan is unclear as to which 10-year period it is relying on to demonstrate operation of the Based on the information provided, it appears that in 1995, the Water Forum Agreement process resulted South American Subbasin within its sustainable yield. The Alternative Plan cobbles together and presents in a negotiated value for the sustainable yield of the "Central Basin" of 273,000 AFY that was based, at ssoveral different date ranges for different analyses (and for different basins). This presentation is very least in part, on projected 2005 pumping estimates and anticipated groundwater level declines (pages 2-3, confusing for the reader and inconsistent with the clear directives of SGMA. For example: 2-9 and 2-10). Any further technical basis for the 273,000 AFY is not presented (except through reference to an assortment of documents from the pre-GMP era), and the value is carried forward in the Alternative C4b-17 · In Figure 2-5 and related analysis the years 2002-2011 are used as the basis to evaluate the impact as the sustainable yield of the South American Subbasin without any validation that this value (based on of "odding" and "subtracting" portions of the Central Basin to align it with the South American the additional 20 years of data that are now available) is actually an accurate estimate of the basin's Subhasin for the purposes of estimating the sustainable yield sustainable yield as defined by SGMA. In Table 2-2, groundwater extraction data for certain uses are compared to the sustainable yield The Alternative Plan's use of this historical sustainable yield estimate is further complicated and value for 2005-2015 (however, we note that extraction for remediation is not included as part of undermined in that it was developed for a different beain (i.e., for the "Central Basin") and only a cursory this evaluation). In Tables 2-5 and 2-6, the years 2000-2009 are used to assess the basin water budget (although we note that the budget that is presented in Table 2-5 is for the South American Subbasin, while the 8 RMC, 2014, SCGA Batin Management Report, 2011-2012. In association with Davids Engineering, dated August



budget in Table 2-6 is for the Central Basis plus the "Delta Area", and as such is not an "apples" comparison).

- In Figures 2-14 and 2-15 and subsequent analysis, the modeled (not actual) change in storage for the basin is presented for the years 2000-2009.
- In Figures 2-17 and 2-18 and subsequent analysis, the years 2005-2015 are used to discuss changes in water levels.

### 3. The basin water budget analysis is confusing and internally inconsistent.

a second and second an	
A basin water budget is presented for the Central Basis (plus the Deha Area) based on the Updated SacIoSM Model for the years 2000-2009, with a resulting aarnaal deficit of 6,213 AFY (Table 2-6). The text confusingly refers to this water budget as being for the South American Subbasis when it actually represent the water budget for the Central Basis (bits the Deita Area - to corrections are made to "subtract" the appropriate areas south of the Contumes River (page 2-28).	C4b-12
The above water badget is then compared to a water budget for the South American Subbasin that is estimated using the C2VSim Model; this estimate shows a 19,049 AFY deficit (Tables 2-5 and 2-6). Little contem is expressed in the Alternative Plan for the estimated deficits and roomerican is made that a potential difference in the water budget results rould be because they are, in fact, calculated for different protential difference in the water budgets are presented as an "topples to apples" comparison, they are roo.).	C4b-11
Further, the water budgets, as presented in the Alternaive Plan du not storet the standards identified for water budgets by DWR, which include a bisocrical water budget that covers at least 10 years, a current water budget, and a fature water budget that considers 50 years of hydrology <sup>1</sup> .	C4b-10
6. The long-term water level declines observed throughout much of the South American Subbasin (in many cases below the operating thresholds) do not appear consistent with a finding of sustainable basis negration.	 C4b-09

The Alternative Plan states that "lower groundwater levels from baseline (1990) conditions and reduced storage were recognized... as being nocessary for balancing regional water resources strangement?" (page 2-34). Maximum and minimum water level threaholds were also stabilished to serve as "the baseline for effective enforcement for the specific area of concers" (page 2-48). Figure 2-5 shows that 28 of the 48 wells that were evaluated throughout the South American Subbasin as part of the Alternative Plan had declifying water (level tends), and that 15 wells had water levels that were lever than the "2006 Baardwidth Thesholds", ruggesting that water levels have failen below anticipated levels. Our independent review of the available data found even more wells within the South American Subbasin that had declining, water level trends (set Figure 1, attached).

<sup>1</sup> http://www.water.ca.gov/groundwater/igm/pdfs/BMP\_Water\_Budget\_Draft\_2016-10-28.pdf, accessed 7 November 2016. Sloughhouse Resource Conservation District 10 November 2016 Page 5



Such widespread declinas in groundwater lavels bolow the established thresholds are not coesistent with the SCGM's claim of sustainable operation of the South American Subbasin. It is also not clear from the information presented in the Alternative Plane whether any of the Basin Management Objectives extilined in the 2006 GMP have been put into effect due to these documented threshold exceedances.

The Alternative Plan characterizes there areas of water level decline as "discrete" (page 2-50) and attempts to attribute the blane on remediation pomping, reduced groundwater recharge, pumping in the neighboring Coustances Sebbasin and other factors "outside of SCGA's control" (page 2-50). However, the point of the Alternative Plan is to demonstrate that there has been long-term successful of management of the South American Subbasin within the sustainable yield and that there is, in fact, "control" over conditions within the basin that give assurance for the continued sustainable management of the South American Subbasin into the future.

### 5. The Evaluation of Undesirable Results is Incomplete

The analysis of undesirable results relies heavily on the Environmental Impact Report (EIR) that was associated with the Water Forum Solucion, and therefore prepared for the Central Basis (page 2-35). The Alternative Plan is confusing and Imaccurate, because it refers to the EIR as making findings relevant to the South American Subbasis (page 2-36).

Chronic Lowering of Groundwater Levels: See comments regarding widespread declining water level trends presented above. We further note that, because all of the water level data have been graphed on a consistent V-axis that exceeds from -150 to 400 ft MSL, the water level trends have been minimized (i.e., they all look generally flat) in the Albemative. The objective of having a consistent vertical scale (i.e., allowing the render to visually compare the magnitude of trends) could have been achieved by using a fixed increment along the V-axis, but allowing the actual minimum and maximum values of the V-axis to vary based on local elevations. This would have allowed for more transparent presentation of the water level trends, as demonstrated on the attached Figure 1.

We also note that, although the Water Forum Solution EIR describes a "Well Protection Program" that the SCGA was supposed to initiate to support entities that would have to deepen their wells as a result of projected (and accepted) groundwater level declines, the program has remained unfunded "due to the economic recension" (page 2-36).

<u>Reduction in Groundwater Starage</u>: When the charge is storage is analyzed for the South American Subbasis in the Alternative Plan, it is hypothesized that the observed 100-foot charge in squffer blackness would likely produce a single digit percentage decrease in storage for the basin (page 2-54). However, the calculation is not completed to demonstrate the validity of this statement. Nor is the calculated charge in storage compared to carlier water badget analyses or modeled charge in storage findings (Table 2-6 and Figures 2-14 and 2-15).

Degraded Water Quality: The Alternative Plan acknowledges that wells in the basis are having to be deilled deeper and that some extracted groundwater must be treated for inon and manganese (page 2-36, 2-56). However, no data or maps are presented that show the spatial or vertical distribution of water quality. As such, it is not possible to corroborate the Alternative Plan's findings that there are no observed or potential leptacts to water quality.

Land Subsidence: The DWR has identified the South American Subbasin as an area with medium to high potential for subsidence (page 2-59). The Ahernative Plan appears to challenge DWR's assessment, by taking issue with the data that DWR is using and linking to on its website. However, the Alternative Plan offers little actual data to refute the risk (i.e., only subsidence data prior to and through 1966 are shown in Figure 2-28 and the text only discusses water level trends through 2004).

Depictions of Interconnected Surface Water: The Alternative Pian states (page 2-62) that "groundwater production on both sides of the [Cosumnes] river lowered the water table many decades ago and the river has become disconnected from the groundwater system". Then, in a securingly contradictory statement in the next paragraph, the Alternative Pian states "Hydraulically connected recharged sources affected by the deepening of the Cosumnes Subbanin cone-of-depression, including reaches of the Cosumnes River, are being impacted..." (page 2-63). This underscores the need for a more careful and therough analysis and discussion within the parameters of a GSP prepared and adopted under SGMA.

Seawater Intrusion: The most recent data cited by the Alternative Plan in its findings are from June 2005.

### Comments on Chapter 3 - Functional Equivalency

Based on our review of Chapter 3, it is our strong finding that, as written, the Alternative does not meet the standard of functional equivalence. Below we have detailed the technical requirements of a GSP in traiter (referenced by section number of the GSP Regulations), and summarized how, in many cases, the Alternative provides incomplete and inadequate information relative to what is required by the GSP Regulations. Given the clear discrepancies identified below, it is unlikely that sufficient revision could be made to the Alternative Plan to bring it into compliance with the intent and specific requirements of a GSP by the deadline of 1 January 2017.

354 4(a) An executive summary written in plain language that provides an overview of the Plan and description of groundwater conditions in the basin.

The Alternative Plan relies on the 2006 GMP Executive Summary (ES), which is not a sufficient substitute for a GSP ES because the GMP ES focuses on the purpose, requirements, and components of a GMP which are different than those of a GSP. Furthermore, the GSP Regulations require that the ES include a description of groundwater conditions in the basin. Given that the SCGA GMP is 10 years old and written for a different basin (i.e., the "Central Basin" rather than the South American Subbasin), the description of groundwater conditions in the GMP is out of date and inaccurate. Other date references – for example for permit frees and projected demands – are also out of date. To meet the standard of "functional equivalency", the Alternative Plan should have its own, current, and representative ES.

354.4(b) A list of references and technical studies relied upon by the Agency in developing the Plan. Each Agency thall provide to the Department electronic copies of reports and other documents and materials clied as references that are not generally available to the public.

The list of references for the GMP is not a sufficient substitute for the list of references for the Alternative Flan. Further, providing links to additional references and websites is not a user-friendly way to present references for the reader. To meet the standard of "functional equivalency", a single, complete reference list should be provided. Sloughbouse Resource Conservation District 10 November 2016 Page 7



354.6(b) The organization and management structure of the Agency, identifying persons with management authority for implementation of the Plan.

The Alternative Plan should better describe the two-tiered nature of the SCGA's governance. For instance, the SCGA was created by only five entities (i.e., the County, Sacramento, Elk Grove, Rancho Cordova, and Folsom). It should be mentioned that these original Joint Powers Authority (JPA) members have veto power in SCGA decision making and that the other beard members (water supply agencies and self-supplied groundwater useru/interest) do not have this power, and several of these second-tier members also must be approved of and appointed by the Sacramento County Board of Supervisors.

354.6(e) An estimate of the cost of implementing the Plan and a general description of how the Agency plans to mest those costs.

It is not sufficient to reference the finance section of the GMP when addressing the cost and financing of the Alternative Plan, as the information is the GMP is out of date, based on a different set of management actions and programs, and was developed for a different basin. This section of the Alternative Plan therefore does <u>not ment</u> the standard of "facetional equivalency," and practically establishes that there is not a fasctionally equivalent comprehensive management regime to provide SGMA stewardship and management of the South American Subbasin as there would be if a GSP were prepared.

354 8(a)(1) The area covered by the Plan, delineating areas managed by the Agency as an exclusive Agency and any areas for which the Agency is nos an exclusive Agency, and the name and location of any adjacent basins.

The Alternative Plan should say clearly and early on that the area it is intended to cover is the South American Subbasin as defined by Bulletin 118. The link to a map of the three non-DWR "subbasins" defined by SCGA is not relevant as those are not applicable basins under SGMA. Further, there is no map showing "areas managed by the Agency as an exclusive Agency and any areas for which the Agency is not an exclusive Agency", as required. The Alternative should not leave it to the reader to extract the required information from an assortment of licked maps. This section of the Alternative therefore does not meet <u>not</u> <u>meets</u> the standard of "functional equired-leave".

354.8(a)(3) Jurisdictional boundaries of federal or state land (including the identity of the agency with furiadiation over that land), tribal land, cities, counties, agencies with water management responsibilities, and areas covered by relevant general plans.

Not all requirements of this section are met by the maps provided (e.g., maps of General Plans in the area are missing). Also, as before, in the presentation of information, the reader is forced to piece together information from various disparate and linked maps and sources. Further, according to the DWR CASGEM Basin Prioritization Tribal map (for which only a link is provided), it appears that the Wilton Rancherie axtends into the Altornative Plan area. However, the Alternative Plan states that no known tribal lands exist within the Subbasin. Based on the above issues, this section of the Alternative Plan does <u>not meet</u> the stander of "functional equivalency".

354.8(a)(4) Existing land use designations and the identification of water use sector and water source type.

The Alternative Plan presents land use maps and water balance information from the 2006 GMP which are out-of-date and developed for a different basin. The Alternative Plan indicates that post-2006 conditions remain unchanged with respect to current and projected groundwater extractions and the volume and



reliability of source waters, but no backup for those assumptions is provided, nor are they consistent with information presented in Chapter 2. This section of the Alternative Plan therefore does not meet the standard of "functional equivalency".

354.8(a)(5) The density of wells per square mile, by dosymetric or similar mapping techniques, showing the general distribution of agricultural, industrial, and domestic water tupply wells in the basin, including de minimis extractors, and the location and extent of communities dependent upon groundwater, utilizing data provided by the Department, as specified in Section 353.2, or the best available information.

The maps provided in the Alternative Plan do not cover the entire South American Subbasin; as such they do not cover the entire area of the Alternative Plan. One of the maps is from the 2006 GMP and is therefore out-of-date and developed for a different basin. Based on the information presented. It is not clear where the industrial and municipal production wells are, nor where there are commandities dependent on groundwater, both of which are required by the GSP Regulations. Also, it is not clear whether the Alternative Plan uses the "best available information" or data provided by DWR, as required by the GSP Regulations, especially given that much of the data presented is out of date. This section of the Alternative therefore does <u>not meet</u> the standard of "functional equivalency".

354.4(c) Identification of existing water resource monitoring and management programs, and description of any such programs the Agency plans to incorporate in its monitoring network or in development of its Plan. The Agency may coordinate with existing water resource monitoring and management programs to incorporate and adopt that program as part of the Plan.

Again, the reader is forced to look up text from various other sources to get the information required by this section. The Alternative Plan should not rely so heavily on links to other documents, but rather should synthesize the necessary information into coheron text. Five of the six linked references are from the 2006 GMP and are therefore our-of-date and pertain to a different geographic bash. The Alternative Plan lists and links to existing monitoring programs under the 2006 GMP and CASCEM but does not explicitly identify, much less describe, which monitoring programs the SCOA plans on incorporating in its monitoring network and how the entire basin will be covered. This section of the Alternative Plan therefore does <u>not</u> megt the standard of "functional equivalency".

### 354.8(e) A description of conjunctive use programs in the basin.

The Alternative Plan relies on the 2006 GMP for description of conjunctive use, but does not provide any information on how that conjunctive use program has been implemented, if at all, or how it has performed, and if/how it will be carried forward in the Alternative Plan. This section of the Alternative Plan therefore does <u>not meet</u> the standard of "functional equivalency".

354.8(f) A plain language description of the land use elements or topic categories of applicable general plans that includes the following:

(1) A summary of general plans and other land use plans governing the basin.

(2) A general description of how implementation of existing land use plans may change water demands within the basin or affect the ability of the Agency to achieve sustainable groundwater management over the planning and implementation horizon, and how the Plan addresses those potential effects Sloughhouse Resource Conservation District 10 November 2016 Page 9



(3) A general description of how implementation of the Pian may affect the water supply assumptions of relevant land use plans over the planning and implementation horizon.

(4) A general description of how implementation of the Plan may affect the water supply assumptions of relevant land use plans over the planning and implementation horizon.

(5) To the extent brown, the Agency may include information regarding the implementation of land use plans outside the basin that could affect the ability of the Agency to achieve sustainable groundwater management.

This section of the GSP Regulations requires a "plain language" description of land use elements of applicable General Plans. The Alternative Plan provides no information about General Plans or any of the subtopics required by the GSP Regulations (e.g., how implementation of the General Plans may change water demands, or affect ability of Agency to achieve sustainability, summary of well permitting codes and ordinances, etc.), and is therefore asg. functionally equivalent.

354.14(b) The hydrogeologic conceptual model shall be summarized in a written description that includes she following:

(1) The regional geologic and structural setting of the basin including the immediate surrounding area, as necessary for geologic consistency.

(2) Lateral basin boundaries, including major geologic features that significantly affect groundwater flow.

(3) The definable bottom of the basin.

