



Chair Members:
Rodney Palla, Chair
Gene Lundquist
Bob Smith

KERN RIVER GSA SPECIAL MEETING

Thursday, March 2, 2017
10:00 a.m.

Kern County Water Agency
3200 Rio Mirada Drive, Bakersfield CA 93308
KCWA Board Room

AGENDA

1. **CALL TO ORDER**
2. **ROLL CALL**
3. **PUBLIC STATEMENTS**
4. **APPROVAL OF MINUTES**
 - A. Regular Meeting
 - i. February 2, 2017
 - B. Special Meetings
 - i. February 2, 2017
 - ii. February 8, 2017
 - iii. February 17, 2017
 - iv. February 24, 2017
5. **NEW BUSINESS**
 - A. Correspondence Received (City Clerk)
 - B. Finance Report (Nelson Smith)
 - i. Receive and File Financial Report
 - C. Update from Management Group (Beard/Chianello/Mulkay)
 - i. Presentation re: Todd Scope II
 - ii. Management Comments
6. **COMMITTEE COMMENTS**
7. **ADJOURNMENT**

**KERN RIVER GSA
MINUTES
SPECIAL MEETING OF FEBRUARY 2, 2017**

Conference Room B, City Hall North, 1600 Truxtun Avenue

ACTION TAKEN

1. CALL TO ORDER SPECIAL MEETING – 9:30 a.m.

2.. ROLL CALL

Present: Chairman Palla, Chair Member Lundquist

Absent: Chair Member Smith

3. PUBLIC STATEMENTS

None

**4. CLOSED SESSION: Conference with Legal Counsel:
Potential Litigation; Closed Session pursuant to
Government Code section 54956.9(d)(2),(e)(1). One
matter.**

*Motion by Chair Member Lundquist, seconded by
Chairman Palla, to adjourn to Closed Session at
9:31 a.m.*

APPROVED

Meeting reconvened at 10:14 a.m.

**5. CLOSED SESSION ACTION: Conference with Legal
Counsel: Potential Litigation; Closes Session pursuant to
Government Code section 54956.9(d)(2), (e)(1). One
matter.**

NO REPORTABLE ACTION

6. ADJOURNMENT

Chairman Palla adjourned the meeting at 10:15 a.m.

CHAIR of the Kern River Groundwater
Sustainability Agency

**KERN RIVER GSA
MINUTES
MEETING OF FEBRUARY 2, 2017**

Conference Room A, City Hall North, 1600 Truxtun Avenue

ACTION TAKEN

1. CALL TO ORDER REGULAR MEETING - 10:17 a.m.

2.. ROLL CALL

Present: Chairman Palla, Chair Member Lundquist

Absent: Chair Member Smith

Public and Staff: See attendees attached

3. PUBLIC STATEMENTS

None

4. APPROVAL OF MINUTES OF DECEMBER 1, 2016 REGULAR MEETING AND DECEMBER 1, 2016 SPECIAL MEETING

Motion by Chair Member Lundquist, seconded by Chairman Palla, for approval of the minutes.

APPROVED

5. NEW BUSINESS

A. Correspondence Received

Clerk Typist announced the KRGSA had received three items of correspondence:

1. Correspondence dated January 6, 2017 from Joe Cisneros, requesting to become an interested party through the KRGSA website.
2. Correspondence dated January 17, 2017 from Shelley Huskey at CEMEX, requesting to become an interested party through the KRGSA website.

5. **NEW BUSINESS** continued

ACTION TAKEN

3. Correspondence dated January 18, 2017 from Kristin Dobbin at the Community Water Center in Visalia, requesting to become an interested party through the KRGSA website.

B. Finance Report

- i. Receive and File Financial Report.

Finance Director Nelson Smith made staff comments.

Motion by Chair Member Lundquist, seconded by Chairman Palla, to approve and file the financial report

APPROVED

- ii. Approval of Outstanding Invoices for Horizon Water & Environment and Todd Groundwater

Finance Director Nelson Smith made staff comments and recommended payment be made.

Motion by Chair Member Lundquist, seconded by Chairman Palla, to approve both payments.

APPROVED

C. Update from Management Group

- i. Groundwater Basin Model Project

ID4 Manager David Beard deferred the discussion of this topic to Item D on the agenda.

- ii. Lamont PUD Request to Join KRGSA

General Manager of Kern Delta Water District Mark Mulkay made staff comments.

5. **NEW BUSINESS** continued

ACTION TAKEN

iii. ITRC Study

General Manager of Kern Delta Water District Mark Mulkay made staff comments.

iv. Outreach Plan

Water Resource Manager Art Chianello made staff comments.

Horizon Water and Environment Principal Kenneth Schwarz made comments.

v. White Papers

ID4 Manager David Beard made staff comments.

D. Amendment to Todd Groundwater Agreement No. KRGSA16-002

General Manager of Kern Delta Water District Mark Mulkay made staff comments.

Motion by Chair Member Lundquist, seconded by Chairman Palla, directing staff to return with appropriate recommendations regarding this item in March.

APPROVED

E. Boundary Adjustments

i. OWD Overlap

Attorney Gene McMurtrey made comments.

ii. OM/NOR Service Area

Attorney Gene McMurtrey made comments.

7. COMMITTEE COMMENTS

ACTION TAKEN

None.

8. ADJOURNMENT

Chairman Palla adjourned the meeting at 11:04 a.m.

CHAIR of the Kern River Groundwater
Sustainability Agency

KERN RIVER GSA

FEBRUARY 2, 2016

Name	Agency
Rudy Valles	Carl Water
Shelley Huskey	CEMEX
Tim Ruiz	East Niles CSD
Doug Nunneley	Omwc / Normwd
Florn Core	County of Kern
Chris Schultz	City GIS office
Steve Esselman	JK Inc.
Patty Poho	GRIMMWAY
George Appalo	GRIMMWAY
Robert G Kubs	Greenfield CWD
ALAN PEAKE	LPWD
Nelson Smith	City of Bakersfield
Alan Christensen	County of Kern
Jason Meadors	City of Bakersfield
ART Chianello	City of Bakersfield
Mark Mulberg	Kern Delta W/D
David Beard	ID4
Steven Teglia	COB
AMELIA MINABERRI GARCIA	ID4
Richard Tyer	City Attorneys Office
ROBERT W HARTSON	KDWD
Gene R. McMortrey	KDWD
Ginny Gennaro	City Atty's Office
DA WRIGHT	Journalist

**KERN RIVER GSA
MINUTES
SPECIAL MEETING OF FEBRUARY 8, 2017**

Conference Room A, City Hall North, 1600 Truxtun Avenue

ACTION TAKEN

1. **CALL TO ORDER SPECIAL MEETING** – 9:44 a.m.

