CUYAMA BASIN GROUNDWATER SUSTAINABILITY AGENCY

STANDING ADVISORY COMMITTEE

Committee Members

Roberta Jaffe (Chair)	Brad DeBranch	Joe Haslett
Brenton Kelly (Vice Chair)	Louise Draucker	Mike Post
	Jake Furstenfeld	Hilda Leticia Valenzuela

AGENDA

April 25, 2019

Agenda for a meeting of the Cuyama Basin Groundwater Sustainability Agency Standing Advisory Committee to be held on Thursday, April 25, 2019 at 4:00 PM, at the Cuyama Valley Family Resource Center, 4689 CA-166, New Cuyama, CA 93254. To hear the session live, call (888) 222-0475, code: 6375195#.

Teleconference Locations:

Cuyama Valley Family Resource Center 4689 CA-166 New Cuyama, CA 93254	7870 Fairchild Ave Winnetka, CA 91306

The order in which agenda items are discussed may be changed to accommodate scheduling or other needs of the Committee, the public or meeting participants. Members of the public are encouraged to arrive at the commencement of the meeting to ensure that they are present for Committee discussion of all items in which they are interested.

In compliance with the Americans with Disabilities Act, if you need disability-related modifications or accommodations, including auxiliary aids or services, to participate in this meeting, please contact Taylor Blakslee at (661) 477-3385 by 4:00 p.m. on the Friday prior to this meeting. Agenda backup information and any public records provided to the Committee after the posting of the agenda for this meeting will be available for public review at 4689 CA-166, New Cuyama, CA 93254. The Cuyama Basin Groundwater Sustainability Agency reserves the right to limit each speaker to three (3) minutes per subject or topic.

1. Call to Order
2. Roll Call
3. Pledge of Allegiance
4. Approval of Minutes
5. Groundwater Sustainability Plan
    a. Groundwater Sustainability Plan Update
        i. Discussion on GSP Public Draft
    b. Technical Forum Update
        i. Discussion on Numerical Model
    c. Stakeholder Engagement Update

i. Review of Public Draft Comment Period

6. Groundwater Sustainability Agency
    a. Report of the Executive Director
    b. Board of Directors Agenda Review
    c. Report of the General Counsel
7. Items for Upcoming Sessions
8. Committee Forum
9. Public comment for items not on the Agenda

    At this time, the public may address the Committee on any item not appearing on the agenda that is within the subject matter jurisdiction of the Committee. Persons wishing to address the Committee should fill out a comment card and submit it to the Executive Director prior to the meeting.

10. Adjourn

Cuyama Basin Groundwater Sustainability Agency

Acronyms List

ARMA	Autoregression Moving Average
BOD	Board of Directors
CA	California
CASGEM	California Sustainable Groundwater Elevation Monitoring
CB	Cuyama Basin
CBGSA	Cuyama Basin Groundwater Sustainability Agency
CBWD	Cuyama Basin Water District
CCSD	Cuyama Community Services District
CDEC	California Data Exchange Center
CVCA	Cuyama Valley Community Association
CVRD	Cuyama Valley Recreation District
DMS	Data Management System
DWR	California Department of Water Resources
EKI	EKI Environment & Water, Inc.
ET	Evapotranspiration
FRC	Cuyama Valley Family Resource Center
FY	Fiscal Year
GAMA	Groundwater Ambient Monitoring and Assessment Program
GSA	Groundwater Sustainability Agency
GSP	Groundwater Sustainability Plan
HG	Hallmark Group (Executive Director)
ITRC	Irrigation Training & Research Center
IWFM	Integrated Water Flow Model
JPA	Joint Exercise Powers Agreement
Kern	County of Kern
NOAA	National Oceanic and Atmospheric Administration
NWIS	National Water Information System
PRISM	Parameter-elevation Regressions on Independent Slopes Model
SAC	Standing Advisory Committee
Santa Barbara	County of Santa Barbara
SBCWA	Santa Barbara County Water Agency
SGMA	Sustainable Groundwater Management Act
SLO	San Luis Obispo County
SWCRB	State Water Resources Control Board
TAF	Thousand Acre Feet
TO	Task Order
USDA	U.S. Department of Agriculture
USGS	U.S. Geological Survey
Ventura	County of Ventura
W&C	Woodard & Curran (GSP Development Consultant)
WMA	Water Management Area
WY	Water Year

Cuyama Basin Groundwater Sustainability Agency Standing Advisory Committee Meeting

March 28, 2019

Draft Meetings Minutes

Cuyama Valley Family Resource Center, 4689 CA-166, New Cuyama, CA 93254

PRESENT:
Jaffe, Roberta – Chair
Kelly, Brenton – Vice Chair
DeBranch, Brad
Draucker, Louise
Furstenfeld, Jake
Haslett, Joe
Valenzuela, Hilda Leticia
Beck, Jim – Executive Director
Hughes, Joe – Legal Counsel (*telephonic*)

ABSENT:
Haslett, Joe
Post, Mike

1. **Call to Order**
   Chair Roberta Jaffe called the Standing Advisory Committee (SAC) to order at 4:00 p.m.