(4) Principal aquifers and aquitards, including the following information:

(5) Identification of data gaps and uncertainty within the hydrogeologic conceptual model

The Alternative Plan references several large reports as the descriptive hydrogeologic conceptual model for the basin, with no specific page number or section number given for the referenced information. While the references are presumably authoritative and comprehensive regarding hydrogeology in the area, it is not sufficient to just broadly refer to time because this places an undue builden on the reader and DWR to sift through these large documents to seek and hopefully obtain the allegedly relevant information. At a minimum, the Alternative Plan should distill the available information SGA believes is relevant into a concise description of the basin and the hydogeologic conceptual model. This section of the Alternative Plan therefore does <u>not meet</u> the standard of "functional equivalency".

354.14(d)(1) Topographic information derived from the U.S. Geological Survey or another reliable source.

Here,readers are simply directed to a United States Geological Survey (USGS) website where they are expected to identify the specific topographic maps needed (from hundreds that are available), download them, unzip them, and then review them. This section of the Alternative Plan therefore does <u>not meet</u> the standard of "functional equivalency".

354.14(4)(2) Surficial geology derived from a qualified map including the locations of cross sections required by this Section.



The geologic map that the render is directed to via an electronic link may not be of sufficient scale to be a "qualified map" in accordance with the GSP Regulations, and does not contain the locations of the two required cross sections. The document containing the cross sections (also provided via electronic link) is of poor quality and therefore the cross sections are difficult to read. This section of the Alternative Plan therefore does not meet the snandard of "functional equivalency".

354.14(d)(3) Soil characteristics as described by the appropriate Natural Resources Conservation Service soil survey or other applicable studies.

The reader is simply directed to a link to United States Department of Agriculture (USDA) soil data, which is in Geographic Information System (GIS) database format. For readers unable to use data in this format, this approach does not meet the requirement for functional equivalency. The intent of this section is to present the reader with "physical characteristics of the bush ... represented on one or more maps..." The reader should not be expected to create the maps from raw data. This section of the Alternative Plan therefore does <u>not meet meet of</u> "functional equivalency".

354.14(d)(5) Surface water bodies that are significant to the management of the basin.

The Alterative Plan presents an electronic link to a figure from the 2006 GMP, which is at too large of a scale and insufficient quality to allow for identification of individual surface water features. This section of the Alternative Plan therefore does not meet the standard of "functional equivalency".

354.14(d)(6) The source and point of delivery for imported water supplies.

The Alternative Plan presents an electronic link to a figure from the 2006 GMP which is likely outdated. It includes features described as "future pipeline" and "proposed water treatment place" and "proposed tank", but given that it has been at least 10 years since this figure was made, the status of these features is arknown. Also, the figure does not include the Delta Area portion of the South Armerican Subbasin, in which potential surface water import facilities are located, and is therefore incomplete. This section of the Alternative Plan therefore does not meet the standard of "functional equivalency".

354.16 Each Plan shall provide a description of current and historical groundwater conditions in the basin, including data from January 1, 2015, to current conditions, based on the best available information that includes the following:

The Alterative Plan presents electronic links to documents from 1974 and the 2006 GMP and therefore does not present current (2015+) groundwater conditions, or even conditions within the last 10 years. This section of the Alternative Plan therefore does <u>not meet</u> the standard of "functional equivalency".

354.16(a) Groundwater elevation data demonstrating flow directions, lateral and vertical gradients, and regional pumping patterns, including:

(1) Groundwater elevation contour maps depicting the groundwater table or potentiometric surface associated with the current seasonal high and seasonal low for each principal aquifer within the basin

(2) Hydrographs depicting long-term groundwater elevations, historical highs and lows, and hydroudic gradients between principal aquifers. Sloughhouse Resource Conservation District 10 November 2016 Page 11



The most recent groundwater contour map provided in the Alternative Plan (via an electronic link) is based on groundwater level data from fall of 2012. The Alternative Plan then states that contour maps for each principal aquifer can be extracted (presumably by the reader) from the SacIGSM model, which implies reliance on modeled (rather than netual) groundwater elevations. This approach does not comply with the intent of this section of the GSP Regulations. The Alternative Plan then directs the reader to a DWR website (Groundwater Information Center) to independently find seasonal high and low maps of groundwater elevation for the apenprinte basin and a relevant interpretation.

With respect to vertical gradients, the Alternative Plan references the appendix of an older (1993) modeling document, within which the depths of calibration wells are apparently provided, to direct the reader to draw conclusions about the hydraulic gradients between principal aquifers. Instead, the Alternative Plan should extract and analyze that information and present it to the reader in a clear and concise manner. Based on the above issues, this section of the Alternative Plan therefore does <u>not meet</u> the standard of "functional equivalency".

354.16(b) A graph depicting estimates of the change in groundwater in storage, based on data, demonstrating the annual and cumulative change in the volume of groundwater in storage between seasonal high groundwater conditions, including the annual groundwater use and water year type.

The time frame for the change in storage presented in the Alternative Plan is not well defined or described. Further, based on the GSP Regulations, the change in storage is to be "based on data", not necessarily groundwater model results, although it is understood that a well-calibrated model may serve as a tool for estimating change in storage. This section of the Alternative Plan therefore does not meet the standard of "functional equivalency".

354.16(f) Identification of interconnected surface water systems within the basin and an estimate of the quantity and timing of depletions of those systems, willizing data available from the Department, as specified in Section 353.2, or the best available information.

No information is provided in the Alternative Plan regarding the quantity and timing of depletions of interconnected surface water. The link provided to the 2006 GMP section regarding Surface Water Groundwater Interaction Monitoring is "broken". Further, the relevant page of the 2006 GMP is missing in the Chapter 3 pdf file. This section of the Alternative Plan therefore does act megt the standard of "functional equivalency". Given the high-profile nature of this issue regarding the Cosumes River, the Alternative Plan must describe and delve into this issue in much greater detail to comply with SGMA.

334.18 Each Pion shall include a water budget for the bastn that provides an accounting and assessment of the total annual volume of groundwater and surface water ensering and learning the basin, including historical, current and projected water budget conditions, and the change in the volume of water stored Water budget information shall be reported in tabular and space format form.

Refer to Comment #3 under the Chapter 2 comments regarding the basin water budget. Given the discrepancies noted therein, this section of the Alternative Plan does not meet the standard of "functional equivalency".

354.20 Each Agency may define one or more management areas within a basin if the Agency has determined that creation of management areas will facilitate implementation of the Plan. Monogement areas may



define different minimum thresholds and be operated to different measurable objectives than the basin at large, provided that undetirable results are defined consistently throughout the basin.

The Alternative Plan states that management areas do not apply for the Alternative Plan, and then goes on to say that the Delta Area will essentially be participating at a different level through some form of agreement such as a Memorandum of Understanding, which is not detailed or explained. It is therefore not clear what is moant by this, nor is it clear why this different participation does not apply as a "management area". The Alternative Plan further states that other areas may be established in the future for similar different levels of "participation". Inasmuch as these distinct areas can rightfully be described as different management areas under SGMA, the Alternative Plan does not adequately describe the reasons for creating the management areas, the minimum thresholds and measureable objectives for the management areas, the level of monitoring and analysis appropriate, and an explanation of how they can be operated under different statianability criteria. This section of the Alternative Plan therefore does not made to the standard of "functional equivalency".

### Subarticle 3 Sustainable Management Criteria (Sections 354.22 through 354.30)

Chapter 3 of the Alternative Plan provides scant coverage of this key Subarticle of the GSP Regulations under SGMA. By simply referring to the discussion presented under Chapter 2, the Alternative Plan omits numerous key points of discussion related to sustainability criteria, underirable results, minimum thresholds, and measurable objectives. Given the shortcomings previously discussed regarding the water budget, safe yield estimate, and basin setting, it is crucial that the Alternative Plan provide a complete discussion of sustainable management in order to provide coeffidence that a plan exists to meet the underlying intent of SGMA.

354.24 Each Agency shall establish in its Plan a sustainability goal for the basin that culminotes in the absence of undestriable results within 20 years of the applicable stantstory deadline. The Plan shall include a description of the sustainability goal, including information from the basin satiling used to establish the sustainability goal, a discussion of the measures that will be implemented to establish the operated within its sustainable yield, and an explanation of how the sustainability goal is likely to be achieved within 20 years of Plan implementation and is likely to be maintained through the planning and implementation horizon.

The Alternative Plan does not attempt to describe a sustainability goal, describe the measures that would be implemented to ensure operation within the sustainable yield, or explain how the goal is likely to be achieved and maintained. Instead, the Alternative Plan refers to its own discussion in Chapter 2 wherein it concluded that the basin has operated within its safe yield value of 273,000 AFY. As mentioned above, this argument is not sufficiently validated given that this value was developed at a different time, with different considerations and assumptions, and for a different geographic basin area. This section of the Alternative therefore does not meet the standard of "functional equivalency".

354.25 Each Agency shall describe in its Plan the processes and criteria relied upon to define undesirable rendit applicable to the basin. Undestrable rendits occur when significant and unreasonable effects for any of the sustainability indicators are caused by groundwater conditions occurring throughout the basin.

Chapter 3 of the Alternative Plan does not directly address undesirable results but refers to Chapter 2, wherein the Alternative Plan relies on the Water Forum Forecast Scenarios, an analysis performed in 1997 to evaluate the effects of pumping on selected undesirable results. The approach described does not include Sloughhouse Resource Conservation District 10 November 2016 Page 13



use of the updated SacIGSM model or updated land and water use assumptions, and is therefore outdated. (See comment #5 under Chapter 2 comments above for additional discussion). Nor does this discussion clearly discuss the processes and criteria relied upon to define undesirable results for the basin. This section of the Alternative Plan therefore does <u>not meet</u> the standard of "functional equivalency".

354.28 Each Agency in its Plan shall establish minimum thresholds that quantify groundwater condutions for each applicable sustainability indicator at each monitoring site or representative monitoring site established pursuant to Section 354.36. The numeric value used to define minimum thresholds shall represent a point in the basin that, if exceeded, may cause undesirable results as described in Section 354.26.

The Alternative Plan does not provide information on minimum thresholds in Chapter 3, but simply refers to Chapter 2 and the set of Basin Management Objectives developed for the 2006 GMP as a substitute for the minimum thresholds discussion. It is not clear from the information provided that the GMP is being implemented in a manner consistent with the intent of SGMA; in particular, there have been breaches of the minimum thresholds for water level, but it appears the corresponding trigger actions have not been exercised or implemented by SCGA because 'no undesirable results have been reported by local stakeholders'' (page 2-48 of Chapter 2), Because it relies on the 2006 GMP, the Chapter 2 discussion only consider minimum thresholds related to water level, but not the other undesirable results. Furthermore, the Alternative Pinn lacks a discussion of the potential impacts of minimum thresholds con adjacent basins. This section of the Alternative Pian therefore does not meet the standard of "functional equivalency".

354.30(a) Each Agency shall establish measurable objectives, including interim milastones in increments of fire years, to achieve the sustainability goal for the basin within 20 years of Plan implementation and to continue to sustainably manage the groundwater basin over the planning and implementation horizon.

The Alternative Plan does not attempt to define measureable objectives or include interum milestones. This section of the Alternative Plan therefore does not meet the standard of "functional equivalency".

Subarticle 4 Manitoring Networks (Section: 354.32 through 354.40)

Chapter 3 of the Alternative Plan refers to the 2006 EMP for a "full description of the SCGA monitoring network for each of the basin tranagement objectives" and then further states that monitoring data indicate that the basin has been operated within its sostimable yield, and that no undesirable results are occurring. The Alternative Plan should not rely on references to the elder GMP document, but should instead describe the monitoring network as required under this Subatricle of the GSP Regulations. Further, it is not clear that the existing monitoring network is able provide sufficient monitoring for seawater intrusion or depletions of interconnected surface water. As discussed above, the Alternative does not demonstrate convincingly that the basin has been operating within its sustainable yield, or that undeslikely for one or more austainability indicators are not present and are not likely to occur in the basin. This section of the Alternative Plan therefore does not present and are not likely to occur in the basin. This section of the Alternative Plan therefore does not meet the standard of "functional equivalency".

Subarticle 5 Projects and Management Actions (Sections 354.42 through 354.44)

Chapter 3 of the Alternative Plan states that the "planned actions within the existing 2006 SCGA GMP continue to maintain groundwater extractions under her sustainability yield threshold, and maintain the subbasin at its sustainability goals" (page FE-25). The Alternative Plan does not attempt to describe actions but simply refers the reader to the 2006 GMP document. The Alternative Plan three states that "Functional equivalence is inherently met since no further actions are necessary to achieve the sustainability goal" (page

CKI

PE-35). Because the sestimability goal itself is not adequately defined or discussed (see commerce above), it is not possible to determine if the existing set of actions thus are prescribed under the 2006 GMP are sufficient to ensure sustainability. This section of the Ahemative Plan therefore does not merg the standard of "functional equivalency".

We thank you for your consideration.

Very truly yours,

ERLER & KALINOWSKI, INC.

Junio tille

Anona L. Dutton, P.G., C.Hg. Vice President


#### **EXHIBIT 2**

#### EXHIBIT 3

## Comment Letter No. 5 (AgRes)

Comments on the Draft South American Subbasin Alternative Submittal		Figure 2-20, Existing Production Wells page A+72. How come production wells in the Vineyard Area are not show?	C5-06
Date: 11/8/2016		FOR THE MAY HAVE SHOWN.	_
To: Ramon Roybal From: Carl L. Werder		One overall problem with the Alternative Submittal is the lack of updated and corrected information. This problem gives the reader the impression that the information provided is the latest accurate information as of the date of this submittal. This is clearly not the truth!	C5-07
Chapter 3, page 3-2, paragraph under the heading "GMP and Changed Conditions" states in part, "includes the Water Forum Agreement's 2030 land and water use assumption as envisioned " The Water Forum looked at land and water usage together since they are connected,	C5-01	Therefore, throughout this document there should have been foundet to indicate changes and updates as to the information provided so that the reader can see how things have changed from when the document in question was written to what has occurred to date. However, at this late date it may be impractical to update this entire document with footnotes.	
shouldn't this alternative also reveal solar has occurred concerning hand development as it relates to groundwater usage over the past ten years? Urban housing developments take groundwater and also deprive the area developed from any recharge by diverting runoff to storm drains and sever systems. Urban subdivisions that rely on groundwater have major impacts on groundwater		Recommend adding the Consumnes River MOA to the documents of the Alternative Submittal since any actions concerning this river directly affect groundwater that will be managed by SCGA.	]C5-08
and therefore urban development should be addressed as to what has occurred over the past ten years in the Draft Alternative.		This alternative submittal needs a summary of how the predicted outcomes proposed by the Water Forum have come to fruition over the past ten years.	C5-09
Chapter 3, page 3-3, item number 2 states, "Bureau of Reclamation's construction of island ring levees to reclaim aubmerged lands," U.S. Bureau of Reclamation did not do any such construction? The levees were originally constructed by Reclamation Districts and since have been taken over by the Corps of Engineers along the Sacramento River. Please remove Bureau of Reclamation and replace it with Reclamation Districts.	C5-02	And finally I am very concerned that the general public is not and has not been informed adequately concerning this Alternative Submittal and its effects on their cost of water use in the fature, as would have been under a CEQA document. I recommend that notices be placed to better inform the public that this Alternative Submittal is available for their review and I would like the SCGA Board to see a list of places notice was given for public comments back in	C5-10
Additional support for my concern of depleted groundwater resulting from urban development can be found in the Executive Sammary (ES). Page A-12 of the ES states, "Urban water demands are typically based on land use and zoning." ES figures ES-6a/b show dry and wet		October. Sincerely,	
years for 2005 and 2030. Urban demand from 2005 to 2030 will increase from approximately 70,000 AF in dry years to 90,000 AF in wet years. These figures also show surface water increasing to cover this additional demand over the 25 year period. I question this reliance on	C5-03	Curl L.Werder	
additional surface water since most if not all surface water in California is already tied up. Therefore, groundwater is the only supply source for future urban development and ran off from these developments will only exasperate our in ability to recharge. These figures as depicted give the false impression that the accounts are in balance, when they clearly are not, please correct these figures.		SCGA, Ag-Res Board Member	
Groundwater recharge over areas that are undeveloped that have notive vegetation will be less as shown if figure 2-22 of the CSCGMP. This figure shows an increase of almost 52,000 Ac's that has the potential of being developed into urban areas from mostly native vegetated lands. Therefore, this additional urban development will decrease areas that potentially could provide	]C5-04		
groundwater recharge. Urban development demand for water by 2030 is estimated to be approximately 100,000 AF/year more than now according to 2.5.2.1 Urban, page A-85. Where	C5-05		

is this water coming from?