2.. **ROLL CALL**

Present: Chairman Palla, Chair Members Smith
and Lundquist

Absent: None

3. **PUBLIC STATEMENTS**

None

4. **CLOSED SESSION: Conference with Legal Counsel:
Potential Litigation; Closed Session pursuant to
Government Code section 54956.9(d)(2),(e)(1). One
matter.**

*Motion by Chair Member Lundquist, seconded by
Chair Member Smith, to adjourn to Closed Session at
9:45 a.m.*

APPROVED

Meeting reconvened at 11:23 a.m.

5. **CLOSED SESSION ACTION: Conference with Legal
Counsel: Potential Litigation; Closes Session pursuant to
Government Code section 54956.9(d)(2), (e)(1). One
matter.**

STAFF WAS GIVEN DIRECTION

6. **ADJOURNMENT**

Chairman Palla adjourned the meeting at 11:23 a.m.

CHAIR of the Kern River Groundwater
Sustainability Agency

**KERN RIVER GSA
MINUTES
SPECIAL MEETING OF FEBRUARY 17, 2017**

Conference Room A, City Hall North, 1600 Truxtun Avenue

ACTION TAKEN

1. **CALL TO ORDER SPECIAL MEETING** – 11:02 p.m.

2.. **ROLL CALL**

Present: Chairman Palla, Chair Members Smith
and Lundquist

Absent: None

3. **PUBLIC STATEMENTS**

None

4. **CLOSED SESSION: Conference with Legal Counsel:
Potential Litigation; Closed Session pursuant to
Government Code section 54956.9(d)(2),(e)(1). One
matter.**

*Motion by Chair Member Lundquist, seconded by
Chair Member Smith, to adjourn to Closed Session at
11:03 a.m.*

APPROVED

Meeting reconvened at 12:04 p.m.

5. **CLOSED SESSION ACTION: Conference with Legal
Counsel: Potential Litigation; Closes Session pursuant to
Government Code section 54956.9(d)(2), (e)(1). One
matter.**

**DIRECT ATTORNEY
GENE MCMURTREY TO
FINALIZE LETTER TO DISTRICTS,
EXTENDING AN INVITATION
TO PARTICIPATE IN SCOPE II
OF TODD ENGINEERING'S
PROPOSAL AS DISCUSSED.**

6. **ADJOURNMENT**

Chairman Palla adjourned the meeting at 12:05 p.m.

CHAIR of the Kern River Groundwater
Sustainability Agency

**KERN RIVER GSA
MINUTES
SPECIAL MEETING OF FEBRUARY 24, 2017**

Conference Room A, City Hall North, 1600 Truxtun Avenue

ACTION TAKEN

1. **CALL TO ORDER SPECIAL MEETING** – 3:00 p.m.

2.. **ROLL CALL**

Present: Chairman Palla, Chair Members Smith
and Lundquist (seated at 3:40 p.m.)

Absent: None

3. **PUBLIC STATEMENTS**

None

4. **CLOSED SESSION: Conference with Legal Counsel:
Potential Litigation; Closed Session pursuant to
Government Code section 54956.9(d)(2),(e)(1). One
matter.**

*Motion by Chairman Palla, seconded by
Chair Member Smith, to adjourn to Closed Session at
3:01p.m.*

APPROVED

Meeting reconvened at 3:58 p.m.

5. **CLOSED SESSION ACTION: Conference with Legal
Counsel: Potential Litigation; Closes Session pursuant to
Government Code section 54956.9(d)(2), (e)(1). One
matter.**

NO REPORATABLE ACTION

6. **ADJOURNMENT**

Chairman Palla adjourned the meeting at 3:58 p.m.

CHAIR of the Kern River Groundwater
Sustainability Agency

Katharine Dye

From: Pamela McNemar <pmcnemar@youngwooldridge.com>
Sent: Friday, January 27, 2017 4:14 PM
To: Katharine Dye
Subject: KRGSA

Dear Ms. Dye:

Please add me to your email list for the monthly board packets for KRGSA.

Thank you

*Pamela A. McNemar, Certified Legal Secretary
Water/Land Environmental and Special Districts Department*



1800 30th Street, 4th Floor
Bakersfield, CA 93301
(661) 327-9661
(661) 377-7261 (fax)
pmcnemar@youngwooldridge.com
waterlaw@youngwooldridge.com
www.youngwooldridge.com

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Katharine Dye

From: Alan Christensen <achristensen@co.kern.ca.us>
Sent: Monday, February 27, 2017 4:21 PM
To: Katharine Dye
Cc: SDLipton@aeraenergy.com
Subject: Fwd: RE: County of Kern GSA

Katherine,

Would you add Mr. Lipton to your agenda distribution list?

Alan Christensen

Alan,

Thank you. I was just added to their meeting notices for the Kern Groundwater Authority via a contact a co-worker forwarded to me.

Scott

From: Alan Christensen [<mailto:achristensen@co.kern.ca.us>]
Sent: Monday, February 27, 2017 4:16 PM
To: Lipton SD (Scott) at Aera <SDLipton@aeraenergy.com>
Subject: Re: County of Kern GSA

Scott,

I'll have the Kern Groundwater Authority send you notices of their meetings, and the Kern River GSA. I don't notice those meetings, but I'm rather a participant representing Kern County.

Hope that's sufficient.

Alan

Mr. Christensen,

I am writing with a request to be added to your notification list for upcoming meetings and other notices of the County of Kern's Ground Water Sustainability Agency (GSA). My contact information is noted below.

Thank you in advance,

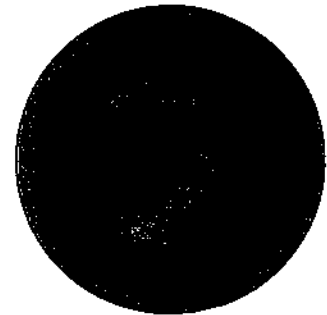
Scott D. Lipton
Government Affairs Specialist
Aera Energy LLC
Phone: (661) 665-5927
SDLipton@aeraenergy.com

Katharine Dye

From: webmaster@bakersfieldcity.us
Sent: Monday, February 27, 2017 2:54 PM
To: KRGSA
Subject: KRGSA Web Sign-Up

Interested Party:

Name: Tim Gobler
Affiliation: Wonderful Orchards
Telephone: 661-776-1321
Email: timothy.gobler@wonderful.com
Nature of Request: I would like to receive agendas and meeting notices



KERN RIVER GSA

Rodney J. Palla, Chair
Bob Smith
Gene Lundquist

February 17, 2017

Addressee List – see **Attachment 1**

**Re: Kern County Subbasin-Wide Water Budget Modeling with C2VSim
Invitation to Participate in Subbasin-Wide Model**

Dear Addressee:

The Kern River Groundwater Sustainability Agency (KRGSA) has engaged Todd Groundwater to prepare its Groundwater Sustainability Plan (GSP) in compliance with the Sustainable Groundwater Management Act (SGMA). The original scope of work for this effort contemplated independent development of our GSP and subsequent coordination with the GSPs of other entities. The work to be performed under this scope of work (Phase 1) is underway and will be performed at the sole cost and expense of the KRGSA. However, recently finalized GSP regulations require one water balance and budget for the entire subbasin. In accordance with this mandate, we have negotiated a fee Todd Groundwater to update and supplement its original scope of work to include a water balance and budget analysis on a subbasin-wide basis (i.e., covering the entire 3,000 square miles of the Kern County Groundwater Subbasin).