2. **Roll Call**
   Hallmark Group Project Coordinator Taylor Blakslee called roll of the Committee (shown above).

   The California Department of Water Resources (DWR) SGMA Regional Representative Anita Regmi also participated telephonically.

3. **Pledge of Allegiance**
   The pledge of allegiance was led by Chair Jaffe.

4. **Approval of Minutes**
   Cuyama Basin Groundwater Sustainability Agency (CBGSA) Executive Director Jim Beck presented the February 28, 2019 SAC minutes.

   MOTION
   Vice Chair Brenton Kelly made a motion to adopt the February 28, 2019 CBGSA SAC meeting minutes. The motion was seconded by Committee Member Brad DeBranch and the motion passed.

   AYES: Committee Members DeBranch, Draucker, Furstenfeld, Jaffe, Kelly and Valenzuela

NOES:	None
ABSTAIN:	None
ABSENT:	Committee Members Haslett and Post

Cuyama Valley Family Resource Centers' Executive Director Lynn Carlisle asked that the slide numbers are referenced throughout the presentation so people participating telephonically are able to follow along.

5. Groundwater Sustainability Plan

a. Groundwater Sustainability Plan Update

Woodard & Curran's (W&C) Senior Water Resource Engineer Brian Van Lienden provided an update on Groundwater Sustainability Plan (GSP) activities, which is included in the SAC packet.

Chair Jaffe asked if the sustainable yield has been identified. Mr. Van Lienden said, it is about 20 to 21 thousand acre-feet (AF), but this will be discussed during the modeling section of the presentation.

i. Direction on Eastern Region Sustainability Thresholds

Mr. Van Lienden provided an update on the Eastern Region thresholds that had been updated to 35% below 2015 levels based on the Board direction received at the March 6, 2019 CBGSA Board of Directors meeting.

Vice Chair Kelly asked Mr. Van Lienden if the revised threshold rational, in his opinion, is working better for this area. Mr. Van Lienden said he believes this rational for the levels is better than setting them too high, however if we receive more information, we can look at revising these in the future.

Chair Jaffe asked that W&C include a note in the GSP that the representative wells in the Eastern Region are problematic and that there is a need for more data in this region.

Vice Chair Kelly commented that he would like to have an update on the DWR Technical Support Services ad hoc regarding the DWR funds and the potential locations of those wells. Executive Director Jim Beck let the SAC know that staff had previously done work on this, but since it is an out-of-scope activity for both the Hallmark Group and W&C, we will need to receive Board direction to continue to pursue this project.

ii. Discussion on Placeholder Section

Vice Chair Kelly said there were nine reaches developed in the groundwater measurement section and asked how those were chosen. Mr. Van Lienden said they were chosen to analyze streams. Chair Jaffe asked if there were any additional comments or questions on the Placeholder Section.

Vice Chair Kelly said the Placeholder Section references an Appendix X and asked if this is another reference to the model. Mr. Van Lienden said this reference will accompany the model.

Chair Jaffe asked, if in reference to Figure 2-4 – Cuyama Basin NCAG Ground Dependent Ecosystems (GDE) Point Analysis, what is the criteria for Probable GDEs and Probable Non-GDEs. Mr. Van Lienden said the Placeholder Section features a discussion and technical

memorandum developed by the biologist that includes his assessment of each site for the database. Vice Chair Kelly commented that there are GDEs up the Santa Barbara canyon.

Mr. Van Lienden said, in reference to Figure 2-5 – Cuyama Basin Probable GDEs Based on Analysis, W&C should use a different color to represent the likely GDE Wetlands since the color chosen does not show up very well on the figures. Mr. Van Lienden said the GSA can choose to fund additional GDE analysis in the future.

Chair Jaffe asked if the use of piezometers is included in the document. Mr. Van Lienden said piezometers are not in this document but will be included in future updates.

iii. Review of Options for Management Area Governance

Vice Chair Kelly asked if there is any DWR best management practices for management areas. Ms. Regmi replied that DWR does not provide any specific guidance on this topic.