### Comment Letter No. 6 (AgRes)

From: Ronald Pecci -Odpecci@aol.com>

Sent: Thursday, November 10, 2016 9:20 PM To: WR SCGA Response Subject: Public Comment on SCGA Alternate Submittal

As a domestic well owner in rural Tass LIR Grove There studied SGMA and the history and functioning of the water districts and resource convervation districts in South Sucramento County to better under stand the water issues. Since January 2016, I studied the basin boundary monification requests and become involved in the GSA formation in order to determine the agency most broudly representative of the South County with it's Ag and Ag less and whan populations and the Delta- all who will continue to competer for survival with the grouping population of FIR Grove and the soon to be constructed Southeast Connector. The logical choice to ensure the future of the region is SCGA and move the region forward cobe sizely is SCGA, with it's Alternate Submittal.

SCGA has a 10 record of sustainability in the area. It is representative of all sectors of the population. SCGA provide san open and colliaborative forum for discussion of problem stand works care resolutions for the members and constituents. It has the caparity, the technical resources and the funding to operate effectively and efficiently. Maybe even more important SCGA has the expertise and a track record of success that is supportive of the confidence required to more into unknown territory in completing with SCIAD. SCGA is not a "state-ig" agency, it will be a more economical and dependiable for the people and agencies served within its boundaries. Most importantly SCGA will be able to begin management of the basim Syears source than the small, unfunded and unstaffed Ag agencies who have likel to become GSAs.

SCGA has performed substantive and more technically informed public outreach at their public board and sub-committee meetings, as well a presentation in conjunction with DWR at a regular Council Meeting of the City of Els Grove, and a private meeting with city staff, appointed officials and local residents, in addition to the Water Forum Facilitation Meetings with individual sectors of the community to work out the issues.

SCGA will be the platform for stability and afford a framework for future formations of local GSAs such as SECD and OHWD, who have expressed such ambitions if they choose to go forward in the future. C6-01

C6-02

Lappreciate SCGA's commitment to protect domestic well owners as evidenced by The Well Protection Program in the GMP and hence in the Alternate Submittal. As South County is not near build out, the agriculture and domestic well owners need a fully funded program to mitgate the effects of quantified but unavoidable impacts resulting from increased levels of pumping. A funding program should be based on the sectors of the region benefiting most economically from the increased groundwater pumping to include home development, entertainment/sports facilities, large shopping complexes and manufacturing facilities The program will help to assure the continued thriving for the Ag and Ag Bes multice and communities.

Suzanne Pocci Elk Groue

### Appendix 1D – Delta Reclamation District MOU and Alternative Support Letter

#### MEMORANDUM OF UNDERSTANDING AND AGREEMENT FOR SUSTAINABLE GROUNDWATER MANAGEMENT ACT EFFORTS IN THE DELTA AREA OF THE SOUTH AMERICAN SUBBASIN

This Memorandum of Understanding and Agreement ("MOU") is dated and effective this \_\_\_\_\_ day of \_\_\_\_\_\_, 2016 by and between the Sacramento Central Groundwater Authority, a joint powers authority formed under Government Code section 6500 et seq. ("SCGA"), and various Reclamation, Water and Drainage Districts, established pursuant to Water Code section 50000 et seq. and within the South American Sub-basin (Basin No. 5-21.65) as defined by the California Department of Water Resources Bulletin 118-03 ("RDs"). The parties to this MOU are individually referred to herein as "Party" and collectively referred to herein as "Parties."

#### RECITALS

WHEREAS, in 2014 the California Legislature signed the Sustainable Groundwater Management Act ("SGMA") into law;

WHEREAS, SGMA provides a framework for sustainable groundwater management by local agencies; and

WHEREAS, the Parties to this Agreement are each local agencies within the meaning of SGMA at Water Code section 10721; and

WHEREAS, the Parties are local agencies within the South American Sub-basin (Basin No. 5-21.65) as defined by the California Department of Water Resources ("DWR") Bulletin 118-03; and

WHEREAS, SGMA allows for flexibility in groundwater management, but requires outreach and coordination to and between local agencies and interested parties in the formation and development of groundwater governing entities and basin sustainability plans; and

WHEREAS, SGMA requires a Groundwater Sustainability Plan ("GSP") or alternative for each medium and high priority classified sub-basin by January 31, 2022; and

WHEREAS, an alternative to a GSP must be submitted to DWR no later than January 1, 2017; and

WHEREAS, SCGA was created for the primary purpose of maintaining the sustainable yield within the SCGA Groundwater Management Plan ("GMP") and has service area that overlies a portion of the South American Sub-basin, classified as a high priority sub-basin;

WHEREAS, SCGA has significant interest and investment in using its GMP; and sustainable management of its service area since its formation in 2006 to comply with SGMA and GSP requirements; and

WHEREAS, GSP regulations require an alternative submittal to apply to an entire basin; and

WHEREAS, SGMA requires an alternative submittal meet one of three categories, including an analysis of conditions that demonstrate the sub-basin has operated within its sustainable yield over a period of at least 10 years; and

WHEREAS, SCGA is developing an alternative submittal covering the entire South American Sub-basin to submit by January 1, 2017 for DWR's evaluation based on demonstrating sustainable operation of the sub-basin for more than 10 years; and

WHEREAS, the RDs are local agencies within the Delta area of the South American Sub-basin (depicted in Exhibit A, and hereinafter "Delta") that have groundwater management interests and experience; and

WHEREAS, the Parties have an interest in coordinating each other's SGMA-related efforts within the South American Sub-basin, including the submittal of a qualifying alternative to GSP no later than January 1, 2017;

NOW THEREFORE THE PARTIES AGREE AS FOLLOWS:

1. <u>Recitals</u>: The foregoing recitals are hereby incorporated by reference.

2. <u>Term</u>: This MOU shall be effective as of the date of signing and remain in effect until the subject matter contemplated herein is completed or this MOU is terminated pursuant to the terms of this MOU.

3. <u>Membership</u>: The Parties to this MOU shall be the entities which execute this MOU, or are added as Parties by way of amendment, and have not withdrawn in accordance with Section 12.

4. <u>SCGA as Applicant for Alternative</u>: SCGA intends to be the applicant and lead agency for an alternative submittal ("Alternative") pursuant to SGMA. SCGA's Alternative will encompass the whole of the South American Sub-basin and include the Delta.

5. <u>Alternative Consultation</u>: SCGA intends that the Alternative will represent the groundwater use and behavior in the Delta as different from the remaining area of the Sub-basin. SCGA will consult and coordinate with the other Parties for supporting information to include in the Alternative.

6. <u>Delta CASGEM</u>: SCGA intends to use and cite to existing funding and programs to support Delta monitoring and reporting of groundwater elevations for California Statewide Groundwater Elevation Monitoring ("CASGEM") compliance.

7. <u>Delta GSAs</u>: SCGA will support local agency interests in becoming Groundwater

Sustainability Agencies ("GSAs") within the Delta.

8. <u>Delta GSP:</u> SCGA acknowledges that DWR approval of an Alternative for the South American Sub-basin does not preclude Delta GSAs from subsequently developing a GSP, and that SCGA would work to coordinate the Alternative with any GSP developed within the South American Sub-Basin.

9. <u>Delta BBM</u>: SCGA is aware of the Parties' interest in future basin boundary modification to consolidate the legal Delta, as defined by DWR, into a single sub-basin ("Delta BBM"). SCGA acknowledges that approval of an Alternative for the South American Sub-basin does not preclude or oppose such Delta BBM. SCGA will work collaboratively, as requested, with the Parties and other Delta interests concerning such Delta BBM and its effects on the South American Sub-basin.

10. <u>Party Communication</u>: The Parties will consult and communicate on issues and matters to support the development of the Alternative. Each Party will bear its own expense for this consultation and communication support.

11. <u>Termination</u>: This MOU is terminated by withdrawal of a majority of the Parties, or upon completion of the subject matter contemplated herein.

12. <u>Withdrawal</u>: A Party may withdraw from this MOU effective upon forty-five (45) days notice to each other Party.

13. <u>Amendment</u>: Except as provided herein, no alteration, amendment, or variation of the terms of this MOU shall be valid unless made in writing and signed by all Parties.

14. <u>Notice</u>: Any notice or instrument delivered or given pursuant to this MOU shall be made by (a) depositing the same in any United States Post Office, postage prepaid, and shall be deemed to have been received at the expiration of 72 hours after its deposit in the United States Post Office; (b) transmission by facsimile copy to the addressee; (c) transmission by electronic mail; or (d) personal delivery, to the Party addresses as identified in Exhibit B.

15. <u>Entire Agreement</u>. This instrument constitutes the entire agreement and understanding between the Parties with respect to the subject matters hereof, and supersedes and replaces any prior agreements and understandings, whether oral or written, by and between them with respect to such matters.

16. <u>Counterparts</u>. This MOU may be executed in any number of counterparts, each of which shall be deemed to be an original instrument, but all of which together shall constitute one and the same instrument.

IN WITNESS WHEREOF, the parties hereto have entered into this instrument as of the date set forth above.

#### SACRAMENTO CENTRAL GROUNDWATER AUTHORITY

By:		
•		

Title: \_\_\_\_\_

Date: \_\_\_\_\_

**RECLAMATION DISTRICT xxx** 

By:	
2	

Title:	

Date: \_\_\_\_\_

Exhibit "A" – Reclamation Districts within the Delta area of the South American Sub-basin Exhibit "B" – Party Addresses

### Appendix 2A – Water Forum Agreement Groundwater Management Element

#### VI. GROUNDWATER MANAGEMENT ELEMENT

Developed jointly by the Sacramento Metropolitan Water Authority Groundwater Committee and the Sacramento Water Forum Groundwater Negotiation Team.

#### A. Intent

Our vital groundwater resource supplies over half the water used in the region. The purpose of a groundwater management plan is to protect the viability of that resource for both current and future users. To do so requires monitoring the amount of water withdrawn from the groundwater basin and promoting the use of groundwater in conjunction with surface water supplies to maximize the availability of both. This must be accomplished by creating publicly accountable governance structures which respect the rights of all groundwater users. Ideally, these structures should be established using existing authority and institutions.

This document contains recommendations by which to monitor the amount of groundwater which can be pumped from the basin over a long period without damaging the aquifer (sustainable yield). The Sacramento North Area Groundwater Management Authority was established in August 1998 using the existing authority of the City of Sacramento, the City of Folsom, City of Citrus Heights, and County of Sacramento through adoption of a Joint Powers Agreement. In the South Area and the Galt Areas of the County, negotiations for specific groundwater management arrangements will continue employing the principles of interest-based negotiation to provide all community interests the opportunity to participate in tailoring a groundwater management plan to fit each area's unique needs.

#### B. Recommendations Concerning Sustainable Yield

#### 1. BACKGROUND ON SUSTAINABLE YIELD AND CONJUNCTIVE USE

Our vital groundwater resource must be protected. In addition, if managed in conjunction with the surface water available during wet years, the groundwater basin can provide storage capacity to bank water which can be used to meet demand in dry years. To achieve these objectives, recommendations must address two important factors, sustainable yield and conjunctive use.

Within the context of these recommendations, sustainable yield is defined as the amount of groundwater which can be safely pumped from the groundwater basin over a long period of time while maintaining acceptable groundwater elevations and avoiding undesirable effects which might include increased pumping costs, accelerated movement of underground pollutants, etc. Sustainable yield requires a balance between pumping and basin recharge and is expressed as the number of acre feet of water per year which can be pumped from the basin on a long-term average annual basis.

Conjunctive use is the planned management and use of both groundwater and surface water in order to improve the overall reliability of a region's total water supply. For example, in wet years when surface water is plentiful, groundwater pumping may be reduced or eliminated and only

surface water is used. The groundwater basin would be replenished in these wet years. In dry years when surface water is in short supply, the water that has been accumulating in the basin would be pumped for use and surface water diversions reduced or eliminated. Additional surface water diversions will be required to implement a conjunctive use program. Conjunctive use is expressed in acre feet per year.

The following purveyors utilize the groundwater basin for some or all of their water supply. There are also residents, businesses and agriculturalists who pump groundwater from the basin.

NORTH AREA: Arcade Water District, Arden Cordova Water Service (Arden area), Carmichael Water District, Citizens Utilities Company of California (portion), Citrus Heights Water District, City of Sacramento, Del Paso Manor Water District, Fair Oaks Water District, McClellan Air Force Base, Sacramento International Airport, Northridge Water District, Orange Vale Water Company, Rio Linda/Elverta Community Water District, Sacramento County WMD (portion).

SOUTH AREA: Arden Cordova Water Service (Cordova area), Citizens Utilities Company of California (portion), City of Sacramento, Elk Grove Water Works, Florin County Water District, Fruitridge Vista Water Company, Mather Air Force Base, Omochumne-Hartnell Water District (portion), Sacramento County WMD (portion), Tokay Park Water Company, Sacramento County Water Agency, Zone 40.

GALT AREA: City of Galt, Clay Water District, Galt Irrigation District, Omochumne-Hartnell Water District (portion).

#### 2. RECOMMENDATION ON SUSTAINABLE YIELD: NORTH AREA

The recommended estimated average annual sustainable yield is 131,000 acre feet. This represents the year 1990 pumping amount. To help meet year 2030 demands, a program would be implemented to use the groundwater basin conjunctively with surface water supplies.

#### 3. RECOMMENDATION ON SUSTAINABLE YIELD: SOUTH AREA

The recommended estimated average annual sustainable yield is 273,000 acre feet. This represents the year 2005 projected pumping amount and is 23,000 acre feet more than the 1990 pumping amount. The projected 2005 pumping amount for the South Area took into consideration the cost of delivery of surface water and the impacts which occur due to the lower stabilized groundwater levels. To meet year 2030 demands, a program would be implemented to use the groundwater basin conjunctively with surface water diversions.

#### 4. RECOMMENDATION ON SUSTAINABLE YIELD: GALT AREA

The recommended estimated average annual sustainable yield is 115,000 acre feet.<sup>5</sup> This represents the year 1990 pumping amount. Conjunctive use would be implemented, dependent upon the availability of surface water, to enhance groundwater levels.

#### C. Recommendations Concerning a Groundwater Management Governance Structure

#### 1. BACKGROUND ON GROUNDWATER RIGHTS

There are fundamental differences between surface water rights and groundwater rights that require any groundwater management plan to be tailored to reflect those differences. For example, most appropriative surface water rights are governed by a complex, statewide statutory system. Since 1914, surface water appropriators have been required to obtain a permit from the State Water Resources Control Board and abide by the permit conditions to use water. Surface water rights may be forfeited by disuse, i.e., the failure to exercise those rights. Surface water users must also be able to demonstrate reasonable and beneficial use of water, as these terms are defined in California water law, or run the risk of losing some or all of their water rights.

In contrast, there is no statewide statutory scheme for groundwater and no permit system. While groundwater must also be put to beneficial use, groundwater rights are not per se lost by disuse. The regulation of groundwater use is primarily a local government responsibility. In Southern California, statutory and judicially mandated or authorized groundwater management is, in fact, the rule rather than the exception. In recent years, encouraged by state legislation and recent judicial decisions, areas of Northern California have increasingly viewed groundwater management as an appropriate means by which local areas can protect their groundwater resources. Under current legislation, the County of Sacramento as well as the cities of Sacramento, Folsom and Citrus Heights have groundwater management authority.

Groundwater rights fall into one of three general categories. The first category of groundwater rights are "overlying rights." An overlying right is the right of a land owner to take water from the basin underneath the land for reasonable, beneficial purposes on the land, thus the term overlying rights. Overlying rights exist by virtue of land ownership and are correlative to the overlying rights of other land owners. "Unexercised overlying rights" are those overlying water rights that are not currently being utilized. Because both exercised and unexercised overlying rights are held as part of the ownership of land, they are "vested" rights in the sense that they pass from owner to owner with the sale of the land; however, such rights are subject to reduction by prescription when no surplus water is available, as discussed below.

<sup>&</sup>lt;sup>5</sup> In the Galt Area, the development of surface water for conjunctive use and reduction in groundwater pumping due to conservation and modified agricultural practices may take several years to accomplish. During this interim period, the average annual usage may exceed the recommended sustainable yield. It should be recognized that this recommendation for the Galt Area is a *long-term* goal.

The second type of right to groundwater is an "appropriative right." This right is gained through the extraction and utilization of water for reasonable, beneficial purposes. Because appropriative rights are not held as part of the ownership of the overlying land, the rights of an appropriator depend on the actual taking of water for reasonable, beneficial use. As between two appropriators, the relative priority system of "first in time, first in right" applies. Because California law favors the greatest number of beneficial uses of water, public entities may gain appropriative rights by pumping groundwater for "municipal" purposes without actually owning a substantial portion of the overlying land. So long as there is a surplus in the groundwater basin, appropriative rights are not adverse to overlying rights.