Attachment 2 submitted herewith is the scope of work provided by Todd Groundwater to produce the desired water balance and budget analysis on a subbasin-wide basis (Phase 2). Essentially, this scope of work involves working with the Department of Water Resources (DWR) to update its existing C2VSIM model by adding:

- newly-acquired crop coefficient data from remote sensing studies
- historical amounts of groundwater banking, and
- monthly local water budget data provided by GSAs and/or water districts.

The work to be performed under Phase 2 is outlined in great detail in Attachment 2, involves approximately 2084 hours of labor, will take 18-19 months to complete, and is currently estimated to cost \$431,957 .

Your participation in the Phase 2 effort is requested on two fronts: First, to make the C2VSIM model as accurate as possible, we will be requesting monthly water budget data from your organization. This will not be in the form of a public records request, but merely as a cooperative effort. Todd Groundwater will provide the module for data input and work with your consultants to fill in data gaps. Your agency and/or consultant will be invited to provide both data entry for, and peer review of, the C2VSIM modifications. We propose only to revise the model with the best available information on local water budgets. If no information is provided, the existing C2VSIM information will be used. To be clear, the goal of this request is not to develop local water budgets for others; once updated, the output from the model will be a current and historical water budget for the entire subbasin.

Second, we are informed that the modified C2VSIM model and the basin-wide water budget will be usable by other GSAs in the subbasin for their GSP compliance. Thus, the Phase 2 work to be performed by Todd Groundwater may provide a significant benefit to other GSAs. For that reason, we are inviting all subbasin entities to participate financially in Phase 2 costs. We believe that Todd Groundwater is uniquely qualified to perform the work because they are well versed in SGMA requirements, have a successful working relationship with DWR, and are extremely familiar with the workings of the Kern County Groundwater Subbasin as well as local groundwater issues. We also believe that the budget for Phase 2 (\$431,957) is reasonable, especially when spread on a basin-wide basis. Using the ITRC Table 2, Option 2, allocation the cost to participate will be \$0.35 per acre. All model information will be shared with participating agencies.

We are scheduling an informational meeting on this subject to be held at **10:00 a.m., Wednesday, March 2, 2017 at the Kern County Water Agency (KCWA) offices.** Todd Groundwater representatives will be present to further explain the scope of work and answer any questions you may have.

Please be aware that time is of the essence. If we start Phase 2 today the model and water budget will not be available until the end of 2019. That leaves precious little time to create and coordinate GSPs prior to the 2020 deadline. For this reason, we intend to take action on the Todd scope of work (Phase 2) at our regular meeting scheduled for Thursday, April 6, 2017. To maintain this schedule we need to confirm your participation by the end of March. Please make every effort to attend the informational meeting on March 2nd and please calendar consideration of your entity's participation in this effort for the March board meeting. Finally, if you are willing to participate, sign and return a copy of this letter by the close of business on Friday, March 31, 2017.

Thank you for your cooperation.

Very truly yours,

KERN RIVER GROUNDWATER-SUSTAINABILITY AGENCY

By:  _____

Rodney Palla, Chairman

By:  _____

Bob Smith

By:  _____

Gene Lundquist

Read and approved by: _____

Print Name: _____

ATTACHMENT 1

LIST OF ADDRESSEES

Arvin – Edison Water Storage District
20401 E. Bear Mountain Boulevard
P.O. Box 175
Arvin, CA 93203

Buena Vista Water Storage District
525 North Main Street
P.O. Box 756
Buttonwillow, CA 93206

Cawelo Water District
17207 Industrial Farm Road
Bakersfield, CA 93308

Delano-Earlimart Irrigation District
14181 Avenue 24
Delano, CA 93215

Greenfield County Water District
551 Taft Highway
Bakersfield, CA 93307

Henry Miller Water District
P.O. Box 9759
Bakersfield, CA 93389

Kern County Water Agency
3200 Rio Mirada Dr.
Bakersfield, CA 93308

Kern Groundwater Authority
P. O. Box 20820
Bakersfield, CA 93390-0820

Kern Water Bank Authority
1620 Mill Rock Way, Suite 500
Bakersfield, CA 93311

Lamont Public Utilities District
8624 Segrue Road
Lamont, CA 93241-2214

North Kern Water Storage District
P.O. Box 81435
Bakersfield, CA 93380

Olcese Water District
P.O. Box 60679
Bakersfield, CA 93386

Rosedale-Rio Bravo Water Storage
District
P.O. Box 20820
Bakersfield, CA 93390

Semitropic Water Storage District
1101 Central Avenue
P.O. Box 8043
Wasco, CA 93280

Shafter-Wasco Irrigation District
P.O. Box 1168
Wasco, CA 93280

Kern Tulare Water District
5001 California Avenue, Suite 102
Bakersfield, CA 93309

West Kern Water District
800 Kern Street
P.O. Box 1105
Taft, CA 93268

Belridge Water Storage District
21908 Seventh Standard Road
McKittrick, CA 93251

Wheeler Ridge-Maricopa Water
Storage District
12109 Highway 166
Bakersfield, CA 93313

Lost Hills Water District
3008 Sillect Avenue, # 205
Bakersfield, CA 93308

County of Kern
Clerk of the Board of Supervisors
1115 Truxtun Avenue, 5th floor
Bakersfield, CA 93301

Southern San Joaquin Municipal
Utility District
P.O. Box 279
Delano, CA 93216

Tejon-Castac Water District
4436 Lebec Road
P.O. Box 1000
Lebec California 93243



January 17, 2017

DRAFT PROPOSAL

To: Kern River Groundwater Sustainability Agency

From: Phyllis Stanin, PG, CHG, Vice President / Principal Geologist
Mike Maley, PG, CHG, Senior Hydrogeologist / Groundwater Modeler

Re: Update to Scope of Work dated May 9, 2016
Kern County Subbasin-Wide Water Budget Modeling with C2VSim
Groundwater Sustainability Plan (GSP)
Kern River Groundwater Sustainability Agency (KRGSA)

As outlined in the Scope of Work dated May 9, 2016, Todd Groundwater is preparing a Groundwater Sustainability Plan (GSP) for the Kern River Groundwater Sustainability Agency (GSA). In compliance with GSP regulations, Todd Groundwater proposed an approach for developing a current and historical water budget analysis using a regional groundwater model developed by the Department of Water Resources (DWR), referred to as C2VSim¹. That approach focused on revising the C2VSim model with local KRGSA data only; this proposal expands the original approach to improve the model throughout the Kern County Subbasin and, to that extent, is intended to modify and update the previous Scope of Work.