Mr. Van Lienden summarized the action the Board took at the March 6, 2019 Board meeting to include management areas in the GSP.

Mr. Beck summarized the Board's decision for pumping allocation in management areas, which included: (1) allocation per irrigated acre within the area influencing overdraft in the Central Region, (2) historical use allocation for the CCSD, and (3) include a mechanism for adding in un-irrigated acres within the area influencing Central Region overdraft that may want to use their groundwater rights.

Mr. Beck discussed the delegation of authority that would fall to the management areas, including (1) the GSA being responsible for management area(s), or (2) the GSA delegating responsibility for management area(s) to the Cuyama Community Services District (CCSD) or Cuyama Basin Water District (CBWD). He said agreements will be needed if either entity is chosen.

Vice Chair Kelly asked if the counties should be added as a potential management entity along with the CCSD and CBWD. Mr. Beck said the counties could choose to implement management areas in their portion of the basin, but we are not recommending that.

Landowner Ann Myhre asked if the CBWD would be just managing the areas experiencing greater than 2 feet of groundwater decline per year and Mr. Beck confirmed that.

Mr. Beck reported that in the Central basin we are pumping roughly 48,000 AF per year and need to cut 10,000 AF to reach the sustainability goal. He said these are rough numbers that will change, but the CCSD's recent historic pumping level is roughly 100 AF. He said staff's recommendation is to allow them to continue pumping at recent pumping levels and allow for de minimis growth over the next 40 years.

Chair Jaffe said it makes sense to have the CCSD outside the management area. She noted that allowing additional pumping outside the management area would be in conflict with the Board's action to not allow pumping outside management areas. Mr. Beck said the Board took that action, but also took action to allow historic pumping for the CCSD when they assumed the CCSD would be in a management area.

Ms. Myhre said the central basin has money to manage in their area, but areas outside the management areas do not have the funds to be managed to that level.

Chair Jaffe asked if they could restrict the CCSD's pumping. Mr. Beck said the Sustainable Groundwater Management Act (SGMA) does allow this.

Vice Chair Kelly said the oddity is that the wells in the CCSD are not in their district and asked if that complicates things. Mr. Beck said you would make an administrative decision to not include them as a managed water user in the Central Basin. Mr. Beck asked if the SAC sees this as an appropriate recommendation to present to the Board regarding how to handle the CCSD.

CBGSA Board Alternate John Coates said the definition of the management area is not a geographic area, but a criterion that they would need to consider, and the element of growth could be a concern. Mr. Beck said if growth occurs above 20% in the next 20 years the GSA will need to revisit this.

Local resident Jose Valenzuela said you need to take concern of the people in town. Mr. Beck said they were trying to take action to improve supply and lower costs since folks in the CCSD would not need to attend meetings and be apart of decisions in the central basin.

MOTION
Committee Member Louise Valenzuela made a motion to exclude the Cuyama Community Services District from a management area and limit pumping levels at recent historic levels of 100 acre-feet per year with a 20% growth factor for 20 years. The motion was seconded by Committee Member Jake Furstenfeld and the motion passed.

AYES:	Committee Members DeBranch, Draucker, Furstenfeld, Jaffe, Kelly and Valenzuela
NOES:	None
ABSTAIN:	None
ABSENT:	Committee Member Haslett and Post

Mr. Beck discussed the activities that would be delegated to a management area. He said the delegation of management areas will come down to whose paying the bills and pumping shortages.

Chair Jaffe said "delegate" sounds like there is not a reporting requirement. Mr. Beck replied that this will be delegation with reporting.

Ms. Carlisle said she does not believe that the delegation of fixing the overdraft should be handed off to those that caused the problem just because they have the money. Mr. Beck said he does not believe the Hallmark Group or W&C are turning the basin over to anyone other than the CBGSA. It is clear that the Board will require reporting, feedback, and provide oversight for these areas. Mr. Beck said as long as you meet the shortages and have not impacted an outside user, that is all that matters.

Ms. Carlisle asked if the SAC will have any recommendations on the delegation of authority to management areas. Mr. Beck said they can.

Mr. Carlisle asked why the water modeling is not being delegated. Mr. Beck said anything shown on the list on slide 37 would remain at the CBGSA level.

Chair Jaffe asked what the process is if delegation is given. Mr. Beck said if it is external (CBWD), the Joint Powers Authority (JPA) would need to be amended and agreements would be needed. If it is internal, you would not need agreements, but you would have documentation agreeing to terms.