The third type of right to groundwater, known as a "prescriptive right," comes into existence only if the groundwater basin has no "surplus" water available. Prescriptive rights in groundwater law are rights gained by appropriating non-surplus water for the statutorily prescribed period. A basin is in a state of "surplus" when the amount of water being extracted from it is less than the maximum amount that could be drawn without adverse effects on the basin's long-term supply. An appropriative right can ripen into a prescriptive right if the appropriator takes non-surplus water for the statutorily prescribed period. While private individuals and entities may lose their groundwater rights to others who gain a prescriptive right against them, California law states that public entities cannot lose their water rights through prescription.

In determining whether a basin has surplus water, the courts have looked to the basin's "sustainable yield." Sustainable yield is the maximum amount of water which can be withdrawn annually from a groundwater supply under a given set of circumstances without causing an undesirable effect. Under the best case scenario, when overlying rights holders are ready to exercise their unexercised rights, or when the city, county, or other entity seeks to appropriate more groundwater for municipal purposes, the pumping in the basin will not exceed the basin's sustainable yield. As long as surplus water exists and the basin maintains sustainable yield, all groundwater rights are protected: overlying rights are not lost by prescription; appropriative rights may be fully exercised; and no user gains a prescriptive right against another.

Under the "worst case scenario," when overlying rights holders are ready to exercise their unexercised rights, or when the city, county, or other entity seeks to appropriate more groundwater for municipal purposes, basin-wide pumping will exceed sustainable yield. The lack of surplus water serves as a signal that overlying rights may be lost through prescription and that appropriative rights may begin to ripen into prescriptive rights. In short, the inability to maintain a sustainable yield creates the conditions that have historically given rise to litigation and groundwater basin adjudication. Under this worst case scenario, the "train wreck" that the Water Forum was established to prevent -- divisive, expensive, and protracted litigation and adjudication -- will have occurred.

As discussed in detail below, this Groundwater Element seeks to avoid the train wreck by calling for arrangements to manage the basin so as to prevent basin-wide pumping in excess of sustainable yield. Indeed, the primary purpose of these arrangements is to manage the limited groundwater resources such that the basin is never threatened by the inability to maintain sustainable yield.

Recognizing the unique and varied nature of groundwater rights, the surface water priority system of "first in time, first in right" does not apply to the policies and procedures effecting groundwater management. Instead, in establishing a groundwater management plan, the challenge is to create a framework that: (1) allows current users to continue to exercise their rights; (2) recognizes both exercised and unexercised overlying rights are vested rights in the sense that they pass from owner to owner with the sale of the land, as discussed above; (3) provides that similarly situated present and future groundwater users will be treated the same; and (4) creates certainty for all current and future users by ensuring that the basin is maintained at its sustainable yield. Ultimately, current groundwater users, future groundwater users, and those who rely on groundwater for conjunctive use must recognize that they all share a common interest -- the protection, preservation, and enhancement of the groundwater basin.

#### 2. FUNDAMENTAL ASSUMPTIONS

The recommendations contained in this document are based on the following thirteen assumptions:

a. The purpose of groundwater management is to maintain access to a safe and reliable supply of water, either through continued use of groundwater, a conjunctive use program or access to an alternative satisfactory source of supply.

b. For groundwater users in Sacramento County and adjacent areas, alternative satisfactory sources of supply should be developed which are both fully accessible and economically feasible.

c. In accordance with existing law, a groundwater management program must:

\* respect the existing rights of any person, association, corporation, municipality or public district;

\* recognize the vested nature of both exercised and unexercised overlying rights (as discussed in the background section of this Element);

\* recognize that given the vested nature of all overlying rights, the surface water priority system of "first in right" does not apply to groundwater pumping; and

\* ensure that the groundwater basin is managed in such a way as to promote the continued health and stability of that resource for the benefit of all current and future users.

d. The hydrology of the Sacramento region suggests three groundwater sub-areas within the basin, each with different problems and conditions. The groundwater management governance structure should recognize these differences and provide for local control in each sub-area of the basin so as to address these varying problems and conditions most effectively.

e. At the same time, adequate provisions must be made to insure over-all coordination of policies and activities among the three sub-areas of the basin.

f. It is impossible to foresee the future or to predict each circumstance which might arise in management of the groundwater basin. Therefore, it is the goal of these principles and recommendations to outline a basic framework for groundwater management and to discuss options to insure basin-wide coordination. In the North Area of Sacramento County, the Sacramento North Area Groundwater Management Authority will have to exercise professional competence and good judgement in addressing specific problems and issues. In the South Area and the Galt Area, those entities which assume groundwater management responsibilities will have to do likewise. It is not the purpose of this document to anticipate these specific problems and dictate solutions. To do so would weaken the authority of the various groundwater management entities and undermine the flexibility which they must have in order to discharge their responsibilities.

g. In discharging their planning and management responsibilities, the groundwater management entities must consider the fact that there are unexercised rights holders who may begin to exercise their rights at some future date, either before or after the term of the *Water Forum Agreement* (year 2030). Consistent with the *Water Forum Agreement*, these entities must manage the groundwater basin with such eventualities in mind, taking into account both current and future water needs.

All groundwater rights holders, whether their rights are exercised or unexercised, share the common goal of maintaining the long-term viability of the basin. To insure that all current and future users are treated equitably, including both those currently exercising groundwater rights and those with unexercised rights, the groundwater management plans must neither (a) reward or penalize exercised rights holders for electing to exercise their rights nor (b) reward or penalize unexercised rights holders for electing not to exercise their rights immediately. Accordingly, when previously unexercised rights are exercised in the future, the same conditions and burdens, financial and otherwise, will apply equally to similarly situated groundwater rights holders within the same sub-area who receive the same level of benefit, regardless of the date when their rights were first exercised.

h. Effective groundwater management will require the use of surface water. Therefore, the groundwater management governance structure must address relationships with those agencies which can deliver such surface water and specify how the interests of these agencies will be represented in the governance structure.

i. The groundwater management governance structure should facilitate participation by water agencies with specific and relevant interest in the groundwater governance structure outside of Sacramento County and encourage cooperation and collaboration with such agencies.

j. Groundwater makes up a portion of the total water resource identified to meet projected water demands in 2030. These water demands are based primarily on the

General Plans approved by the respective city councils and the county boards of supervisors as of June, 1996.

k. The authority to make land use decisions is vested in county boards of supervisors and city councils. This document recognizes that fact and assumes that these entities will continue to exercise this authority.

1. This document assumes that, as a part of the Water Forum discussions, a program will be negotiated to insure the on-going monitoring and implementation of the *Water Forum Agreement*. This program is currently referred to as the "Water Forum Successor Effort." The Successor Effort will be based on the principles of collaboration and consensus and will not entail formalized legal authority to mandate or regulate actions by the signatories to the *Water Forum Agreement*. The Successor Effort may or may not include some permanent entity through which monitoring functions are carried out.

#### 3. GOVERNANCE OPTIONS

Taking these assumptions into account, the Sacramento Metropolitan Water Authority (SMWA) Groundwater Committee (Committee) and the Water Forum Groundwater Negotiation Team (Team) reviewed options to implement a groundwater management governance structure including:

\* a voluntary plan under AB 3030

\* existing options provided for in the Sacramento County Water Agency (SCWA) Act but never implemented;

\* modification of these existing options which would require no action by the legislature or only a limited amendment of the groundwater provisions of the Act;

\* options based upon joint powers agreements as provided for in state statutes; and

\* special legislation in the State Assembly and Senate.

In considering each of these alternatives, the Committee and the Team applied three standards: what is simplest, what is most efficient and, given political realities, what can be implemented most expeditiously. The Committee and the Team also sought the advice of legal counsel to be sure that recommendations concerning a groundwater management governance structure would meet all requirements of law and regulation (as of September, 1996).

After exhaustive review and discussion, the Committee and the Team determined that the Joint Powers Agreement which established the Sacramento North Area Groundwater Management Authority is the option which best meets the three standards previously identified. Recognizing the differences in circumstances and conditions in other areas of the County, the Committee and the Team also determined that the Sacramento North Area arrangements should not serve as a template for the South and Galt Areas and negotiations concerning groundwater arrangements in the South Area and the Galt Area should continue, as discussed below.

Concerning the Joint Powers Agreement which established the Sacramento North Area Groundwater Management Authority, it is important to note the law requires that all of the participating public agencies must have independent authority to exercise whatever powers are to be jointly exercised. For purposes of groundwater governance, the two essential powers are authority to manage groundwater and authority to establish a regulatory fee. The public agencies in Sacramento County which hold these powers are Sacramento County, the City of Sacramento, the City of Folsom, and City of Citrus Heights.

The Sacramento North Area Groundwater Management Authority was established in August 1998 using the existing authority of the City of Sacramento, the City of Folsom, City of Citrus Heights, and County of Sacramento through adoption of a Joint Powers Agreement.

#### 4. SCHEDULE FOR IMPLEMENTATION

The SMWA Groundwater Committee and the Water Forum's Groundwater Negotiation Team noted the fact that:

a. Current conditions affecting the importation of surface water and use of groundwater in the North Area of the County differ significantly from those in the South Area and the Galt Area: (NOTE: For purposes of this document, these areas are defined as follows: North Area - north of the American River; South Area - between the American and the Cosumnes Rivers; Galt Area - south of the Cosumnes.)

(1) The North Area is closer to build-out.

(2) Delivery systems for surface water are already being expanded and utilized to a greater extent in the North Area.

(3) Almost all of the North Area, including agriculture, is served by organized purveyors. Thus, the institutional infrastructure necessary to implement groundwater management is further developed in the North Area.

(4) The Sacramento Metropolitan Water Authority which includes eight of the 12 water purveyors in the North Area wishes to implement a ground water management plan as soon as possible and has already taken action to do so.

b. Given these and other significant differences in the opportunities and constraints in the North Area compared to the rest of Sacramento County:

(1) The schedule for implementation of groundwater management arrangements in each Area will differ.

(2) The Sacramento North Area Groundwater Management Authority was established in August 1998.

c. It is important to note that discussions, involving all parties interested in the negotiation of groundwater management arrangements in the South Area and the Galt Area will continue. These discussions, employing the principles of interest-based negotiation, are part of a public process designed to provide all community interests the opportunity to participate in tailoring a groundwater management plan to fit each area's unique circumstances. The goal of these discussions is to reach agreement on satisfactory groundwater management arrangements in the South Area and the Galt Area as soon as feasible.

d. Again, it should also be noted that recommendations contained in this document for groundwater management in the North Area are not a "template" to be imposed on the South or Galt Areas. While some North Area recommendations may be useful in other areas of the county, groundwater management plans, including an appropriate governance structure and financial arrangements, must be developed and crafted to meet the unique conditions of the South and the Galt Areas.

e. Assuming that, at a future date, satisfactory joint powers agreements and/or memoranda of understanding are negotiated which provide for the participation in a groundwater management program by purveyors outside of Sacramento County, those purveyors may be represented in the groundwater management program and any related governance structure as specified in those joint powers agreements or memoranda of understanding.

## 5. RECOMMENDATIONS ON THE GROUNDWATER MANAGEMENT GOVERNANCE STRUCTURE: GENERAL

Based upon careful consideration of the fundamental assumptions, review of the available options for a groundwater management governance structure, discussion with engineering and other technical consultants and guidance provided by legal counsel, the Sacramento Metropolitan Water Authority Groundwater Committee and the Sacramento Water Forum Groundwater Negotiation Team make the following recommendations.

a. The Sacramento North Area Groundwater Management Authority ("Authority") and responsible groundwater management entities in the South Area and the Galt Area will exercise the right to manage groundwater for the benefit of current and future users, including overlying users with unexercised rights. In order to do so, the Authority and other responsible entities will use economic measures (incentives and disincentives) to encourage conservation and raise revenues necessary to purchase surface water for implementation of conjunctive use programs. For example, groundwater users may pay a per acre foot fee for water consumptively used. Such a fee encourages water management, rewards water conservation, protects overlying rights, and does not penalize those who have not yet fully exercised their overlying water rights. Of course, a per acre foot fee on

water consumptively used is just one option that the Authority or other groundwater management entity may elect to implement.

It will be up to each Authority or other entity to decide what mechanisms work best in their particular area to raise revenues and encourage conservation.

b. Provisions must be made to insure coordination of management policies and activities among all three areas of the groundwater basin and to facilitate cooperation among the North, South and Galt Areas in all matters of mutual interest. (See Section 8 later in this Groundwater Management Element.)

c. The Sacramento North Area Groundwater Management Authority and other groundwater management entities should be provided with sufficient technical support and/or staff to enable them to discharge their groundwater management responsibilities.

d. All meetings of the Sacramento North Area Groundwater Management Authority and other groundwater management entities shall be open to the public, subject to the provisions of the Brown Act.

e. The purpose of the Sacramento North Area Groundwater Management Authority and other groundwater management entities shall be to:

(1) maintain the long-term sustainable yield of the area of the groundwater basin under its delegated jurisdiction

(2) manage the use of groundwater in the area of the basin under its delegated jurisdiction and facilitate implementation of an appropriate conjunctive use program by the area purveyors

(3) coordinate efforts among all participants in the local groundwater management plan to devise and implement strategies to safeguard groundwater quality

(4) work collaboratively with the responsible groundwater management entities in other Areas to promote coordination of policies and activities throughout the basin.

f. In order to fulfill these purposes within their respective areas, the Sacramento North Area Groundwater Management Authority and groundwater management entities in other areas of the basin should have the authority to:

(1) collect and monitor data on annual pumping amounts

(2) recommend annual extraction goal based on the availability of surface water

- (3) monitor implementation of annual "puts" and "takes"
- (4) monitor the migration of toxic plumes

(5) facilitate collaboration among purveyors to identify the area's needs and develop a plan to meet those needs

- (6) determine allocation of administrative costs
- (7) determine allocation of water costs on a project by project basis

(8) based upon determinations of benefit, establish regulatory fees to cover water costs and administrative costs.

g. Each of the three areas of the groundwater basin is served by different water purveyors. The responsible groundwater management entity in each area of the basin must reflect this fact. Therefore, the composition of each entity will vary.

h. Commercial/industrial self-supplied groundwater users (i.e., major industrial users which pump their own groundwater) and agricultural pumpers shall be represented on the responsible groundwater management entity in each of the three areas of the basin.

i. Sec. 10910 of the Water Code, as amended by Senate Bill 901, requires cities and counties to ask a public water purveyor to provide an assessment of whether its total projected water supplies can meet the anticipated increase in water demand which would be created as the result of a proposed development project. (The size of projects subject to this requirement is set forth in the code.)

Nothing in these recommendations is intended to modify or impair the existing authority of county boards of supervisors or city councils to make land use decisions. At the same time, in order to discharge its responsibility to manage the area of the basin under its delegated jurisdiction, the Sacramento North Area Groundwater Management Authority and other groundwater management entities must be informed of proposed development projects which may affect water demand in its area. Therefore, at the same time that a public water purveyor responds to a city's or a county's request for an assessment, it shall send a copy of its assessment report to the Authority or the groundwater management entity in whose jurisdiction the proposed development would take place.

As indicated above, the Sacramento North Area Groundwater Management Authority was established in August 1998. The Joint Powers Agreement creating the Authority was based upon the recommendations set forth in the following two sections of this document. The provisions in these two sections have already been implemented but they are included here for reference.