GSP regulations require that the water budget analysis be conducted on a basin-wide basis, requiring the model to be applied over the entire 3,000 square miles of the Kern County Groundwater Subbasin² (5-22.14). In addition to the detailed analysis of local water budgets previously proposed for the KRGSA, GSP regulations also require *one water budget for the entire subbasin*. Recent developments suggest that the updated C2VSim model may contain local inaccuracies throughout the subbasin. This scope of work addresses revisions to the C2VSim model to address these inaccuracies.

Key inaccuracies are: (1) DWR has indicated that detailed banking recharge and recovery data have not been adequately included in the current C2VSim update; (2) recent remote sensing analyses in the Kern County Subbasin have produced revised evapotranspiration data and

¹ C2VSim refers to the California Central Valley Simulation Model developed by DWR using their modeling code Integrated Water Flow Model (IWFm). C2VSim is a regional model covering the entire California Central Valley and is being updated by DWR for application to GSP water budget analyses.

² GSP regulations define "Basin" as a groundwater basin or subbasin identified and defined in Bulletin 118 or as modified pursuant to Water Code 10722 et seq. For this proposal, "subbasin" is used to refer specifically to the Kern County Subbasin as defined by DWR. However, "basin", as used in GSP regulations, may also be applied to the Kern County Subbasin for the purposes of this proposal.

new crop coefficients over the past 20 years; and (3) it is recognized that local water budget data may not be adequately captured in the regional model. Todd Groundwater is recommending subbasin-wide revisions to the C2VSim model to make the model more accurate with respect to these three key items and to comply more closely with requirements for a coordinated subbasin-wide water budget analysis. This proposal contains a scope of services, schedule, and budget for expanding model revisions across the subbasin.

To develop a subbasin-wide model update of C2VSim, Todd Groundwater anticipates requesting data from other local agencies to provide water budget input data for their jurisdiction to compare to data in the model. The requested data are anticipated to include managed water supply data (e.g., surface water deliveries, land use, irrigation demand, return flows, and groundwater banking) and other relevant input data for inclusion in the revised C2VSim model for improvement of model calibration in the Kern County Subbasin. If data are provided by others using a technically-defensible methodology (suggested formats/templates to be provided), the input data would be uploaded into C2VSim by Todd Groundwater. In this manner, the revised model and water budget analysis (for current and historical water budgets) would best fulfill the GSP requirement for a coordinated water budget analysis and would produce a more accurate analysis for the benefit of all in the subbasin.

This scope of services does not include data analysis by Todd Groundwater of local water budget source data to develop the input water budget files; we assume that others would employ their own hydrogeologic consultants to develop the revised input data in a technically-credible manner. Our scope does include some local coordination for the transfer of input data, but only to the extent needed to understand the input files being provided and to ensure that the provided input data are being accurately represented in the revised C2VSim model.

In addition, our approach does not include the production of local water budgets for other GSAs. The scope of work does not include the analysis or demonstration of subsurface inflows and outflows among any of the districts or GSAs. Local analysis of water budgets for the KRGSAs will be conducted as provided in our previous scope of work. The deliverable of this modeling approach is a current and historical water budget for the entire Kern County Subbasin.

We think that this approach represents the best methodology for developing the most accurate current and historical basin-wide water budget that considers GSP requirements and deadlines. Additional discussion of the approach, a scope of services, and proposed schedule and budget are included in subsequent sections of this memorandum.

APPROACH TO THE C2VSIM MODEL REVISIONS AND WATER BUDGET MODELING

The key objective of this scope of work is to develop current and historical subbasin-wide water budgets to meet GSP requirements.³ Our general approach is to use the C2VSim model as a comprehensive framework to provide consistent water budgets on a subbasin-wide basis.

As a regional model, the updated C2VSim may over-generalize local conditions within the Kern County Subbasin. As a result, C2VSim results may not be consistent with local site-specific data and knowledge. To address this deficiency, we propose certain checks and revisions on the managed water supply input data (e.g., surface water deliveries, land use, irrigation demand, return flows, and groundwater banking) in C2VSim. We also propose allowing other GSAs to develop their own water budget input files (using their local consultants or resources) and input these revised data to improve model accuracy on a local basis. In addition, we also propose checking and revising groundwater banking data for the large Kern Fan banking projects. Finally, we propose incorporating the recently-developed crop coefficients from the remote sensing data (being supported by the KRGSA and others). The revised C2VSim will reflect corrected local data (to the extent provided by others) and the revised model will be used to develop current and historical water budgets over the entire Kern County Subbasin. The following summarizes key aspects of our approach.

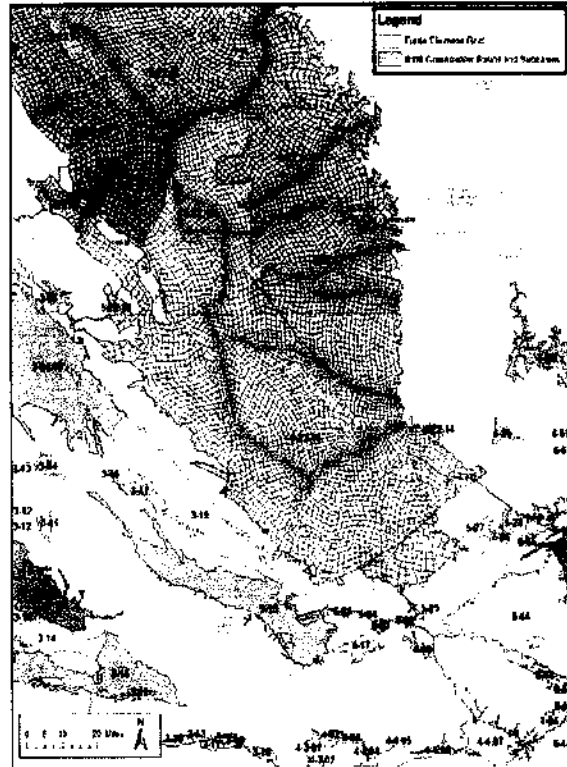


Figure 1: DWR's new version of C2VSim will have higher grid resolution in Kern County

Selection and Application of the C2VSim Model

C2VSim is a regional model of the California Central Valley developed by DWR using its modeling code IWFm. IWFm is an integrated model that simulates groundwater, the unsaturated zone, and surface water flows. Given DWR's emphasis on water management,

³ GSP regulations require current, historical, and projected water budgets. This scope of work includes current and historical water budgets only. Projected water budgets require analysis of individual projects conducted by each GSA to achieve the GSA-specific measurable objectives toward sustainability. A projected water budget analysis for the KRGSA will be conducted as described in our previous scope of work and is not reproduced herein.