Chair Jaffe asked what other GSAs are doing regarding delegation. Mr. Beck said most of the GSAs are either a single district forming their own GSA, so they do not have a need to delegate, or GSAs that include multiple districts, so each district has their own management area.

Ms. Myhre said she is familiar with the Salinas Valley where there are a couple maverick communities that pursued forming their own GSAs, but they are looking to fold them in. She said the management areas are being managed very differently because their issues are different. Chair Jaffe asked if there has been a decision on who manages the management areas. Ms. Myhre said it has not been decided yet.

Mr. Beck let the SAC know that the Hallmark Group is providing water management support for a group in eastern Kern County that plans on executing an agreement with the Kern Groundwater Authority to develop its chapter.

Chair Jaffe suggested rewording the bullet point “project evaluation and implementation” on slide 37 of the presentation and Mr. Van Lienden recommended renaming it to “Water Supply Projects”.

Mr. Beck said an advantage of non-delegation is less documentation and a disadvantage are non-hydrologically-affected parties would be engaged in decision-making and potential increase the cost.

Chair Jaffe said she would really want the reporting and oversight mechanism in a delegated scenario spelled out. Mr. Beck said this would be done in the agreements.

Ms. Myhre said if the landowners that take the cuts manage the shortage, you can avoid litigation.

Vice Chair Kelly asked if the GSA can enforce if the management area does not deliver on correcting the basin overdraft. Mr. Beck said the CBGSA would need to have a delegation of responsibility and check in on a regular basis.

Chair Jaffe said it is a very big decision and agrees with some of the details being described, but has a hard time agreeing to delegation with broad brushstroke concepts.

A local resident asked if this delegation concept is new and would like to hear more discussion on this. Mr. Beck said this concept evolved last month. Chair Jaffe said this

discussion is the start of a really important decision on how the GSP will be managed.

Vice Chair Kelly said the CBWD will fight very strongly for management of their areas and do not plan on doing anything outside of their area. He reported that they are taking responsibility for their implementation timeline. He said he does not have a problem with including the affected parties in the decision-making, but rather what enforcement the GSA has of its implementation plan. Mr. Beck said it appears the SAC will not have a recommendation on this issue, but it may be appropriate to list their concerns. Chair Jaffe agree with this and suggested that the SAC not have a recommendation but express their concerns.

Ms. Carlisle suggested changing the title on slide 35 from saying "Governance" to "Responsibility."

Committee Member Brad DeBranch said he does not have the same concern as other members of the SAC regarding delegation of management area authority.

Committee Members Valenzuela, Jake Furstenfeld, and Louise Draucker said they thought we did not have enough information to make a recommendation.

Chair Jaffe and Vice Chair Kelly said they have concerns with the oversight mechanism if management area authority is delegated.

iv. Update on Sustainability and Climate Change Modeling

Mr. Van Lienden provided an update on the water budget with climate change modeled. He updated the SAC that land use in the western edge of the basin shows as grain and the satellite may be confusing grain land as idle.

A question arose asking if temperature is in the model, Mr. Back said temperature is modeled, but we do not see it directly as an input. Mr. Van Lienden said temperature drives the crop evapotranspiration (ET) rates.

Vice Chair Kelly said it should say crop and native vegetation on slide 42.3.

Mr. Van Lienden reported, at DWR's recommendation, he used the median of the increase in precipitation and crop ET to model climate change results and the model showed an increase of 1.4% for precipitation and 5.4% for crop ET. He reported that with climate change, the model shows a slight increase in the overdraft from 26 to 27 TAF.

Landowner Steve Gliessman said that at various times of the year certain crops are dormant. Mr. Van Lienden said they modeled the ET for each crop for each month over the 50-year forecast period and the 5.4% crop ET is a rollup number.

Ms. Carlisle asked if you will track the actual climate change data to the assumed and make adjustments. Mr. Van Lienden said during the 5-year update they will have updated data they use in the model which will reflect any climate changes for that period. Mr. Beck said it also depends if DWR provides updated climate change assumptions.

Vice Chair Kelly commented that there is a degree of uncertainty and asked if there is a

range that we can operate from. Mr. Van Lienden said they can do an analysis with the wetter and drier temperature datasets. Mr. Beck said there are budget constraints and we can do this in the next period.

Mr. Van Lienden said the sustainable yield for the basin as a whole is 20,000 AF per year without climate change and 21,000 AF per year with climate change.