#### 6. RECOMMENDATIONS ON THE GROUNDWATER MANAGEMENT GOVERNANCE STRUCTURE: NORTH AREA --- GENERAL

a. The Sacramento North Area Groundwater Management Authority should be created as soon as possible by a Joint Powers Agreement among public agencies which have the authority to manage groundwater and to establish a regulatory fee: i.e., the City of Sacramento, the City of Folsom, the City of Citrus Heights and Sacramento County.

b. The Joint Powers Agreement shall remain in effect until terminated by one of the signatory agencies. To do so, the signatory agency intending to terminate the agreement must give ninety days written notice to all other signatories. Upon termination, the assets and liabilities of the joint powers authority become the responsibility of the signatory agencies in whatever proportion is set forth in the joint powers agreement.

c. The Sacramento North Area Groundwater Management Authority shall have the authority, in conformance with existing water rights and consistent with the *Water Forum Agreement*, to exercise the delegated right to manage groundwater in the area of the basin under its jurisdiction so as to protect the future viability of the basin as a water resource.

d. In order to meet legal requirement, all members serving on the Sacramento North Area Groundwater Management Authority must be appointed by the public agencies which are signatories to the joint powers agreement: i.e., the City of Sacramento, the City of Folsom, the City of Citrus Heights and Sacramento County.

e. In the North Area, each organized purveyor shall be represented on the Authority. Representatives shall be selected from among the elected members of the purveyor's board of directors. In the case of an investor-owned utility, the representative shall be a member of the board of directors or the designee thereof.

f. Prior to the appointment of the representative of each purveyor, the purveyor shall submit a recommended appointment for their representative to the appointing agency. The appointing agency shall give consideration to such recommendations but shall retain the absolute discretion to appoint any person satisfying the criteria set forth in Paragraphs h (1), (3) and (4) below.

g. In order to meet legal requirements, all members serving on the Sacramento North Area Groundwater Management Authority do so at the pleasure of the appointing public agency.

h. The joint powers agreement creating the Sacramento North Area Groundwater Management Authority shall specify membership on the Authority as follows:

(1) One representative from each of the following organized water purveyors (selected from among the elected members of the purveyor's board of directors or,

in the case of an investor owned utility, a member of the board of directors or designee thereof):

Arcade Water District Arden Cordova Water Service Carmichael Water District Citizens Utilities Company of California Citrus Heights Water District City of Folsom City of Sacramento Del Paso Manor Water District Fair Oaks Water District Fair Oaks Water District Natomas Central Mutual Water Company Northridge Water District Orange Vale Water Company Rio Linda/Elverta Community Water District Sacramento County Water Maintenance District San Juan Water District

(2) In order to meet the legal requirement that all members serving on the Sacramento North Area Groundwater Management Authority be appointed by the public agencies which are signatories to the joint powers agreement:

(a) The City Council of the City of Citrus Heights shall appoint the representative of the Citrus Heights Water District.

(b) The City Council of the City of Folsom shall appoint its own representative.

(c) The City Council of the City of Sacramento shall appoint the representatives of:

- Arcade Water District
- Arden Cordova Water Service
- Citizens Utilities Company of California
- City of Sacramento
- Del Paso Manor Water District
- Natomas Central Mutual Water Company

(d) The Sacramento County Board of Supervisors shall appoint the representatives of :

- Carmichael Water District
- Fair Oaks Water District
- Northridge Water District
- Orange Vale Water Company
- Rio Linda/Elverta Community Water District

- Sacramento County Water Maintenance District
- San Juan Water District

(3) One representative of North Area agriculture to be appointed by the Sacramento County Board of Supervisors.

(4) One representative of commercial/industrial self-supplied groundwater users to be appointed by the City Council of the City of Sacramento.

(5) At such time as satisfactory joint powers agreements and/or memoranda of understanding are negotiated which provide for the participation in the groundwater management program by purveyors outside of Sacramento County, a representative(s) of those purveyors (the City of Roseville, Placer County Water Agency, South Sutter Water District, etc.) may be appointed to the Sacramento North Area Groundwater Management Authority under any arrangement specified in the Joint Powers Agreement(s) or memoranda of understanding.

i. In addition, the Joint Powers Agreement creating the Sacramento North Area Groundwater Management Authority should specify:

- (1) voting on the Authority be structured as follows:
  - (a) Each representative shall have one vote

(b) All items pertaining to finances must be approved by a double majority: i.e., a majority of all of the members of the Authority (voting on the basis of one person/one vote)

And a majority of votes weighted on the basis of total water production.

(NOTE: For purposes of determining regulatory fees or charges to support the administrative costs, total water production means the combined surface water and groundwater delivered by retail providers, together with that water produced by agricultural and self-supplied users for use within the boundaries of the joint powers authority. For purposes of determining regulatory fees or charges to support water costs, total water production means the groundwater portion only of the total amount of water delivered by retail providers, together with that groundwater produced by agricultural and self-supplied users for use within the boundaries of the joint powers authority.)

(NOTE: The weighted vote of the representative for commercial/industrial self-supplied groundwater users shall be weighted on the basis of total water production by <u>all</u> such users combined. The weighted vote for the representative for agriculture shall be weighted on the same basis.)

(NOTE: To the extent that a classification of water producers/pumpers [e.g. agriculture] pays a differential rate [see Section 7, b, (1) and 7, c, later in this Element], the weighted vote of that representative shall be adjusted accordingly. For example, each acre foot pumped equals one vote. Agriculture pumps a total of 100,000 acre feet but pays only 20% of the regulatory fees established for other pumpers. The vote of the representative for agriculture would be calculated at 20,000 votes, one fifth of that of other representatives. It is important to note that in this example the figure of 20% is used for illustrative purposes only. No determination on whether agriculture pays a differential rate or what that rate might be has been made.)

Approval of all other items requires only a majority of all the representatives on the Authority.

j. The Authority should have the discretion to invoke alternative dispute resolution procedures in any circumstances which it deems appropriate. (See also Item 9, later in this Element.) Such procedures might include review of any dispute or disagreement by an ad hoc subcommittee of the Authority, use of an outside neutral third party, etc.

#### 7. RECOMMENDATIONS ON THE GROUNDWATER MANAGEMENT GOVERNANCE STRUCTURE: NORTH AREA - FINANCE

It is probable that in the North Area, the implementation of a groundwater management plan will require the importation of surface water. The importation of surface water will generate attendant costs. In addition, there will be costs related to administering the groundwater management program. Therefore, the following recommendations are made:

a. The Sacramento North Area Groundwater Management Authority shall establish a rate structure, having determined:

(1) The basis on which the rate is calculated (e.g., total water production, number of connections, etc.) and

(2) Whether the rate is to be applied under a tiered benefit system to take into account a groundwater user who receives a greater benefit than a user who receives a lesser benefit (e.g., maximum benefit, intermediate benefit, basic benefit.) If the Authority chooses to implement a tiered benefit system, it shall define tier or level of benefit as it deems appropriate, given the circumstances in the area of the basin under its jurisdiction.

b. The Sacramento North Area Groundwater Management Authority shall be responsible for determining the allocation of and the rate for regulatory fees or charges to cover water costs and administrative costs.

(1) Administrative costs (e.g., staffing, data collection, monitoring, studies, etc.)

There may be a differential rate applied to groundwater as opposed to surface water use. However, the rate for each type of non-agricultural water shall be applied consistently within that category of water.

(2) Water costs (e.g., the cost of water, pumping and treatment costs and other costs related to a conjunctive use program)

During the first five years of operation, the Sacramento North Area Groundwater Management Authority shall be prohibited from establishing regulatory fees to fund water cost payments that exceed an annual average of \$5.00 per acre foot (minimum \$0.00 - maximum \$10.00) of groundwater pumped spread against approximately 100,000 acre feet of pumping per year.

c. In the North Area, agricultural pumpers may pay a percentage of the regulatory fee established for non-agricultural pumpers for administrative and water costs. This percentage shall be determined by the Sacramento North Area Groundwater Management Authority. (NOTE: In other areas of the state, agricultural pumpers generally pay a lower rate. This differential rate is based on such factors as: agriculture pays less for contract water; agriculture could use untreated water and thus avoid treatment related costs, etc.)

d. In discharging its planning and management responsibilities, the Authority must consider the fact that there are unexercised rights holders who may begin to exercise their rights at some future date, either before or after the term of the *Water Forum Agreement* (year 2030). Consistent with the *Water Forum Agreement*, the Authority must manage the groundwater basin with such eventualities in mind, taking into account both current and future water needs.

When overlying rights holders with unexercised rights begin to exercise those rights, they will be treated exactly the same as similarly situated users in the North Area who are currently exercising their rights; that is, when previously unexercised rights are exercised in the future, the same conditions and burdens, financial or otherwise, will apply equally to similarly situated groundwater rights holders within the North Area who receive the same level of benefit, regardless of date when their rights were first exercised. For example, those with unexercised rights will pay the then-existing regulatory fees when they elect to exercise their rights as their contribution to the groundwater management program -- just like other similarly situated users in the North Area who receive the same level of benefit.

e. In the North Area, a groundwater extraction facility that is used to provide water for domestic purposes to a single-unit residence or for irrigation of less than 2.5 acres shall be exempt from any regulatory fee for water or administrative costs.

f. The Authority shall decide whether other exemptions from participation in a groundwater management plan (based on some minimum amount of groundwater pumped for consumptive use) shall be allowed.

g. Any action (past and/or future) taken by a groundwater purveyor or pumper which provides a benefit to the basin should be reviewed by the Authority on an annual basis and taken into account by the Authority (as appropriate) when determining regulatory fees.

h. Any pumping of groundwater for remediation of hazardous substances under a regulatory agreement or governmental order is not a consumptive use subject to a regulatory fee or other financing mechanism discussed in this agreement, unless subsequently used for direct consumptive use or returned to the river for sale downstream.

i. Any individual, business or other entity which has been assessed a regulatory fee and believes the regulatory fee to be unwarranted or unfair, may seek reconsideration by the Authority in accordance with procedures to be developed by the Authority (and similar to those used by other public agencies).

## 8. RECOMMENDATIONS TO INSURE BASIN-WIDE COORDINATION AMONG THE LOCAL GROUNDWATER MANAGEMENT ENTITIES

The groundwater management entity in each area of the basin (North, South and Galt) will be independent of one another. But, while the hydrology of the Sacramento region suggests that there are three groundwater sub-areas within the basin, each sub-area overlies the **same** basin. Therefore, there must be a mechanism to:

\* Safeguard the viability of the total basin through coordination of policies and activities across the three sub-areas of the basin

\* Facilitate cooperation among the three sub-areas on projects or programs of mutual benefit

\* Promote efficient operation through cost-sharing arrangements, shared staff, equipment, facilities, etc. if possible and appropriate

\* Facilitate resolution of any inter-area disagreement in conformance with an agreed upon model for dispute resolution. (See Section 9 later in this Element.)

A variety of measures or combinations of measures which might be used to accomplish these four objectives have been considered by the Committee and the Team including but not limited to: \* No formal mechanism for coordination: each situation to be addressed on an ad hoc basis by the appropriate groundwater management entities in each sub-area of the basin

\* A standing inter-area coordinating committee composed of representatives of the appropriate groundwater management entities who meet regularly (or only as necessary)

\* Mandatory joint meetings of area representatives

\* Informal or formal coordination as needed through the Water Forum successor effort

Based upon review and discussion of all available options, the following recommendation is made.

\* Within one year of the initiation of the Sacramento North Area Groundwater Management Authority, representatives of the Authority shall meet with representatives of other entities which have groundwater management responsibilities in the South Area and the Galt Area to develop and adopt appropriate measures to ensure ongoing coordination of policies and activities in the three sub-areas of the basin.

#### 9. RECOMMENDATIONS CONCERNING ALTERNATIVE DISPUTE RESOLUTION

The *Water Forum Agreement* is a complex document negotiated by the representatives of the many stakeholder organizations over a five year period. No agreement, however, no matter how complex, can anticipate every possible changing condition which might arise in the future or how these changed conditions may impact the terms of the *Agreement*. Concerns or disagreements among the stakeholders may arise and these must be addressed in a direct and timely manner. At the same time, it is important to safeguard the integrity of the *Agreement* and the delicate balance of interests which it represents. Therefore, the following recommendations on alternative dispute resolution are made concerning:

\* disputes between parties represented on the Sacramento North Area Groundwater Management Authority

\* disputes between groundwater management entities in different sub-areas of the basin.

Nothing in these recommendations shall preclude any party from exercising their legal rights by filing an action in a court of competent jurisdiction concerning any item at issue. However, before doing so, all persons, associations, corporations, districts, municipalities or public agencies represented on the various groundwater management entities throughout the basin agree to participate in good faith in these alternative dispute resolution procedures.

# DISPUTES AMONG PARTIES REPRESENTED ON THE SACRAMENTO NORTH AREA GROUNDWATER MANAGEMENT AUTHORITY

a. Within six months of its inception, the Sacramento North Area Groundwater Management Authority shall discuss, develop and adopt an alternative dispute resolution program and procedures.

b. Participation in such a program shall be mandatory for all persons, associations, corporations, districts, municipalities or public agencies represented on the North Area Authority.

#### c. These alternative dispute resolution procedures shall provide for:

(1) If the disagreement pertains to the substance of the *Water Forum Agreement*, timely consultation with the Water Forum successor effort on the cause and current status of the disagreement as well as strategies which may lead to a resolution of the problem;

(2) Prompt response by the Authority when any party invokes alternative dispute resolution procedures;

(3) If the disagreement cannot be resolved by the Authority itself, use of an outside neutral third party (i.e., a mediator) to assist the parties in working toward a satisfactory resolution;

(4) Completion of all procedures within sixty to ninety days, unless the parties to the dispute agree to extend this timeline; and

(5) Timely notice to the Water Forum Successor Effort that alternative dispute resolution procedures have been initiated and the reasons therefor.

#### DISPUTES BETWEEN GROUNDWATER MANAGEMENT ENTITIES IN DIFFERENT SUB-AREAS OF THE BASIN

a. Within six months of initiation of agreed-upon groundwater management plans in the South Area or in the Galt Area, the appropriate groundwater management entities shall meet together and establish a process to discuss, develop and adopt alternative dispute resolution procedures which will be implemented in any dispute or disagreement which might arise between or among these groundwater management entities.

b. Implementation of these procedures by these entities in any dispute or disagreement shall be mandatory.

c. These procedures shall provide for:

(1) If the disagreement pertains to the substance of the *Water Forum Agreement*, timely consultation with the Water Forum Successor Effort on the

cause and current status of the disagreement as well as strategies which may lead to a resolution of the problem;

(2) If the disagreement cannot be resolved by the groundwater management entities themselves, use of outside neutral third party (i.e., a mediator) to assist the entities in working toward a satisfactory resolution;

(3) Completion of all procedures within sixty to ninety days, unless the entities themselves agree to extend this timeline; and

(4) Timely notice to the Water Forum Successor Effort that alternative dispute resolution procedures have been initiated and the reasons therefor.

d. These procedures shall be adopted by the groundwater management entities not later than one year after the initiation of agree-upon groundwater management plans in the South Area and/or the Galt Area.

#### 10. RECOMMENDATIONS TO INSURE ON-GOING COLLABORATION BETWEEN THE LOCAL GROUNDWATER MANAGEMENT ENTITIES AND THE WATER FORUM SUCCESSOR EFFORT

As noted above, this document assumes that a permanent Successor Effort will be created and charged with the responsibility of overseeing, monitoring and reporting on implementation of the *Water Forum Agreement*. In order to discharge this responsibility, the Successor Effort must work closely with the local groundwater management entities throughout the basin. This will require a full sharing of all information pertaining to the groundwater basin and consultation, as appropriate. Therefore, the following recommendations are made.

a. Representatives of the Sacramento North Area Groundwater Management Authority and the Successor Effort shall meet together to discuss and adopt appropriate measures to insure an on-going exchange of information and collaboration on all matters of mutual interest and concern.

b. When a groundwater management plan becomes operational in the South Area and/or the Galt Area, a similar meeting between the Successor Effort and the appropriate groundwater management entities shall be convened within three months of the inception of the new groundwater management plan.

#### 11. SPECIFIC AGREEMENT ON THE GROUNDWATER ELEMENT

All signatories to the *Water Forum Agreement* will support and, where appropriate, participate in the Groundwater Management Element as set forth above.

#### VII. WATER FORUM SUCCESSOR EFFORT ELEMENT

#### A. Intent

Given the complexity of the issues, level of detail, number of signatories, the duration of the *Water Forum Agreement* and the changes that will inevitably occur between now and the year 2030, stakeholder representatives have concluded that a mechanism must be created to ensure actual implementation of the *Agreement* over the next three decades.

#### B. Purpose

The Water Forum Successor Effort is responsible for overseeing, monitoring and reporting on the implementation of the *Water Forum Agreement*. It will continue the interest-based collaborative process successfully used to develop the *Water Forum Agreement*. Consistent with that process, **the Water Forum Successor Effort will have no independent governing or regulatory authority.** 

#### C. Modification of the *Water Forum Agreement*

The Water Forum Successor Effort has no independent authority to alter the *Water Forum Agreement*. At the same time, the Successor Effort must be able to respond to the changing conditions or other unforeseen circumstances which will arise over the next thirty years. The *Agreement* may be changed only by the signatories employing the same interest-based collaborative process used to negotiate the original *Agreement*. The Water Forum Successor Effort will facilitate and coordinate such negotiations, should they prove necessary.

It should be noted that Specific Agreements found in Section Five of the *Water Forum Agreement* cannot be changed or modified without the expressed approval and consent of the entity whose interests would be affected by the change.

#### D. Membership

Membership in the Successor Effort will be composed of representatives of those entities which are signatories to the *Water Forum Agreement* including business, agricultural and environmental organizations, citizen groups, water purveyors and local governments.

#### E. Characteristics and Responsibilities of Representatives

As noted, the Successor Effort will continue the interest-based process used successfully in developing the *Water Forum Agreement*. Therefore, it is important that individuals selected as representatives evidence the following characteristics:

- 7 Commitment to the discipline of interest-based problem solving;
- 7 Willingness to make the necessary time available; and
- 7 Willingness to work collaboratively with others.