C2VSim provides a strong representation of surface water and groundwater water budget components that makes it a preferred platform for determining water budgets. C2VSim is anticipated to be DWR's primary tool for evaluating water management in the Central Valley and is specifically referenced in the GSP regulations for application to GSP water budgets (§354.18(f)); therefore, utilizing C2VSim is advantageous for GSP compliance.

DWR is in the process of updating C2VSim through September 2015 to support SGMA compliance for the critically-overdrafted basins in the Central Valley. We will revise the updated C2VSim (with simulations through September 2015) to develop a current and historical water budget for the Kern County Subbasin. The updated C2VSim is expected to be released by DWR in June 2017; however, input files for the updated model can be accessed prior to the final model release. Given the GSP deadline, these files need to be obtained and reviewed as soon as possible upon notice-to-proceed.

The updated C2VSim consists of a coarse-grained and a fine-grained version referred to as C2VSim-CG and C2VSim-FG, respectively. The C2VSim-CG uses the mesh used in the previous C2VSim version with data through 2009. Because the average element size of C2VSim-CG is over 14 square miles, C2VSim-FG is also being developed by DWR to provide the data resolution to better support SGMA (Figure 1). The C2VSim-FG will have an average element size of 0.6 square miles. Both versions of the updated C2VSim will include the following hydrostratigraphic layers:

- Shallow, unconfined aquifer
- Regional confining layers
- Active confined aquifer (contains high level of pumping)
- Inactive confined aquifer (contains limited pumping), and
- Saline confined aquifer.

This scope of work does not include changes to the hydrogeological conceptual model or natural water budget components (such as precipitation, soil properties, or streamflow) of C2VSim. Specifically, the architecture of the model including layering, discretization, boundary conditions, and aquifer properties will not be revised. After the various hydrogeologic conceptual models have been developed as part of the numerous GSPs in the subbasin, there may be technical justifications for such changes to the C2VSim or other regional model for future applications. However, these modifications can be considered for future SGMA compliance after the initial GSPs containing the current and historical water budgets have been submitted.

Consistency of Modeling with GSP Regulations

The Kern County Subbasin water budget will follow GSP regulations by providing an accounting of the volume of groundwater and surface water entering and leaving the subbasin and the change in the volume of water stored. Information will be reported in tabular and graphical form as required by the regulations. Specifically, DWR requires that GSP water budgets quantify the following:

- Total surface water entering and leaving a basin by water source type.
- Inflow to the groundwater system by water source type, including subsurface groundwater inflow and infiltration of precipitation, applied water, and surface water systems, such as lakes, streams, rivers, canals, springs and conveyance systems.
- Outflows from the groundwater system by water use sector, including evapotranspiration, groundwater extraction, groundwater discharge to surface water sources, and subsurface groundwater outflow.
- The change in the annual volume of groundwater in storage between seasonal high conditions.
- The amount of overdraft over a period of years during which water year and water supply conditions approximate average conditions (if overdraft conditions occur as defined in Bulletin 118).
- The water year type associated with the annual supply, demand, and change in groundwater stored.
- An estimate of sustainable yield for the basin.

Selection of Time Periods for Water Budgets and Model Revisions

The updated C2VSim model will be capable of simulating a long-term base period (some data back to the 1920s and more detailed data back to the 1970s). However, to adhere to the expedited schedule and to provide a reasonable budget that also meets GSP requirements, we propose that model revisions be limited to relatively recent and specific time periods when data are more accurate and more readily available.

For the current water budget, GSP regulations require that the analysis be conducted for the most recent water year⁴ (WY) available; for the DWR-updated C2VSim model, this is reported to be WY 2015. For the historical water budget, it is desirable to define a base period when natural hydrology represents average conditions. Regulations require that this time period cover at least 10 years. For this project, a 20-year base period from WY 1995 through WY 2014 is proposed. This 20-year period is associated with average conditions of precipitation and Kern River flows (represented as 100% Annual Index on the Kern River). This period also begins at the end of a dry period with relatively stable water levels. Additional documentation for the historical time period was provided to the Kern Groundwater Authority (KGA) on November 7, 2016 and included a number of hydrographs illustrating water level conditions over the 20-year time period.

The 20-year time period is also advantageous for incorporation of newly-available data. It is our understanding that the KGA has commissioned a remote sensing study of evapotranspiration (ET) across the entire subbasin that will provide basin-wide values for agricultural demand corresponding to the WY 1995 through WY 2014 base period. We will use these data, as available, to check against agricultural demands already incorporated into

⁴ Water Year is from October through September. For example, Water Year 1995 is from October 1, 1994 through September 30, 1995.

the most recent time period of the C2VSim model. Adjustments will be made to the model to represent the newly-available data. These regional model revisions will be improved if other GSAs coordinate by providing local water budget input data. We will ensure an overall mass balance is considered in the zone budget revisions.

In our preliminary discussions with the C2VSim developers at DWR, a significant portion of model uncertainty is related to incomplete data regarding groundwater banking and other managed recharge operations in the Kern County Subbasin. Recognizing that several of the large groundwater banking projects (especially those on the Kern Fan) pre-date the 20-year base period, we propose checking/revising data for groundwater banking operations dating back to at least 1978, the beginning of banking at the City of Bakersfield 2800 Recharge Facilities. For the Kern Fan banking projects, we will check data for the Kern Water Bank, Berrenda Mesa, Pioneer Project, and the City of Bakersfield 2800 Recharge Facilities, and verify these input data with the local banking authorities. For other district-specific groundwater banking projects, we will rely on those districts to provide corrected data if model revisions are necessary.

For these proposed time periods, monthly input data will be required. For example, for surface water deliveries, monthly volumes (and locations) will be required from WY 1995 through WY 2015.

Revise C2VSim for Crop Coefficients, Groundwater Banking, and Local Water Budgets,

Our approach for revising the DWR-updated C2VSim model includes:

- newly-acquired crop coefficient data from remote sensing studies
- historical amounts of groundwater banking, and
- monthly local water budget data if provided by other GSAs and/or water districts.

We assume that remote sensing data will be provided to us by the KRGSA, who can access these data being developed by the KGA. We assume that groundwater banking data can be verified and/or revised through coordination with the local banking authorities. Local water budget inputs will be revised if local GSAs/water districts provide monthly input data for their service areas.

We will work through the KRGSA on how best to coordinate with others to acquire the input data in formats easily incorporated into the C2VSim model. A key feature of IWFM is DWR's agricultural and urban water supply and demand management module that dynamically simulates both surface water and groundwater supplies based on demand estimates, as affected by usage and climatic conditions. Todd Groundwater will consider the function of this module and provide a desired template to be used when obtaining input data from others. We will coordinate with others to ensure our understanding and accurate representation of input data into the model.

Coordinate with DWR

We will coordinate with DWR to work out methods to revise C2VSim in a manner consistent with DWR practices and to facilitate a data transfer to support DWR after the development of C2VSim with revised Kern County Subbasin data. Our scope includes time for coordination and meetings for these discussions. We will use DWR for technical support as needed, but the scope of work herein will be conducted by Todd Groundwater.