Vice Chair Kelly commented that he would like to see percentages on slide 42.21.

v. Direction on Implementation Plan Interim Milestones

Mr. Beck provided an update on the revised implementation timeline.

Chair Jaffe suggested adding a thread on management area in the timeline, such as the formation and boundary issues. Mr. Beck said we should include Formation of Management Areas and the administration of management areas through the rest of the timeline. Chair Jaffe asked for clarification regarding the language "install new wells," and Mr. Van Lienden recommended using "Install new monitoring wells and monitoring equipment" in its place.

Mr. Beck presented an overview of the glidepath discussion. He said the critical period to look at is the first 5 years and how we generally want to trend after that. Mr. Beck said you cannot jump right into the sustainable yield reduction in year one since you need to establish the methodology for demand reductions and the mechanism for implementing this. Ms. Myhre said you should look at when people sign their leases and go off a crop year.

Chair Jaffe commented that she believes this needs to be in the context of groundwater levels because the later you reduce groundwater usage the lower the basin storage is. Mr. Beck said it is based on groundwater levels since the sustainable yield is modeled on reductions in year one, but we need to determine how we implement that reduction.

Mr. Beck said regardless of where you set the glide path, W&C will have to do modeling runs to verify it is not violating minimum thresholds.

Vice Chair Kelly asked what the CBGSA and DWR would think if it was suggested not to do any reductions until 2025. Mr. Beck said DWR would be fine with that as long as the CBGSA is not violating thresholds. Mr. Beck said they took land out to balance the model to get a rough number, but the landowners need to let us know how they plan on changing land use to model this iteration.

Vice Chair Kelly asked how long it takes to figure it out and get it right. Mr. Beck said it may take a year to do the analysis. He commented that the CBGSA may want to do a more robust economic analysis which has not been done yet. This analysis is budgeted for next year, but that tool would be helpful in the decision-making process.

Chair Jaffe asked how we resolve this with the Board. Mr. Van Lienden said the plan is to model the glide path live with the Board and see if they can agree on one glide path to put in the plan.

Vice Chair Kelly asked if they can add the change of storage into the glide path model.

Mr. Beck and Mr. Van Lienden said this could be added to the glide path model tool.

Mr. Beck said some basins are doing a straight-line glide path, other looks jagged, and others are stair-stepping since they assume the model is not 100% and are starting with a minimum number that is within the bounds of their assumed range.

Ms. Carlisle asked if we have set the sustainable indicator for groundwater levels. Mr. Van Lienden said we would use groundwater levels as a proxy for groundwater storage. Ms. Carlisle asked if the model will drive the glide path. Mr. Beck said it is interrelated.

Mr. Beck gave an update on the financing plan and reported that we recently completed the rough Fiscal Year 2019-20 budget and it is estimated at roughly $1.19 million for basin-wide activities.

Vice Chair Kelly asked if the management area costs would be less or more than the $800-1.2 million-dollar range. Mr. Beck estimated that management area costs would be in the $500,000-800,000-dollar range plus the cost of the projects.

Mr. Beck said we will be looking for Board direction on the estimated annual cost and fee payment strategy.

Ms. Myhre said grazers, on average, $5 per acre and land would change hands because of the cost of SGMA implementation.

Mr. Beck said we have to put something in the plan, but in January 2020 we will be out of money and we have to determine how to fund the CBGSA, either by a Prop 218 or Prop 26.

Vice Chair Kelly asked what a hybrid situation would look like. Mr. Beck said a hybrid situation would assess irrigated acres and non-irrigated acres at separate rates. Mr. Beck said W&C will add a hybrid option to slide 50 of the presentation.

Committee Member DeBranch asked if the CBGSA will have to pass a Prop 218. Ms. Myhre said not on pumping fees. Mr. Beck said legal counsel Joe Hughes will report more on this at the Board meeting, but his initial read is we would have to do a Prop 218.

Committee Member Furstenfeld said grazing does not appear to be the problem but are a part of the basin. He commented that there may be arguments on whether everyone in the central basin pays the expense or the expense is split throughout the basin.

Committee Member Valenzuela said their current water bill is very high. Mr. Gliessman said she is not a landowner, but a water user. This is an example a resident that is dependent on groundwater, but when you think about her ability to pay, she and others should be excluded from paying. Mr. Beck said his recommendation is to set the acreage threshold high enough were domestic users are excluded.

Ranchers and domestic/residential users expressed concern of the ability to pay $5 per acre.

Mr. Valenzuela said one vote per acre excludes the whole town on a Prop 218, but Chair Jaffe commented that that is California law.