Because the effectiveness of the Successor Effort will depend upon cooperation and collaboration among all participants, representatives will observe the following guidelines:

- 7 Listen carefully and openly discuss issues with others who hold different opinions;
- 7 View a disagreement as a problem to be solved, not a battle to be won;
- 7 Avoid stereotyping and personal attacks on any other representative;
- 7 Avoid questioning or impugning the motivations or intentions of any other representative;
- 7 Respect the integrity and values of other representatives; and
- 7 Honor commitments once made.

#### F. Administrative Structure and Policy Direction

The Water Forum Successor Effort will be administered under the auspices of the Sacramento City-County Office of Metropolitan Water Planning. As with the Water Forum, Successor Effort staff will be employees or contractors of the City of Sacramento and all administrative responsibilities with respect to such employees or contractors will continue to be handled by the City. This arrangement will:

- 7 Ensure continuity between the Water Forum and the Water Forum Successor Effort;
- 7 Preserve existing technical expertise;
- 7 Avoid the costs, confusion and delays inherent in transferring the Successor Effort to a different organization; and
- 7 Avoid creating another redundant government entity.

The *Water Forum Agreement* will be a Memorandum of Understanding. It will contain provisions creating the Successor Effort organization. All parties which sign the Memorandum of Understanding will become full participants in the Successor Effort. In addition, there will be a supplementary funding agreement which will include the City of Sacramento, the County of Sacramento and the other agencies (including agencies outside of Sacramento County) which, consistent with the funding principles set forth in Section J below, are actually making payments to support the work of the Successor Effort.

It is important to note that:

- 7 All signatories to the *Water Forum Agreement* will have equal standing in the Successor Effort whether they are a public agency, investor-owned utility or citizen interest/advocacy organization;
- 7 Though Water Forum Successor Effort staff will be employees or contractors of the City of Sacramento, the Successor Effort representatives will provide over-all policy direction for work by staff.
## G. Decision-making Process

Members of the Successor Effort will continue to use the same collaborative form of decisionmaking used in the Water Forum negotiations. This collaborative process respects both the diversity and the legitimacy of the interests of all participants. The following principles, based on the interest-based decision-making model used in the Water Forum, will guide the Successor Effort decision-making process.

1. The Successor Effort will strive for consensus (agreement among all participants) in its decision-making.

2. The Successor Effort will not limit itself to strict consensus if a one hundred percent agreement cannot be reached after all interests and options have been thoroughly identified, discussed and considered. Less-than-consensus decision-making will not be undertaken lightly.

3. Less-than-consensus decision-making will use an interest-based approach. This means that all Successor Effort decisions must have a preponderance of support from each of the major "interest groupings" participating in the Successor Effort. Although "interest groupings" have not yet been identified for the Successor Effort, interest groupings used in the Water Forum will likely serve as a reference point.

4. Specific Agreements found in Section Five of the *Water Forum Agreement* cannot be changed or modified without the expressed approval and consent of the signatories whose interests would be affected by the change.

It should be noted, however, that within the principles enumerated above, the Successor Effort itself must take the lead responsibility in working out the details of its own decision-making model. Therefore, by July 1, 2000, signatory representatives shall meet together to determine how the Successor Effort's collaborative decision-making will work.

## H. Dispute Resolution

A major function of a collaborative process is to prevent disagreements from escalating into full fledged disputes. With proper facilitation and communication, most potential disputes can be resolved. However, no matter how sophisticated a collaborative process exists, there will inevitably be disputes. Some may arise out of interpretation of specific provisions of the *Agreement*. Others may result from concerns about non-compliance or differing interpretations of the terms of the *Agreement*.

It is essential that stakeholders not revert to litigation as a first response to every perceived problem or transgression. Lawsuits can quickly destabilize the collaborative process and return all Successor Effort participants to gridlock. Therefore, while not waiving any of their legal rights, all organizations represented in the Successor Effort agree to initiate alternative dispute resolution procedures, including mediation, before pursuing litigation.

# I. Specific Tasks Which must Be Completed by the Successor Effort for the *Water Forum Agreement* to Be Fully Implemented

See Attachment A: Water Forum Successor Effort - Preliminary Work Plan.

## J. Budget and Allocation of Budget Costs

The projected budget for the Successor Effort as well as the allocation of costs is based on the following ten principles.

1. In order to estimate the actual cost of the Successor Effort, a Preliminary Work Plan which identifies the tasks for the first four years has been developed and is included in this document as Attachment A. The projected annual cost for the tasks set out in this work plan is \$675,000 for the first year of operation. (A sample budget for the first year of operation is set forth in Attachment B.) All signatories have reviewed this Preliminary Work Plan and agree that \$675,000 for the first year will be provided as set forth below.

2. Prior to completion of the first year following the signing of the *Water Forum Agreement*, the Successor Effort shall undertake a careful review of progress to date and shall revise the Work Plan in light of the then existing circumstances. The annual budget and contributions may be revised at that time.

Any increase or decrease to the first year budget would require a consensus among all interest groups and agreement by those agencies providing Successor Effort funding.

3. On an annual basis, the Successor Effort budget will be approved by the stakeholder representatives to the Water Forum Successor Effort in accordance with the updated Work Plan for that year.

4. Consultants shall be used only as needed and the identification and approval of actual expenditures for specific consultant contracts shall be part of the Successor Effort budget process. If consultant contract funds or funds allocated for consultant contracts in a given fiscal year are not spent prior to the end of that year or earmarked for future expenditure, the Successor Effort shall modify the next year's budget in an appropriate manner.

5. A purveyor's annual contribution to support the estimated cost of the Successor Effort shall be based upon the number of connections served by the purveyor. There are other possible bases for determining contributions; e.g. the number of acre feet per year diverted from the American River. Some purveyors, however, will use only groundwater. Some will divert only from the Sacramento River. Others will use a combination of both surface water and groundwater in amounts which will vary from year to year. Yet all will benefit from implementation of the *Water Forum Agreement* and the work of the Successor Effort. In general, then, purveyor contributions related to number of connections served offers the most equitable and stable basis for sharing Successor Effort costs.

Allocation of first year costs for the Successor Effort on a purveyor-by-purveyor basis is contained in Attachment C. It should be noted that this cost allocation assumes that all the purveyors identified in Attachment C will sign the initial *Water Forum Agreement*. If fewer purveyors sign the initial *Water Forum Agreement*, the first year costs allocated to the purveyors that do sign will increase.

6. Zone 13 was formed by the Sacramento County Water Agency (SCWA) to fund drainage and water supply studies and related costs. As a result, property owners in the unincorporated areas of Sacramento County and the City of Citrus Heights are already assessed through their property taxes for the planning and evaluation activities that will be carried out by the Successor Effort. Therefore, SCWA's Zone 13 contribution to the Successor Effort shall cover the financial obligations of water purveyors serving the unincorporated areas of the County and the City of Citrus Heights. This will include the Carmichael Water District, Citrus Heights Water District (in Sacramento County), Citizens Utilities (in Sacramento County), Clay Water District, Del Paso Manor Water District, Fair Oaks Water District, Florin County Water District, Omochumne-Hartnell Water District, Orange Vale Water Company, Rio Linda/Elverta Community water District, and San Juan Water District (in Sacramento County).

7. The annual contribution of other purveyors in Sacramento County not included in Zone 13 shall be based upon the number of connections served by that purveyor (as set forth in Principle #5 above). This would include the City of Folsom, the City of Galt<sup>6</sup>, and the City of Sacramento.

8. The annual contribution of purveyors outside of Sacramento County shall be based upon the number of connections served by that purveyor (as set forth in Principle #5 above). This will include Citizens Utilities (in Placer County), City of Roseville, El Dorado Irrigation District, Georgetown Divide Public Utility District, the Placer County Water Agency and the San Juan Water District (in Placer County).

9. Each purveyor's share shall be adjusted annually based on the then current number of connections of each purveyor signatory to the *Agreement*.

10. Sacramento Municipal Utility shall make an annual contribution of \$10,000.

11. El Dorado Irrigation District and Georgetown Divide Public Utility District: Mutually agreed upon Water Forum Successor Effort expenses related solely to converting these purveyors' procedural agreement into Specific Agreements will be reimbursed by these purveyors. As soon as the purveyors have negotiated Specific Agreements and they sign the

<sup>&</sup>lt;sup>6</sup>The City of Galt City Manager has informed Water Forum staff that when the Water Forum Successor Effort begins, the City of Galt will evaluate whether to financially participate in the Water Forum Successor Effort. The City of Galt's participation in the *Water Forum Agreement* is also subject to agreement with other signatories regarding Galt's financial contribution to the Water Forum Successor Effort.

*Water Forum Agreement*, they will contribute to the Water Forum Successor Effort on the same basis as other purveyors that have Specific Agreements.

## K. Five Year Review

Every five years the Water Forum Successor Effort will comprehensively review progress made in achieving both of the coequal objectives.

## L. Changed Conditions and Amendments to the *Water Forum Agreement*

Given the complexity of issues, level of detail, number of signatories, duration of the *Water Forum Agreement*, and changed circumstances that will undoubtedly occur between now and the year 2030. Some changes may call for renegotiation of some terms of the *Water Forum Agreement*. However, a request for renegotiation does not necessarily mean the *Water Forum Agreement* will be revised. The *Water Forum Agreement*, including Specific Agreements, can be changed or modified only with the expressed approval and consent of the signatories to the *Water Forum Agreement*.

Any proposal to amend this Memorandum of Understanding or the attached *Water Forum Agreement* would be considered in the context of both of the Water Forum's coequal objectives. Specific procedures for amending the *Water Forum Agreement* consistent with the collaborative decision making process will be developed by the Water Forum Successor Effort within the first year of its operation.

## M. Specific Agreement on the Water Forum Successor Effort.

All signatories to the *Water Forum Agreement* will participate as members of the Water Forum Successor Effort and, where specified, will financially contribute as indicated above.

## SAMPLE BUDGET

## FIRST YEAR OPERATION

### 7 STAFF: \$326,000 per year

Assumes three professional full-time equivalent employees or contractors and one secretary. After the first three years, when a significant portion of the initial work of the Water Forum Successor Effort has been completed, professional staff may be reduced from 3 to 2.

### 7 RENTAL OF OFFICE SPACE AND EQUIPMENT: \$53,400 per year

Assumes office space of 2500 sq. ft. @ \$1.50 per square foot. Copier @ \$700 per month. Does not reflect economies of scale resulting from shared facilities.

## 7 TELECOMMUNICATIONS: \$5,600 per year

### 7 OFFICE SUPPLIES AND MATERIALS: \$40,000 per year

Includes postage, printing, publications, meal and travel expenses, temporary clerical service, computer supplies, seminar registrations, etc.

### 7 CONSULTANT CONTRACTS: \$250,000 per year

Contracts needed for hydrology, fishery, engineering, mediation services, etc. Consultants used only as needed.

## 7 TOTAL OF ABOVE: \$675,000 per year

Appendix 2B – Detailed Pumping Data

# Sacramento Central Groundwater Authority

			Grou	ndwater W	/ithdrawal	s, acre-fee	et:				
	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Municipal &											
Agricultural Purposes											
Elk Grove	5,397	6,365	6,963	6,460	5,407	3,784	4,615	5,562	5,194	4,118	3,398
Cal-Am	23,391	22,775	23,651	24,769	23,659	21,525	19,413	19,173	18,906	16,555	16,046
GSWC	12,639	13,129	9,754	9,162	8,197	6,650	5,731	6,684	7,273	5,111	4,397
SCWA	27,685	29,019	30,450	34,220	34,248	32,171	29,809	25,363	23,274	19,683	20,675
City of Sacramento DOU				930	837	668	544	1,063	1,106	1,133	1,100
SCWA Hood (not in BMRs)	98	79	102	97	79	63	55	57	48	43	35
Agricultural	167,062	166,148	165,234	164,320	163,406	162,492	116,500	134,600	152,400	133,900	140,000
Agricultural-Residential	7,852	7,946	8,041	8,136	8,231	8,326	17,200	23,400	22,900	23,100	23,000
Tokay Park WC	160	160	160	160	160	160	160	160	160	160	160
Florin County WD	2,600	2,600	2,600	2,600	2,600	2,600	2,600	2,600	2,600	2,600	2,600
Fruitridge Vista WC	4,100	4,100	4,100	4,100	4,100	4,059	3,752	3,816	3,986	3,207	3,700
Parks and Golf Courses	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000
SUBTOTAL	252,984	254,321	253,055	256,954	252,924	244,498	202,379	224,478	239,847	211,610	217,111

Estimated volume based on other actua	l data
Change in methodology	
Not present in first BMR	
Based on draft BMR 2013-14	

# Sacramento Central Groundwater Authority

Groundwater Withdrawals, acre-feet:													
	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015		
Remedial Extraction													
Aerojet Site	17,432	18,413	19,765	19,348	17,673	20,673	20,445	19,679	19,596	19,855	23,702		
IRCTS	732	1,307	2,366	3,403	4,121	4,671	4,869	4,783	4,534	4,576	4,692		
USAF Mather Field	2,688	2,814	2,639	2,193	3,004	2,560	2,526	2,571	2,534	2,354	2,212		
Kiefer Landfill	1,232	1,344	1,456	1,456	1,232	1,120	1,120	366	515	506	459		
Sacramento Army Depot	610	636	619	563	506	78	91	116	16	1	1		
Union Pacific Downtown	191	156	140	155	284	298	288	294	262	216	254		
Union Pacific Curtis Park	93	112	71	46	74	0	0	39	77	61	48		
TOTAL	22,978	24,783	27,056	27,164	26,895	29,400	29,340	27,849	27,534	27,570	31,369		
Discharge of Remediation Water													
Aerojet Site													
Recharge Wells	1,296	1,229	1,107	1,060	899	920	934	851	413	0	0		
Dredge Tailings	2,746	2,194	2,455	2,354	2,133	1,807	2,472	2,173	1,811	1,396	0		
American River	12,258	13,100	14,218	13,986	12,798	16,008	15,099	14,306	15,015	15,949	20,837		
Morrison Creek	1,131	1,890	1,985	1,946	1,843	1,938	1,940	2,348	2,356	2,511	2,865		
Morrison Creek													
IRCTS	732	1,307	2,366	3,403	4,121	4,671	4,869	4,783	4,534	4,576	4,692		
USAF Mather Field	278	300	281	317	289	209	264	814	980	437	195		
USAF Mather Field Recharge Wells	2,409	2,514	2,358	1,876	2,715	2,351	2,263	1,757	1,554	1,918	2,016		
RegionalSan Sewer													
Sacramento Army Depot	895	904	830	764	864	375	379	449	356	278	303		
Union Pacific													
Kiefer - Deer Creek	1,232	1,344	1,456	1,456	1,232	1,120	1,120	366	515	506	459		
TOTAL	22,978	24,783	27,056	27,164	26,895	29,400	29,340	27,849	27,534	27,570	31,369		



# SCGA Groundwater Production - Agricultural & Municipal

# **Explanation of Column Border on Chart for Remediation Pumping**

Aerojet Superfund Site

Inactive Rancho Cordova Test Site

Mather Air Force Superfund Site

Keifer Landfill

Sacramento Army Depot

& Union Pacific (2)