DWR's current plan is that C2VSim-CG and C2VSim-FG will use the same water budget information, but C2VSim-FG will provide a more detailed spatial distribution of the data, especially in land use and crop type information. In our preliminary discussions with DWR, C2VSim-CG is currently planned to be released in June 2017, but that C2VSim-FG does not have a projected completion date. Therefore, we will use C2VSim-CG for developing the water budgets if C2VSim-FG is not available.

PROPOSED SCOPE OF SERVICES

Our proposed scope of services incorporates our approach concepts discussed above. It is organized around the plan contents in Article 5 of the GSP draft regulations, with due consideration of other articles.

Task 1: Initial Review of C2VSim

To expedite the development of the Kern County Subbasin water budgets, we will review currently available versions of C2VSim. An update of C2VSim through September 2015 is currently being developed by DWR with an anticipated release date in mid-2017. To begin our assessment in preparation of developing water budgets, we will obtain a beta version of the C2VSim from DWR. We will then review the input data requirements and results for the Kern County Subbasin to build a foundation for using C2VSim. This effort sets the stage for the C2VSim revision in Task 3. The subtasks for Task 1 are described below.

1.1 – Coordinate with DWR on C2VSim

To facilitate working with C2VSim, we will open a channel with the DWR C2VSim developers to help facilitate our work. Early in the project, we will set up a meeting with appropriate DWR staff responsible for developing the C2VSim model to discuss the data used for Kern County. We will continue to coordinate with DWR over the life of the project, as needed, to help resolve C2VSim and Kern County Subbasin-related issues.

1.2 – Assess Kern County Water Budget Data Requirements

The C2VSim input data for the Kern County Subbasin will be reviewed, focusing on the managed water supply information. This step will build our working understanding of the model. We will compile a list of the key managed water supply data already included in C2VSim. This list can be compared to any data provided by local agencies to identify missing or incomplete water budget components in the current version of C2VSim.

1.3 – Initial Assessment of C2VSim Results in Kern County

The C2VSim results will be reviewed for the Kern County Subbasin to assess the quality of the model simulations. The results of this review will be incorporated into a Model Development Plan that will guide efforts for Task 3. The purpose of this plan is to help resolve issues concerning key parameters and assumptions early so that these will not manifest themselves later in the process. These will be documented in the Technical Report (Task 5).

Task 2: Coordinate with Local Agencies on Water Budget Input Data

As discussed previously, local water budgets will be coordinated with other GSAs/water districts to verify the accuracy and, if warranted, to revise the input data. We emphasize that we are not proposing to develop local water budgets for others; the output from the model will be a current and historical water budget for the entire subbasin. We have not included costs to analyze source data or develop the water budget components for areas outside of the KRGSAs. We propose only to revise the model with the best available information on local water budgets. The following outlines the subtasks for Task 2.

2.1 Develop Local Agency Data Request

We will develop a data request to provide guidance to local agencies regarding the types of water budget input data needed for the C2VSim revision. The data request will focus on managed water supply information, but will also include the current understanding of overall water budgets for comparison to the C2VSim results.

2.2 Coordinate with Local Agencies on Water Budgets

After the data request has been submitted to the local agencies, Todd Groundwater will be available to answer questions and facilitate provision of the input data. Time is included for two trips to Kern County to meet with others, as needed, to better understand the input data being provided and to accurately represent the same in the revised model.

2.3 Compile and Review Local Agency Water Budget Data

We will compile water budget input data provided by others for comparison to the model. The water budget data will focus on managed water supply information for the C2VSim revision. For example, determination of groundwater irrigation demand can be calculated from estimates of applied water and return flows using crop maps, and then subtracting surface water irrigation supplies. Urban groundwater pumping and groundwater banking recovery amounts are measured directly and provide a more accurate dataset to compare to model estimates.

2.4 Identify Data Gaps

The results of this compilation will be summarized using tables that put the water budget components into a consistent format to illustrate the potential range and identify potential data gaps. An assessment of these data will be performed to determine the overall strengths and weaknesses of the different data sources. A proposed water budget for the GSP will be developed that utilizes the highest quality data and is consistent with the conceptual understanding of water management in the subbasin.

2.5 Water Budget Workshop

A workshop meeting is planned to present the overall approach for developing the Kern County Subbasin water budgets to the KRGSA (and others), and to discuss issues and concerns about the process. Feedback from the group will be used to improve and refine the water budgets.

Task 3: Revise C2VSim with New Data

Task 3 includes revising C2VSim with the managed water supply information from others. Because the IWFM code is primarily a text-based input data structure, time is included for developing a systematic method for revising input data, outputting results, and providing data quality reviews throughout the process. Task 3 is dependent upon DWR officially releasing the new version of C2VSim through 2015. For scheduling purposes, we assume that the new version of C2VSim will be available by June 2017 and that input files are available in early 2017. The following outlines the subtasks for Task 3.

3.1 Verify C2VSim Data and Calibration in Kern County Subbasin

Once the officially released version of C2VSim through 2015 is released by DWR, we will acquire the model and verify the results for the Kern County Subbasin. We will review the model documentation to evaluate whether there are any changes in the input data for the Kern County Subbasin compared to the beta versions used in Task 1.

3.2 Prepare Revised Data for C2VSim Input

The data received from others will be formatted into the data file structure required for C2VSim. Areas with little to no new information will default to original data contained in C2VSim. Because input data for IWFM is in large text files, a systematic method for revising input data and providing data quality reviews will be applied throughout the process.

3.3 Apply Revised C2VSim for Kern County Subbasin

After revisions are complete, the C2VSim will be setup and run. Ongoing quality review will verify that the model is properly applying the new data. A sensitivity evaluation will be run for a limited number of key parameters to evaluate the effects of varying parameters in the Kern County Subbasin on model results. The results of the model runs will be processed and tabulated.

3.4 Evaluate Revised C2VSim Performance

The results will be assessed to evaluate the effects of the new data on the overall model calibration. The results will be compiled and documented for the Technical Report. We will continue to coordinate with DWR during the C2VSim model revision process for the Kern County Subbasin. Recommendations on how to improve the C2VSim model will be presented to DWR so that future model revisions can take advantage of the local knowledge developed for the GSPs and provide an improved tool for assessing water budgets in the future.

3.5 C2VSim Revision Project Updates

Two project update meetings are planned to present the overall approach and results of the C2VSim revision to the KRGSA (and others), and to discuss issues and concerns about the process. Feedback from the group will be used to improve and refine the model.

Task 4: Generate Current and Historical Water Budgets for the Kern County Subbasin

After the C2VSim model is revised with Kern County Subbasin managed water supply data and the results are verified, we will generate subbasin-wide water budgets for the Kern County Subbasin. Water budget data will include the change in the volume of water stored, and the information will be reported in tabular and graphical form as required by SGMA. The following outlines the subtasks for Task 4.