Mr. Valenzuela said there is a School bond going on in the Cuyama valley and asked how the water costs will affect the residents. He said this may burden them with additional fees.

b. Technical Forum Update

Mr. Van Lienden provided an overview of the March 25, 2019 technical forum call. A summary of the issues discussed is provided in the SAC packet.

Vice Chair Kelly said the County of San Luis Obispo Public Work's Engineer Cathy Martin made a comment regarding whether the pumping fees will be applied to the de minimis users. Mr. Van Lienden said W&C will consider Vice Chair Kelly's comment and the comments received from the Technical Forum and incorporate those into the Board presentation.

c. Stakeholder Engagement Update

GSP Outreach consultant the Catalyst Group's Mary Currie provided an update on stakeholder engagement activity.

i. Review of Public Draft Comment Period

Ms. Currie provided an overview of the comment review period process.

Chair Jaffe recommended appointing an ad hoc to work with Ms. Currie on the outreach with the coming release of the draft GSP. Committee Members Furstenfeld and Valenzuela, and Chair Jaffe volunteered to meet with Ms. Currie.

Ms. Currie said the draft GSP will be available electronically on April 19, 2019 and she plans on having the document available at the Cuyama Valley Family Resource Center on April 19, 2019.

6. Groundwater Sustainability Agency

a. Notice of Standing Advisory Committee Resignation

Mr. Beck reported that Claudia Alvarado informed the SAC that she will no longer be able to participate and resigned from her seat on the SAC.

Mr. Beck said Committee Member Valenzuela and Ms. Alvarado were appointed to represent the Hispanic community and it may take time to get a new Committee Member up to speed.

Committee Member DeBranch asked how long the SAC is anticipated to exist. Mr. Beck said the Joint Exercise of Powers Agreement instructs that the SAC will provide input to the Board for GSP development and implementation.

Chair Jaffe said she would like the SAC to make a recommendation to the Board.

MOTION

Vice Chair Kelly made a motion to open and receive any applications from the Hispanic community to perform as a representative on the Standing Advisory Committee. The motion was seconded by Committee Member Draucker and the motion passed.

AYES: Committee Members DeBranch, Draucker, Furstenfeld, Jaffe, Kelly and

	Valenzuela
NOES:	None
ABSTAIN:	None
ABSENT:	Committee Members Haslett and Post

Ms. Carlisle read the following letter addressed to the members of the CBGSA:

"I am writing today to address the issue of the composition of the Standing Advisory Committee and its representation of the residents of the Cuyama Valley.

With the resignation of Claudia Alvarado due to personal and family commitments, the Standing Advisory Committee is now left with a vacant seat on the Committee. As you may remember, at the February 7, 2018 meeting of the Groundwater Sustainability Agency, numerous members of the Cuyama Valley community spoke in favor of adding two seats to the then 7-member committee and designating those two seats to be held by members of the local Hispanic community. The intention was to provide more equitable representation of the demographics of the Cuyama Valley. At the March 7, 2018 meeting of the Groundwater Sustainability Agency, the Board unanimously voted to add two seats to the Standing Advisory Committee and designate them to be filled by members of the Hispanic community.

According to the 2010 U.S. census, approximately 50% of valley residents are Hispanic and, as such, are "beneficial users" of groundwater. The needs and concerns of the Hispanic community should be equally considered in the Sustainable Groundwater Management Act implementation process, and while two seats out of nine does not constitute equal representation, it's a start.

Including input from members of the Hispanic community will serve to strengthen the creation of the Groundwater Sustainability Plan, and the implementation of the Groundwater Sustainability Plan in future years. It is clear that the Groundwater Sustainability Agency and the Standing Advisory Committee have become, and will be, important entities in the Cuyama Valley for years to come. Ensuring equitable representation by all members of the Cuyama community will ensure that the spirit and letter of the Sustainable Groundwater Management Act legislation are fulfilled with regard to Section 10723.2 of the Act: "Consideration of All Interests of All Beneficial Uses and Users of Groundwater."

The Cuyama Valley Family Resource Center is respectfully requesting that the Standing Advisory Committee recommend to the Groundwater Sustainability Agency that the vacant seat be filled as soon as possible by a member of the Hispanic Community.