# **Groundwater Remediation Discharges from SCGA Area**

Appendix 2C – Groundwater Hydrographs

								Bas	sin Maı Rep	nagem orts	ent		5	лагge, low	ubbasin	Use, Iarge not in	WL v 20	v Thresh 10 - 201	nold 15	WL v 20	r Thres 00 - 20	hold 05
DWR CASGEM ID	CASGEM SCGA #	BMR SWP-	Latitude	Longitude	Ground Surface Elevation	Total Well Depth	Notes	2014- 2013	2012- 2011	2010- 2009	2008- 2007	Slope, Spring 2005 to Spring 2016	Drought Remediatio	Lower Recl Reduced Fl	Adjacent S	Conjuctive In-leu Rech Changed Conditions model Other	Above	Within	Below	Above	Within	Below
Primary Wells: 2005 to 2	2015																					
382742N1214193W001			38.2742	-121.4193	14	?						-0.004	Х		х			Х		х		
382899N1214415W001			38.2899	-121.4415	15	?						0.000	х			х	х			х		
382939N1213904W001			38,2939	-121.3904	16	334						-0.001	х		х			х			х	
383009N1214224W001		4	38.3009	-121.4224	23	165		х	х	х	х	-0.003	X		X			X			X	
383270N1214736W/001	Delta		38 3270	-121 4736	12	125		~				-0.002	x		x		х			х		
383510N12137/1W/001	Denta	63	38 3510	-121.4750	12 /1	2		x	x	x	x	-0.001	x	x	x		Λ	x		Λ	x	
383610N121/1825W/001		53	38 3610	-121.3741	12	200		X	~	Λ	~	0.001	x	~	~	x	x	Λ		Y	Λ	
282728NI1214623W001		55	20 2720	-121.4625	10	200						0.000	×			× ×	× ×			× ×		
202720112142401001			20.3720	121.4548	19	200						0.003	v			×	~	v		Λ	v	
383729112130380001			38.3729	-121.3038	40	314						0.003	X	V	v	~		A V			X	
383/35N1213338W001			38.3/35	-121.3338	54	90						-0.003	X	X	X			X			X	
384150N1213239W001			38.4150	-121.3239	63	250						-0.001	X	Х	Х			Х			Х	
384343N1214615W001	3	115	38.4343	-121.4615	19	170		Х	Х	Х	х	0.002	Х			Х	Х			Х		
384403N1212921W002			38.4403	-121.2921	79	?						-0.003	Х	Х	Х			Х			Х	
384417N1213354W001	8		38.4417	-121.3354	59	?						0.000	Х			Х	Х				Х	
384425N1213031W001	9	128	38.4425	-121.3031	72	210		Х	Х	Х	Х	-0.002	Х	Х	Х			Х			Х	
384532N1212856W001	7	126	38.4532	-121.2856	92	300					х	-0.003	Х	Х	Х				Х		Х	
384619N1212318W001			38.4619	-121.2318	104	205						-0.003	Х	Х	Х				Х		Х	
384664N1214774W001	1	107	38.4664	-121.4774	14	?		х	х	Х	х	-0.001	Х				Х			Х		
384738N1214249W001			38.4738	-121.4249	29	382						0.003	х			Х	Х			Х		
384756N1213352W001	5	121	38.4756	-121.3352	61	225		х	х	Х	х	0.001	х			Х		Х			Х	
384783N1212311W001			38.4783	-121.2311	163	?						-0.005	х	х	Х				Х		Х	
384798N1212614W001	6	124	38.4798	-121.2614	117	340		х	х	х	х	-0.006	х	х	х				х		х	
384931N1211797W001	C		38 4931	-121 1797	105	135		~	~			-0.003	x	x	x				X		X	
385021N1214948W/001	10	170	38 5021	-121.1737	8	172		x	x	x	x	0.000	x	~	Λ	x	x		Λ	x	Λ	
385037N1212/67W/001	22	170	38 5037	-121.4540	118	300		X	~	Λ	~	-0.002	x x	x	x	X	Λ	x		X		
295029N12122407W001	22	200	20 5020	121.2407	140	120		v	v	v	v	-0.002		×	v	X		V		Λ	v	
385038N1212205W001	25	209	30.5030	-121.2205	140	122		~	~	~	~	-0.004		^	^	× ×		A V			A V	
385047N1213636W001	18		38.5047	-121.3030	53	132						0.001	X			X		X	N/		X	Ň
385112N1213142W001	16	100	38.5112	-121.3142	//	?						-0.001	XX			X			X			X
385159N1212845W001	14	190	38.5159	-121.2845	115	160						-0.003	ХХ			X			Х			Х
385177N1212619W001		189	38.5177	-121.2619	143	200						-0.003	хх			Х			Х		Х	
385190N1213015W001	15		38.5190	-121.3015	93	425						-0.002	хх			Х			Х			Х
385223N1213630W001	17		38.5223	-121.3630	52	164						0.001	Х			Х		Х				Х
385259N1213355W001	13		38.5259	-121.3355	60	101						0.001	Х			Х			Х			Х
385343N1214280W001	11	177	38.5343	-121.4280	42	72		Х	Х	Х	х	0.001	Х			Х	Х			Х		
385397N1214741W001			38.5397	-121.4741	27	240						0.000	Х			Х	Х			Х		
385537N1214369W001			38.5537	-121.4369	32	300						0.002	Х			Х		Х				Х
385543N1212592W001		204	38.5543	-121.2592	127	562						-0.004	хх			х			Х			Х
385567N1214751W001			38.5567	-121.4751	27	240						0.001	Х			Х	х			Х		
385578N1213240W001		183	38.5578	-121.3240	76	125						-0.001	хх			х			Х			х
385650N1214998W001			38,5650	-121,4998	18	248						0.002	X			X		х				X
385707N1211868W/001	20	198	38,5707	-121 1868	260	600						0.003	X			x			х			X
20210111TTT0001100T	20	100	55.5707		200	500						0.005	~			~ ~			~			~

								Basin Management Reports				5	arge, ow	ubbasin	e Use, harge s not in		WL v Threshold 2010 - 2015			WL v Thres 2000 - 20		hold 05		
DWR CASGEM ID	CASGEM SCGA #	BMR SWP-	Latitude	Longitude	Ground Surface Elevation	Total Well Depth	Notes	2014- 2013	2012- 2011	2010- 2009	2008- 2007	Slope, Spring 2005 to Spring 2016	Drought	Remediatio	Lower Rech Reduced Fl	Adjacent S	Conjuctive In-leu Rech	Changed Conditions model Other	Above	Within	Below	Above	Within	Below
385849N1213173W001	24		38.5849	-121.3173	76	85						-0.001	X	х				Х			х			Х
385914N1212475W001		255	38.5914	-121.2475	136	150		х	Х	Х	Х	-0.005	Х	Х							х		Х	
385923N1211621W001			38.5923	-121.1621	312	285						0.000	Х					Х			Х			Х
386312N1212295W001		250	38.6312	-121.2295	135	170		х	Х	х	Х	-0.003	Х	х				Х			х			х
386650N1211776W001	28		38.6650	-121.1776	180	101						-0.001	Х						Х					
386895N1211169W001	29		38.6895	-121.1169	385	85						-0.001	Х						Х					
Secondary Wells: Before	e SCGA & R	ecent																						
383210N1213919W001			38.3210	-121.3919	28	150						Falling	Х		х	х				Х			Х	
384202N1213738W001	4	119	38.4202	-121.3738	46	508						Rising	Х				Х		х				Х	
384468N1212226W001		149	38.4468	-121.2226	89	610		х	Х	Х	Х	Falling	Х		х	х					Х		Х	
384511N1212360W001			38.4511	-121.2360	85	610						Falling	Х		х	х					Х		Х	
385443N1214736W001			38.5443	-121.4736	22	243						Rising	Х				Х		Х			х		
385784N1214655W001			38.5784	-121.4655	25	240						Falling	Х							Х			Х	
386078N1212713W001			38.6078	-121.2713	105	250						Falling	Х	Х				Х			Х			х
386081N1212710W001			38.6081	-121.2710	105	440						Falling	Х	Х				Х			Х			Х
Secondary Wells: Partia	l SCGA up t	o 2013																						
384073N1213854W001			38.4073	-121.3854	43	520						Rising	Х				Х		Х				Х	
384082N1213845W001		54	38.4082	-121.3845	42	248	Destroyed		Х	х	Х	Rising	Х				Х		Probably				Х	
384260N1212853W001			38.4260	-121.2853	72	340	Destroyed					Falling	Х		х	х				Probably	/		Х	
384272N1214018W001	2		38.4272	-121.4018	32	?	Destroyed					Rising	Х				Х		Х			Х		
384374N1214022W001			38.4374	-121.4022	31	519						Falling	Х				Х		Probably			Х		
384705N1213040W001			38.4705	-121.3040	92	170						Falling	Х							Probably	,		Х	
385469N1213389W001	12	185	38.5469	-121.3389	74	310		х	Х	х	Х	Falling	Х	Х				Х			Х			х
385541N1211812W001	21	202	38.5541	-121.1812	257	208	Destroyed	х	Х	х	Х	Falling	Х	Х				Х		Probably	/		Х	
385852N1212995W001			38.5852	-121.2995	99	140						Falling	Х		Х			Х			Х			Х
385974N1212706W001		244	38.5974	-121.2706	112	?		х	Х	х	Х	Falling	Х					Х			Probably		Х	
386090N1212922W001			38.6090	-121.2922	99	86	Destroyed					Falling	Х					Х			Х			Х
386176N1212465W001			38.6176	-121.2465	126	90						Flat	Х					Х			Х			Х
386176N1212469W001			38.6176	-121.2469	126	480						Falling	Х	Х				Х			Х			Х
Secondary Wells: Recen	<u>it</u>																							
382411N1214894W001			38.2411	-121.4894	3	100						Flat	Х		Х						Х			
382411N1214894W002			38.2411	-121.4894	3	100						Falling	Х		Х						Х			
382419N1214831W001			38.2419	-121.4831	6	20						Falling	Х		Х						Х			
382471N1214811W001			38.2471	-121.4811	4	100						Flat	Х		Х						х			
382471N1214811W002			38.2471	-121.4811	4	100						Flat	Х		Х						Х			
382604N1214665W001	Delta		38.2604	-121.4665	8	20						Flat	Х						Х					
386578N1211879W001	27		38.6578	-121.1879	145	170						Falling	Х						Thre	esholds ar	e above ground level			

				Longitude		l Total		Bas	sin Ma Rep	nagem orts	ent		ation echarge, I Flow	ubbasin	Use,	
DWR CASGEM ID	CASGEM SCGA #	BMR SWP-	Latitude		Ground Surface Elevation	Total Well Depth	Notes	2014- 2013	2012- 2011	2010- 2009	2008- 2007	Slope, Spring 2005 to Spring 2016	Drought Remediatic	Lower Rech Reduced Fl	Adjacent Si	Conjuctive
Secondary Wells: Just b	efore SCGA															
382920N1214194W001			38.2920	-121.4194	17	?						Rising				
383204N1214430W001			38.3204	-121.4430	15	163						Falling				
383884N1214167W001		58	38.3884	-121.4167	38	228		х	Х	Х	Х	Rising				
384244N1214371W001			38.4244	-121.4371	26	?						Falling				
384251N1213346W001			38.4251	-121.3346	61	?						Flat				
384453N1213728W001			38.4453	-121.3728	41	?						Rising				
384458N1214600W001			38.4458	-121.4600	18	178						Rising				
384742N1213146W001			38.4742	-121.3146	87	?						Rising				
384862N1213726W001			38.4862	-121.3726	46	?						Rising				
384931N1212618W001			38.4931	-121.2618	117	780	-					Falling				
384969N1213022W001	19		38.4969	-121.3022	109	300	Destroyed					Falling				
385239N1214685W001			38.5239	-121.4685	30	298						Rising				
385287N1213347W001		188	38.5287	-121.3347	67	175		х	Х	Х	х	Falling				
385312N1215006W001			38.5312	-121.5006	28	75						Flat				
385315N1212254W001			38.5315	-121.2254	166	524						Flat				
385571N1212250W001			38.5571	-121.2250	182	405						Falling				
Older Data Wells: Befor	e 2000															
382748N1214823W001			38.2748	-121.4823	1	12										
382815N1214585W001			38.2815	-121.4585	9	27										
382916N1214076W001			38.2916	-121.4076	20	?										
382934N1213896W001			38.2934	-121.3896	16	97										
383040N1214005W001			38.3040	-121.4005	24	225										
383195N1214726W001			38.3195	-121.4726	10	51										
383314N1214643W001			38.3314	-121.4643	14	100										
383354N1214177W001			38.3354	-121.4177	25	?										
383434N1214367W001			38.3434	-121.4367	20	160										
383619N1214178W001			38.3619	-121.4178	25	?										
383632N1214513W001			38.3632	-121.4513	18	?										
383764N1214303W001			38.3764	-121.4303	24	?										
383866N1213700W001			38.3866	-121.3700	44	210										
383913N1214142W001			38.3913	-121.4142	37	250										
383941N1213575W001			38.3941	-121.3575	49	364										
383945N1214450W001			38.3945	-121.4450	23	223										
384092N1213447W001			38.4092	-121.3447	53	?										
384130N1213183W001			38.4130	-121.3183	65	110										
384147N1214507W001			38.4147	-121.4507	22	142										
384170N1213002W001			38.4170	-121.3002	74	223										
384196N1214733W001			38.4196	-121.4733	17	252										
384199N1214636W001			38.4199	-121.4636	19	610										
384325N1214427W001			38.4325	-121.4427	25	178										

harge s not in	WL 9 20	v Thres )10 - 20	hold 15	WL v 20	hold 05	
In-leu Recl Changed Conditions model Other	Above	Within	Below	Above	Within	Below
	х			Х		
		х			Х	
	Х				Х	
	Х			х		
		х			Х	
	Х			Х		
	Х			х		
	Х				Х	
	Х				Х	
		х			Х	
			Х			В
	Х			х		
			Х			В
	Х			Х		
	Х			х		
	Х			Х		

## Wells in CASGEM and WDL Data Systems - South American Subbasin

## 2005 - 2015/16

Potential Factors on Water Levels

								Basin Management Reports						e,	asin	2 01	.⊑	WL	v Thresl	hold	WL v	Thresh	old
													Ę	iarg ow	gqr	Use	not	20	10 - 20	15	 200	0 - 200	/5
	CASGEM	BMR			Ground Surface	Total Well		2014-	2012-	2010-	2008-	Slope, Spring 2005 to	ught nediatio	ver Rech Juced Flo	acent Sı	njuctive l eu Rech	-leu Rech Janged Onditions Iodel ther		thin	MO	ove	thin	MO
DWR CASGEM ID	SCGA #	SWP-	Latitude	Longitude	Elevation	Depth	Notes	2013	2011	2009	2007	Spring 2016	Dro Rer	Lov Rec	Adj	Lo L L C C	de constantes de la con	Ab	Ň	Bel	Ab	Ň	Be
384341N1212687W001			38.4341	-121.2687	86	485																	
384403N1212921W001			38.4403	-121.2921	79	?																	
384453N1214628W001			38.4453	-121.4628	17	?																	
384525N1213093W001			38.4525	-121.3093	62	?																	
384600N1214102W001			38.4600	-121.4102	30	150																	
384690N1212601W001			38.4690	-121.2601	102	140																	
384705N1212594W001			38.4705	-121.2594	103	300																	
384737N1215077W001			38.4737	-121.5077	20	22																	
384799N1212061W001			38.4799	-121.2061	102	?																	
384799N1212317W001			38.4799	-121.2317	152	265																	
384848N1212192W001			38.4848	-121.2192	176	158																	
384851N1214337W001			38.4851	-121.4337	24	225	Destroyed																
384857N1212077W001			38.4857	-121.2077	136	150																	
384924N1213736W001			38.4924	-121.3736	47	140																	
384943N1211947W001			38.4943	-121.1947	102	625																	
384966N1214476W001			38.4966	-121.4476	24	312	Destroyed																
384967N1213342W001			38.4967	-121.3342	67	?																	
385002N1214305W001			38.5002	-121.4305	28	113																	
385117N1213241W001			38.5117	-121.3241	69	182																	
385241N1211982W001			38.5241	-121.1982	212	300																	
385326N1211950W001			38.5326	-121.1950	222	210																	
385388N1213276W001			38.5388	-121.3276	73	350																	
385411N1213099W001			38.5411	-121.3099	75	152																	
385478N1214266W001			38.5478	-121.4266	39	150																	
385538N1212593W001			38.5538	-121.2593	128	390																	
385552N1212221W001			38.5552	-121.2221	192	?																	
385608N1212491W001			38.5608	-121.2491	143	194																	
385636N1213490W001			38.5636	-121.3490	60	122																	
385774N1214889W001			38.5774	-121.4889	21	114																	
385981N1211953W001			38.5981	-121.1953	227	100																	
386088N1212569W001			38.6088	-121.2569	129	299																	
386314N1212179W001			38.6314	-121.2179	138	160																	
No Data Wells																							
382424N1214848W001			38.2424	-121.4848	0	20	No WL Data																
382465N1214792W001			38.2465	-121.4792	8	20	No WL Data																
382500N1214874W001			38.2500	-121.4874	2	20	No WL Data																
382563N1214771W001			38.2563	-121.4771	7	20	No WL Data																
384125N1214946W001	Delta		38.4125	-121.4946	9	175	No WL Data																
382934N1213904W001			38.2934	-121.3904	14	?	No WL Data																
385089N1214606W001			38.5089	-121.4606	30	298	No WL Data																
								_															