4.1 Generate Initial Subbasin Water Budgets from Revised C2VSim

We will use the IWFM Z-Budget feature to develop the subbasin water budgets from the revised C2VSim. The water budgets will quantify the required elements required for SGMA including simulation results for subsurface inflows and outflows, managed aquifer recharge and irrigation pumping and return flows.

4.2 Public Review of Subbasin Water Budgets

After initial review and comment by the KRGSA, the results of the Kern County Subbasin water budgets from Task 4.1 will be reviewed in a public workshop. We will address comments on the water budgets and work to reconcile any questions on the results. We will compile a list of recommended changes for consideration of the final Kern County Subbasin water budgets.

4.3 Generate Final Subbasin Water Budgets from C2VSim

Final Kern County Subbasin water budgets will be generated using an agreed upon list of recommended changes. Final subbasin water budgets will include the change in the volume of water stored, and the information will be reported in tabular and graphical form as required by SGMA. Results will be documented in the Technical Report to provide the technical basis for the subbasin water budgets to support the Kern County Subbasin GSPs.

4.4 Kern County Subbasin Water Budget Workshop

The results of the initial C2VSim water budgets will be presented to KRGSA (and others) during a public workshop.

Task 5: Technical Report

A technical report will be developed that documents the work performed for this scope of work. The technical report will provide the technical basis for developing the KRGSA and subbasin-wide water budgets and revising C2VSim. The modeling results and water budgets produced for the Technical Report will be consistent with DWR's SGMA guidelines and BMPs. The following subtasks are included in Task 5.

5.1 Draft Report

For costing purposes, we assume that the draft technical report will require two draft versions. An Administrative Draft Technical Report will be prepared for KRGSA review and comments. Comments will be incorporated into a Draft Technical Report. Electronic submittal is assumed for both versions.

5.2 Final Report

The Final Technical Report will address final comments and will be included as an appendix in the KRGSA GSP. As directed by the KRGSA, the report will also be submitted to entities providing cost reimbursement. For costing purposes, we assume FedEx delivery of 10 hard copies plus an electronic version for the Final Technical Report covering the current and historical water budgets.

Task 6: Project Coordination and Communication

This task covers project coordination with the client throughout the project. Coordination will include project planning, on-going communications and project status updates. We assume that communication during the project will be conducted via emails, telephone and web meetings.

KEY ASSUMPTIONS FOR COMPLETING SCOPE OF WORK

Based on our experience, this is an aggressive, but realistic schedule for completing the scope of work contingent upon cooperation of the KRGSA and other agencies in the Kern County Subbasin in working through potential issues related to the water budgets. In order to adhere to the budget and schedule, our key assumptions are as follows:

- The official release of the updated C2VSim by DWR with simulation results through September 2015 occurs by late summer 2017. We will request beta versions of the model for initial work; however, the water budgets will need to be based on the official version. Any delays by DWR in releasing this model may impact the schedule.
- C2VSim is developed using the IWFM modeling code, which uses a text-based input data structure; therefore, time is included for developing a systematic method for revising input data, outputting results, and providing data quality reviews for working with this type of data structure.
- We will coordinate with agencies, as appropriate, to understand data provided and to check data for reasonableness, as well as QC data entry into the model. Nonetheless, we cannot be responsible for errors or omissions provided by others in either the local water budget data, source data, or methodologies employed by others to develop the water budget data.
- This scope of work focuses on historical and current water budgets for the Kern County Subbasin. Projected water budgets, which are also required by the GSP regulations, are not included in this scope of work.
- This scope of work addresses only changes related to the managed water supply components of C2VSim, and does not include changes to the hydrogeological

conceptual model or natural water budget components. We assume that no alterations will be made to the C2VSim including architecture, layering, or grid spacing.

- The scope of work does not include hydrogeologic consulting required to develop local water budgets for other local agencies; rather, we assume that the water budget input data will be provided by qualified professionals working separately under the direction of the local agencies.
- C2VSim input data for areas where local agencies provide little to no additional information, or data that cannot be readily incorporated into the model, will default to data already contained in C2VSim.

COST ESTIMATE

A cost estimate is provided at the end of this text on **Table 1**. Our budget for the groundwater assessment including Tasks 1 through 7 is estimated to total \$431,957 as summarized on **Table 1**. Costs include labor, fees, and expenses for each project task.

The largest level of effort is assigned to Task 3 to revise the existing C2VSim with Kern County Subbasin managed water data. A relatively large level of effort is also assigned to Tasks 2 and 4 for development of subbasin wide water budgets and coordination with local agencies. This is likely to be one of the first GSPs to be prepared in the State, which introduces some uncertainty for the cost estimate. Nonetheless, we think that the scope and costs have been developed with a good understanding of the recently-adopted regulations.

This budget modifies our previous budget for developing a GSP for the KRGSA as follows.

Total Estimated GSP Budgets

Scope of Work	Estimated Budget
Previous Cost Estimate dated May 9, 2016 (as modified July 16, 2016 in Exhibit A of KRGSA 16-002)	\$359,964
Cost Estimate from Table 1 herein (January 17, 2017)	\$431,957
Total GSP Budgets	\$791,921

SCHEDULE

Assuming approval of this project, we can complete the proposed scope of work in about nineteen months from the notice to proceed. The Todd Groundwater Team stands ready to start upon notice-to-proceed in February 2017; if approved in February 2017, and the DWR updated C2VSim model is available in July 2017, we should be able to complete the project by September 2018. Our proposed schedule is provided by task and subtask in **Table 2**. Proposed Project Updates and Workshop meetings are shown as diamonds.

Table 1: Cost Estimate

Job Name: Revise C2VSim Model for Kern County Subbasin Water Budgets
 Job Description: Revise DWR's C2VSim Model to Incorporate Improved Information in the Kern County Subbasin for the KRGSB GSP
 Client: Kern River Groundwater Sustainability Agency (KRGSB)
 Date: 1/17/2017
 Todd Job Number: Proposal