Thank you."

b. Report of the Executive Director

Mr. Beck reported that he, W&C's Senior Water Resources Engineer Lyndel Melton, Mr. Van Lienden and Mr. Blakslee developed the draft Fiscal Year 2019-20 budget, met and discussed the budget with the Budget Ad hoc on March 28, 2019 and will be meeting with them again on April 1, 2019. He reported that the budget will be reviewed with the Board at the upcoming May 1, 2019 Board meeting.

c. Board of Directors Agenda Review

Mr. Beck provided an overview of the April 3, 2019 CBGSA Board of Directors agenda.

d. Report of the General Counsel
Nothing to report.

7. Items for Upcoming Sessions
Nothing to report.

8. Committee Forum
Nothing to report.

9. Public comment for items not on the Agenda
Nothing to report.

10. Adjourn
Chair Jaffe adjourned the meeting at 7:45 p.m.

Minutes approved by the Standing Advisory Committee of the Cuyama Basin Groundwater Sustainability Agency the 25th day of April 2019.

STANDING ADVISORY COMMITTEE OF THE
CUYAMA BASIN GROUNDWATER SUSTAINABILITY AGENCY

Chair: _____

ATTEST:

Vice Chair: _____

TO: Standing Advisory Committee
Agenda Item No. 5a

FROM: Brian Van Lienden, Woodard & Curran (W&C)

DATE: April 25, 2019

SUBJECT: Groundwater Sustainability Plan Update

Issue
Update on the Cuyama Basin Groundwater Sustainability Agency Groundwater Sustainability Plan.

Recommended Motion
None – information only.

Discussion
Cuyama Basin Groundwater Sustainability Agency Groundwater Sustainability Plan (GSP) consultant Woodard & Curran's GSP update is provided as Attachment 1.

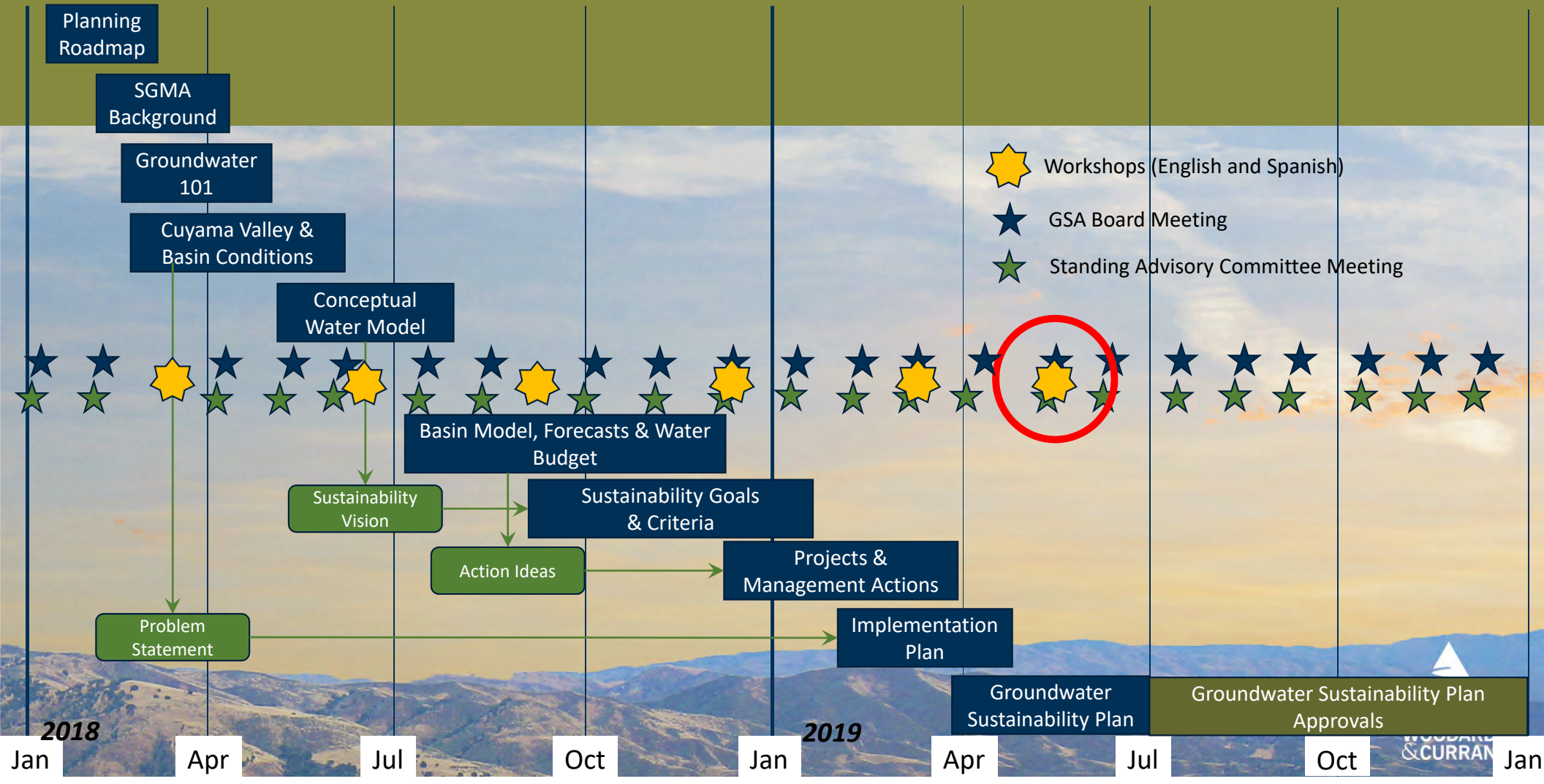
Cuyama Basin Groundwater Sustainability Agency