# 382742N1214193W001



# 382899N1214415W001



# 382939N1213904W001



# SWP-4 / 383009N1214224W001



# 383270N1214736W001



# SWP-63 / 383510N1213741W001



# 383610N1214825W001



# 383728N1214548W001



# 383729N1213638W001



# 383735N1213338W001


## 384150N1213239W001



# SCGA-3 / 384343N1214615W001



## 384403N1212921W002



## SCGA-8 / 384417N1213354W001



# SCGA-9 / 384425N1213031W001



# SCGA-7 / 384532N1212856W001



## 384619N1212318W001



# SCGA-1 / 384664N1214774W001



### 384738N1214249W001



# SCGA-5 / 384756N1213352W001



## 384783N1212311W001



# SCGA-6 / 384798N1212614W001



## 384931N1211797W001



# SCGA-10 / 385021N1214948W001



# SCGA-22 / 385037N1212467W001



# SCGA-23 / 385038N1212203W001



# SCGA-18 / 385047N1213636W001



# SCGA-16 / 385112N1213142W001



# SCGA-14 / 385159N1212845W001



## 385177N1212619W001



# SCGA-15 / 385190N1213015W001



# SCGA-17 / 385223N1213630W001



## SCGA-13 / 385259N1213355W001



# SCGA-11 / 385343N1214280W001



## 385397N1214741W001



## 385537N1214369W001



### 385543N1212592W001



## 385567N1214751W001



## 385578N1213240W001



## 385650N1214998W001



# SCGA-20 / 385707N1211868W001



# SCGA-24 / 385849N1213173W001



# SWP-255 / 385914N1212475W001



## 385923N1211621W001



# SWP-250 / 386312N1212295W001



# SCGA-28 / 386650N1211776W001


## SCGA-29 / 386895N1211169W001





## 383210N1213919W001



# SCGA-4 / 384202N1213738W001



## SWP-149 / 384468N1212226W001



### 384511N1212360W001



### 385443N1214736W001



## 385784N1214655W001



## 386078N1212713W001



## 386081N1212710W001





## 384073N1213854W001



## SWP-54 / 384082N1213845W001



## 384260N1212853W001



# SCGA-2 / 384272N1214018W001



#### 384374N1214022W001



## 384705N1213040W001



## SCGA-12 / 385469N1213389W001



# SCGA-21 / 385541N1211812W001



### 385852N1212995W001



## SWP-244 / 385974N1212706W001



## 386090N1212922W001



## 386176N1212465W001



## 386176N1212469W001





## 382604N1214665W001



# SCGA-27 / 386578N1211879W001



#### 382411N1214894W001



#### 382411N1214894W002



#### 382419N1214831W001



### 382471N1214811W001



## 382471N1214811W002





#### 382748N1214823W001



## 382815N1214585W001



## 382916N1214076W001


## 382934N1213896W001



# 383040N1214005W001



# 383195N1214726W001



### 383314N1214643W001



## 383354N1214177W001



## 383434N1214367W001



# 383619N1214178W001



# 383632N1214513W001



## 383764N1214303W001



# 383866N1213700W001



## 383913N1214142W001



# 383941N1213575W001



### 383945N1214450W001



## 384092N1213447W001



# 384130N1213183W001



# 384147N1214507W001



# 384170N1213002W001



# 384196N1214733W001



# 384199N1214636W001



### 384325N1214427W001



### 384341N1212687W001



# 384403N1212921W001



## 384453N1214628W001



# 384525N1213093W001



# 384600N1214102W001



# 384690N1212601W001



# 384705N1212594W001



# 384737N1215077W001



# 384799N1212061W001



# 384799N1212317W001



# 384848N1212192W001



## 384851N1214337W001



# 384857N1212077W001



# 384924N1213736W001



## 384943N1211947W001



# 384966N1214476W001


## 384967N1213342W001



# 385002N1214305W001



# 385117N1213241W001



## 385241N1211982W001



# 385326N1211950W001



# 385388N1213276W001



# 385411N1213099W001



# 385478N1214266W001



# 385538N1212593W001



# 385552N1212221W001



# 385608N1212491W001



# 385636N1213490W001



## 385774N1214889W001



# 385981N1211953W001



# 386088N1212569W001



# 386314N1212179W001





# 382920N1214194W001



## 383204N1214430W001



# SWP-58 / 383884N1214167W001



## 384244N1214371W001



# SCGA-19 / 384969N1213022W001



# 384251N1213346W001



## 384453N1213728W001



## 384458N1214600W001



## 384742N1213146W001



# 384862N1213726W001



# 384931N1212618W001



# 385239N1214685W001



# SWP-188 / 385287N1213347W001



# 385312N1215006W001



# 385315N1212254W001



# 385571N1212250W001



#### Appendix 2D – Location and Data of Measured Subsidence Data

Final Draft Note: Due to file size this appendix is available on downloadable version on SCGA website.
[Back Cover]

### AGENDA ITEM 5: REPORT ON EXISTING SCGA COMMITMENTS ADDRESSING STAKEHOLER CONCERNS IDENTIFIED IN ALTERNATIVE SUBMITTAL OUTREACH

### **BACKGROUND:**

As described by the Water Forum at the November 9, 2016 Board meeting, SCGA received a number of requests from stakeholders participating in the bi-lateral meetings to address specific concerns that are outside the Alternative Submittal process. The Water Forum summarized these concerns as follows:

- Joint commitments to cross-basin coordination agreements
- Work towards mutual resolution of GSA overlaps
- Consideration of needed governance changes
- Support Cosumnes River pre-wetting and recharge
- A more proactive SCGA
- Improved outreach in all processes going forward

After discussion the Board directed staff to do the following:

- 1. Research previous meeting minutes and provide the Board with a compiled history of previous commitments and statements by the Board; and
- 2. Provide draft language for issues that have not been previously addressed or committed to.

Staff has developed materials that address these issues for review and recognition.

#### **STAFF RECOMMENDATION:**

Review and recognize past commitments.

# REVIEW OF SCGA COMMITMENTS ADDRESSING STAKEHOLER CONCERNS IDENTIFIED IN ALTERNATIVE SUBMITTAL OUTREACH

Joint Commitments to cross-basin coordination agreements

Commitment stressed in Resolution 2016-02

Work towards mutual resolution of GSA overlaps

• Commitment identified in Resolution 2016-02

Consideration of needed governance changes

- Board took action on July 13, 2016
  - o Commitment to address changes to the JPA
  - o Commitment to consider modification of the County staffing agreement

Support Cosumnes River pre-wetting and recharge

- Cosumnes Coalition outreach (April 20, 2016)
  - Board expressed an interest in gaining a better understanding of the Coalition and its efforts
- SGMA Subcommittee (August 18, 2016)
  - Discussed possible opportunities to "fix things." The Coalition also indicated that they believed SCGA would have to "acknowledge that it sought those objectives."
    - Elk Grove's Dry Well Program
    - Optimization of stormwater
    - Groundwater recharge

#### A more proactive SCGA

- SGMA requires
  - o Closer coordination with land use authorities on General Plan issues
- Revised budgetary process
  - o Potentially expands reach of SCGA

Improved outreach in all processes

- Current process
  - o Noticed public meetings
  - o Stakeholder representatives informing their constituencies
  - o Coordination with recognized groundwater management organizations, regulatory agencies, etc.
  - Invitations to present at stakeholder meetings

#### AGENDA ITEM 6: JPA FIRST AMENDMENT

#### **BACKGROUND:**

At the June 8, 2016 meeting the Board adopted Resolution No. 2016-05 recommending that the governing bodies of the signatories to the Groundwater Authority's JPA consider and approve the First Amended and Restated Joint Powers Agreement Between the City of Elk Grove, the City of Folsom, the City of Rancho Cordova, the City of Sacramento, and the County of Sacramento.

After further consideration by staff of the various signatory agencies an alternate approach was proposed to address amending the JPA.

Staff recommends this Board consider the proposed JPA revision replacing Section 5, Membership Of The Governing Board of the current JPA and adopt the proposed resolution recommending the proposed change to the JPA signatories. This change will allow a designated employee of the FRCD/EGWD, Omochumne-Hartnell Water District, and Rancho Murieta Community Services District to be appointed as a SCGA Board alternate member. To be effective the proposed First Amendment to the JPA will need to be approved and adopted by each of the five signatory governing bodies, and then filed with the Secretary of State and State Controller.

#### **STAFF RECOMMENDATION:**

Adopt the proposed Resolution recommending the governing bodies of the JPA signatories approve and execute a First Amendment to the Joint Powers Agreement to broaden the eligibility for SCGA Board appointments for certain members.

#### SACRAMENTO CENTRAL GROUNDWATER AUTHORITY

#### **RESOLUTION NO. 2016-\_\_\_\_**

## RESOLUTION RECOMMENDING THE FIRST AMENDMENT TO THE JOINT POWERS AGREEMENT BETWEEN THE CITY OF ELK GROVE, THE CITY OF FOLSOM, THE CITY OF RANCHO CORDOVA, THE CITY OF SACRAMENTO AND THE COUNTY OF SACRAMENTO CREATING THE SACRAMENTO CENTRAL GROUNDWATER AUTHORITY

WHEREAS, the Sacramento Central Groundwater Authority ("SCGA") was established on August 29, 2006 pursuant to the Joint Exercise of Powers Act (Chapter 5 (commencing with Section 6500) of Division 7 of Title 1 of the California Government Code) by agreement of the County of Sacramento and the cities of Elk Grove, Folsom, Rancho Cordova, and Sacramento ("Parties") to regulate groundwater by a collaborative process composed of stakeholders in the Central Sacramento County Groundwater Basin ("Central Basin") and to develop and implement a groundwater management plan ("GMP") to promote the use of groundwater resources within the Central Basin for agricultural and municipal and industrial uses in the public interest and for the common benefit of all water users within the County of Sacramento ("Agreement"); and

**WHEREAS**, the Agreement identifies SCGA's governing body as a Board of Directors of sixteen (16) members representing various public agencies and interests; and,

WHEREAS, SCGA desires to amend the Agreement to modify its governing board membership eligibility; and,

**WHEREAS**, SCGA's Board passed a resolution (2016-05) on June 8, 2016 supporting a First Amended and Restated Agreement; and,

**WHEREAS**, subsequent review by staff of the Parties to the Agreement resulted in a request to modify the amending document; and,

WHEREAS, any amendment of the Agreement requires the affirmative vote of all governing bodies of the Parties;

#### NOW, THEREFORE, BE IT RESOLVED the SCGA Board of Directors:

 Recommends that the governing bodies of the Parties consider and approve the First Amendment to the Joint Powers Agreement Between the City of Elk Grove, the City of Folsom, the City of Rancho Cordova, the City of Sacramento, and the County of Sacramento Creating the Sacramento Central Groundwater Authority ("First Amended and Restated Agreement"), in the form attached hereto as Exhibit 1; and 2. Directs the Executive Director of SCGA to do and prepare all things necessary to file the First Amendment, upon its approval by the governing bodies of the Parties.

ON A MOTION by Director \_\_\_\_\_\_, and seconded by Director \_\_\_\_\_\_, the foregoing resolution was passed and adopted by the Board of Directors of SCGA this 14th day of December, 2016, by the following vote, to wit:

AYES: Directors,

NOES: Directors,

RECUSAL: Directors, (PER POLITICAL REFORM ACT (§ 18702.5.)

ABSENT: Directors,

ABSTAIN: Directors,

Chair of the Board of Directors of the Sacramento Central Groundwater Authority, a duly formed Joint Powers Authority

(SEAL)

ATTEST:

Clerk of the Board of Directors of the Sacramento Central Groundwater Authority

#### EXHIBIT 1

#### FIRST AMENDMENT TO THE JOINT POWERS AGREEMENT BETWEEN THE CITY OF ELK GROVE, THE CITY OF FOLSOM, THE CITY OF RANCHO CORDOVA, THE CITY OF SACRAMENTO AND THE COUNTY OF SACRAMENTO CREATING THE SACRAMENTO CENTRAL GROUNDWATER AUTHORITY

This First Amendment to the Joint Powers Agreement ("First Amendment") by and between the City of Elk Grove, a municipal corporation, the City of Folsom, a municipal corporation, the City of Sacramento, a municipal corporation, the City of Sacramento, a municipal corporation, and the County of Sacramento, a political subdivision of the State of California (collectively the "Parties") is made and entered into this \_\_\_\_\_ day of \_\_\_\_\_\_, 2017

WHEREAS, each of the Parties to this First Amendment is a local government entity

functioning within the County of Sacramento; and

WHEREAS, the Parties entered into a Joint Powers Agreement dated August 29, 2006

("Agreement") pursuant to the Joint Exercise of Powers Act (Chapter 5 (commencing with

Section 6500) of Division 7 of Title 1 of the California Government Code) to establish the

Sacramento Central Groundwater Authority ("Authority") and jointly exercise any power held in

common by the agencies entering into such an Agreement; and

WHEREAS, each of the Parties hereto has under its police power the authority to regulate groundwater; and

WHEREAS, the Parties desire to amend the Agreement to incorporate a change to the Authority's governing board membership eligibility;

**WHEREAS**, the amendment of the Agreement requires the affirmative vote of all governing bodies of the Parties;

**NOW, THEREFORE,** in consideration of the promises, terms, conditions, and covenants contained herein, the City of Elk Grove, the City of Folsom, the City of Rancho Cordova, and the City of Sacramento and the County of Sacramento hereby agree as follows:

Incorporation of Recitals. The foregoing recitals are hereby incorporated by reference.

- 2. <u>All Other Terms in Full Force and Effect.</u> The Parties shall continue to be bound by all terms and conditions of the Agreement, all of which are expressly incorporated into this First Amendment by this reference, except as expressly changed by this First Amendment.
- Section 5 of the Agreement. The Parties agree to replace Section 5 of the Agreement in its entirety as specified herein:

"<u>Membership Of The Governing Board</u>. The governing body of the Authority shall be a Board of Directors of sixteen (16) members consisting of the following representatives who shall be appointed in the manner set forth in Section 7 of the Agreement:

(a) An elected member of the governing board or designated employee of each of the following public agencies: the City of Elk Grove, the City of Folsom, the City of Rancho Cordova, the City of Sacramento, the County of Sacramento and the Sacramento Regional County Sanitation District.

(b) An elected member of the governing board or designated employee of each of the following public agencies: the Florin Resource Conservation District/Elk Grove Water Service, the Omochumne-Hartnell Water District, and the Rancho Murieta Community Services District.

(c) A member of the board of directors, or designee thereof, of each of the following private water purveyors or investor owned utilities: the California-American Water Company, and the Golden State Water Company.

(d) One representative of agricultural interests within the boundaries of the Authority.

(e) One representative of agriculture-residential groundwater users within the boundaries of the Authority.

(f) One representative of commercial/industrial self-supplied groundwater users within the boundaries of the Authority.

(g) One representative of conservation landowners within the boundaries of the Authority.

(h) One representative of public agencies that are self-supplied groundwater users within the boundaries of the Authority.

**IN WITNESS WHEREOF**, the parties hereto execute this First Amendment on the date first written above.

#### CITY OF ELK GROVE

Dated:	By	
	Mayor	
Attest:	Approved As To Form:	
City Clerk	City Attorney	
	CITY OF FOLSOM	
Dated:	By Mayor	
Attest:	Approved As To Form:	
City Clerk	City Attorney	
	CITY OF RANCHO CORDOVA	
Dated:	By Mayor	
Attest:	Approved As To Form:	
City Clerk	City Attorney	

EXHIBIT 1

1065815

## AGENDA ITEM 7: EXECUTIVE DIRECTOR'S REPORT

## **BACKGROUND:**

• Sacramento Valley Subsidence Network Resurvey Project Spring 2017

## Sacramento Valley Subsidence Network Resurvey Project Spring 2017

In 2008, a network of survey monuments were placed and surveyed using GPS equipment to develop a subsidence monitoring grid in the Sacramento Valley from Shasta County to Sacramento County. This grid was surveyed with cooperation between State, federal, and local agencies. After four years of drought and with groundwater regulations becoming a significant factor, it is important that the grid be resurveyed to determine if, where, and how much subsidence has occurred since 2008.

While DWR is leading the survey efforts, we are seeking assistance from local agencies to make this project a success. DWR is requesting local agencies provide a staff or two (if available) and vehicles for one to two weeks to assist with monitoring efforts in the area near their jurisdiction. We need 10 observers per day with work starting in the north in mid-March and ending in the south in late May. DWR will provide the equipment necessary to conduct the measurements. DWR will also provide training to the field staff prior to the survey season. The 2017 survey will be conducted similar to the 2008 survey.





Typical Observation.

*If your local entity is interested in assisting with the project, please contact us so we can add you to the project participant list. Thank You!!!* 

Project Coordinator:	Seth Lawrence	530-529-7449
		Seth.Lawrence@water.ca.gov
Southern Area Coordinator:	Barrett Kaasa	916-376-9618
		Barrett.Kaasa@water.ca.gov
Technical Project Lead:	Jim West	530-529-7317
		Jim.west@water.ca.gov