2016 Hourly Rates	QA/QC Review \$220	Principal PM \$220	Senior Modeler \$215	Senior Hyd/Eng \$210	Senior Geo/Eng \$200	Associate Geo/Eng \$175	Staff Hydrogen \$180	GIS/ Graphics \$110	Admin Costs \$100	Total Labor Hours	Total Labor	2% Comm Fee	Other Direct Costs	10% Expense Fee	Total Costs	
Task 1: Initial Review of C2VSim																
1.1: Coordinate with DWR on C2VSim		4	24							28	\$ 8,040	\$ 121	\$ -	\$ -	\$ 8,161	
1.2: Assess Kern County Water Budget Data Requirements		6	60	12	8			4		90	\$ 18,780	\$ 367	\$ 200	\$ 20	\$ 19,367	
1.3: Initial Assessment of C2VSim Results in Kern County		2	100	8	8					118	\$ 25,220	\$ 504	\$ -	\$ -	\$ 25,724	
Task 1 Budget	0	12	184	20	16	0	0	4	0	236	\$ 50,040	\$ 992	\$ 200	\$ 20	\$ 51,252	
Task 2: Coordinate with Local Agencies on Water Budget																
2.1: Develop Local Agency Data Request		4	16							20	\$ 4,320	\$ 86	\$ -	\$ -	\$ 4,406	
2.2: Coordinate with Local Agencies on Water Budgets		16	60							76	\$ 16,420	\$ 328	\$ 1,200	\$ 120	\$ 18,068	
2.3: Compile and Review Local Agency Water Budget Data		4	64		40		60	4		172	\$ 32,080	\$ 633	\$ -	\$ -	\$ 32,713	
2.4: Identify Data Gaps		4	40							44	\$ 9,480	\$ 190	\$ -	\$ -	\$ 9,670	
2.5: Water Budget Workshop		8	8					8		24	\$ 4,360	\$ 70	\$ 800	\$ 80	\$ 5,310	
Task 2 Budget	0	36	188	0	40	0	60	12	0	336	\$ 56,660	\$ 1,307	\$ 2,000	\$ 200	\$ 78,167	
Task 3: Revise C2VSim with New Data																
3.1: Verify C2VSim Data and Calibration in Kern County Subbasin			60							60	\$ 17,200	\$ 344	\$ -	\$ -	\$ 17,544	
3.2: Prepare Revised Data for C2VSim Input			60		64		60	8		212	\$ 38,580	\$ 754	\$ -	\$ -	\$ 39,334	
3.3: Apply Revised C2VSim for Kern County Subbasin			200	24						224	\$ 60,940	\$ 1,219	\$ -	\$ -	\$ 62,159	
3.4: Evaluate Revised C2VSim Performance		8	180	24						212	\$ 45,500	\$ 910	\$ -	\$ -	\$ 46,410	
3.5: C2VSim Revision Project Updates		16	16					6		38	\$ 7,620	\$ 139	\$ 1,600	\$ 160	\$ 9,519	
Task 3 Budget	0	24	\$96	48	64	0	60	14	0	636	\$ 169,840	\$ 3,385	\$ 1,800	\$ 160	\$ 174,966	
Task 4: Generate Current and Historical Water Budgets for Kern County Subbasin																
4.1: Generate Initial Subbasin Water Budgets from Revised C2VSim			40		16		28			84	\$ 18,000	\$ 320	\$ -	\$ -	\$ 18,320	
4.2: Public Review of Subbasin Water Budgets		16	40							56	\$ 12,120	\$ 242	\$ 600	\$ 60	\$ 13,022	
4.3: Generate Final Subbasin Water Budgets from C2VSim			40		8		24			72	\$ 15,800	\$ 278	\$ -	\$ -	\$ 16,078	
4.4: Kern County Subbasin Water Budget Workshop		8	8					8		24	\$ 4,360	\$ 70	\$ 800	\$ 80	\$ 5,310	
Task 4 Budget	0	24	128	0	24	0	52	8	0	236	\$ 48,280	\$ 908	\$ 1,400	\$ 140	\$ 48,728	
Task 5: Technical Report																
5.1: Draft Report		8	12	140	10	20		22	44	4	260	\$ 49,140	\$ 878	\$ 125	\$ 13	\$ 50,156
5.2: Final Report		4	8	48	4	8		4	22	2	100	\$ 18,820	\$ 320	\$ 300	\$ 30	\$ 19,270
Task 5 Budget	12	20	188	14	28	0	26	66	6	360	\$ 67,960	\$ 1,198	\$ 425	\$ 43	\$ 69,426	
Task 6: Project Coordination and Communication																
Project Comm./Management		60	8						22	90	\$ 17,120	\$ 268	\$ -	\$ -	\$ 17,418	
Task 6 Budget	0	60	8	0	0	0	0	0	22	90	\$ 17,120	\$ 268	\$ -	\$ -	\$ 17,418	
Project Budget	12	176	1292	62	172	0	218	104	28	2684	\$ 417,700	\$ 8,069	\$ 5,825	\$ 843	\$ 431,967	

Kern River GSA
Report of Receipts and Disbursements
for the 2016-17 Fiscal Year
Report information as of February 28, 2017

Beginning Balance of KRGSA Trust as of July 1, 2016 \$ -

Receipts

<u>Date Received</u>	<u>Received from:</u>	<u>Amount Received</u>
8/29/2016	City of Bakersfield	\$ 50,000.00
9/23/2016	Kern Delta Water District	50,000.00
9/29/2016	Kern County Water Agency	50,000.00

Total Receipts to date \$ 150,000.00

Disbursements

<u>Date Paid</u>	<u>Payee</u>	<u>COB Check Number</u>	<u>Amount Paid</u>	<u>Authorized for payment by KRGSA on:</u>
11/10/2016	Todd Groundwater	650665	\$ 2,256.25	11/3/2016
12/2/2016	Horizon Water & Environmental	651494	1,508.84	12/1/2016
12/2/2016	Todd Groundwater	651513	15,436.42	12/1/2016
2/10/2017	Horizon Water & Environmental	654461	7,434.19	2/2/2017
2/10/2017	Todd Groundwater	654488	754.30	2/2/2017

Total Disbursements to date \$ 27,390.00

Balance in KRGSA Trust as of report date \$ 122,610.00

(city trust account: 618-0000-208.05-00)

**Kern River GSA
Contract Monitoring Worksheet**

Report information as of February 28, 2017

Agreement # 16-001 - Horizon Water & Environment LLC

Contract Date August 4, 2016
Contract Amount \$ 194,000.00

<u>Date Paid</u>	<u>COB Check Number</u>	<u>Invoice Number</u>	<u>Amount Paid</u>	<u>Remaining Contract Balance</u>	<u>Authorized for payment by KRGSA on:</u>
Beginning Balance				\$ 194,000.00	
12/2/2016	651494	1887	\$ 1,508.84	192,491.16	12/1/2016
2/10/2017	654461	1994	7,434.19	185,056.97	2/2/2017

Agreement # 16-002 - Todd Groundwater

Contract Date August 4, 2016
Contract Amount \$ 360,000.00

<u>Date Paid</u>	<u>COB Check Number</u>	<u>Invoice Number</u>	<u>Amount Paid</u>	<u>Remaining Contract Balance</u>	<u>Authorized for payment by KRGSA on:</u>
Beginning Balance				\$ 360,000.00	
11/10/2016	650665	62306-9-16	\$ 2,256.25	357,743.75	11/3/2016
12/2/2016	651513	62306-10-16	15,436.42	342,307.33	12/1/2016
2/10/2017	654488	62306-11-16	754.30	341,553.03	2/2/2017