Groundwater Sustainability Plan Update

April 25, 2019

WOODARD &CURRAN

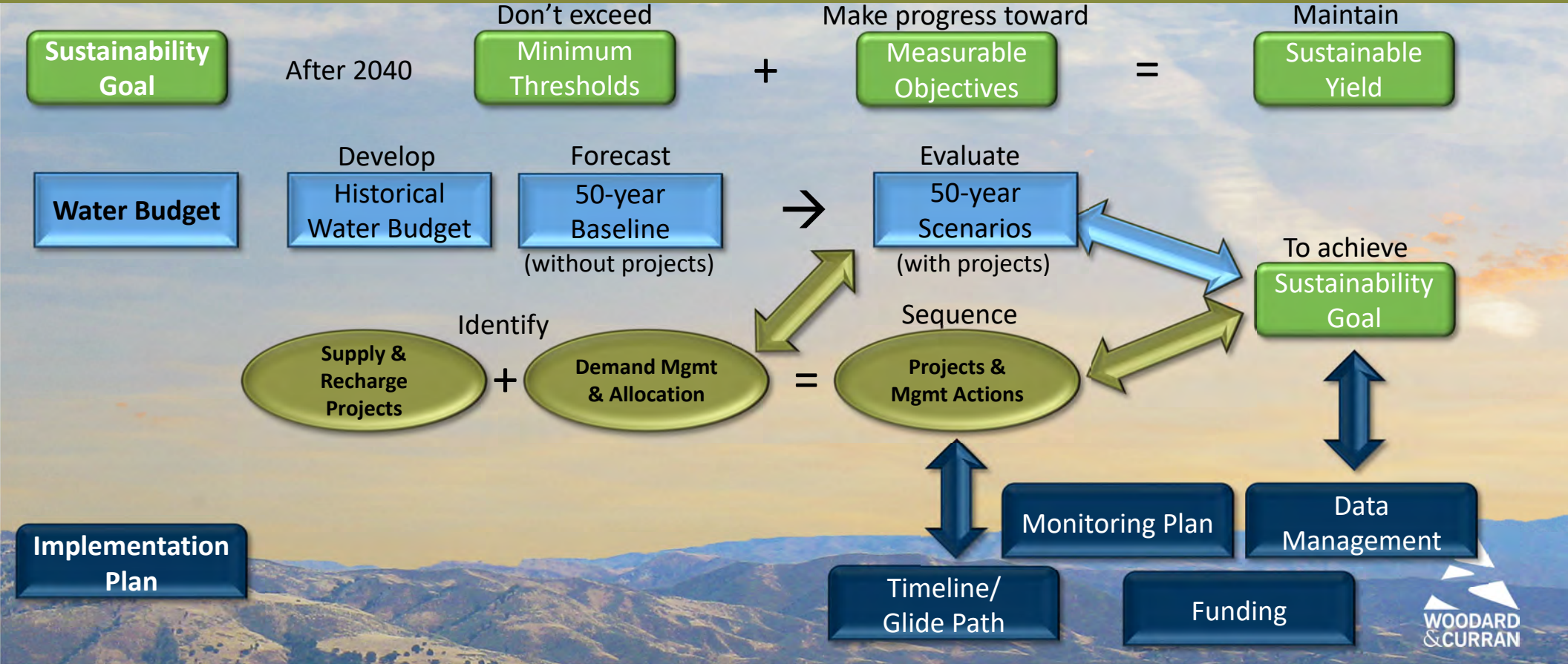
Cuyama Basin Groundwater Sustainability Plan – Planning Roadmap



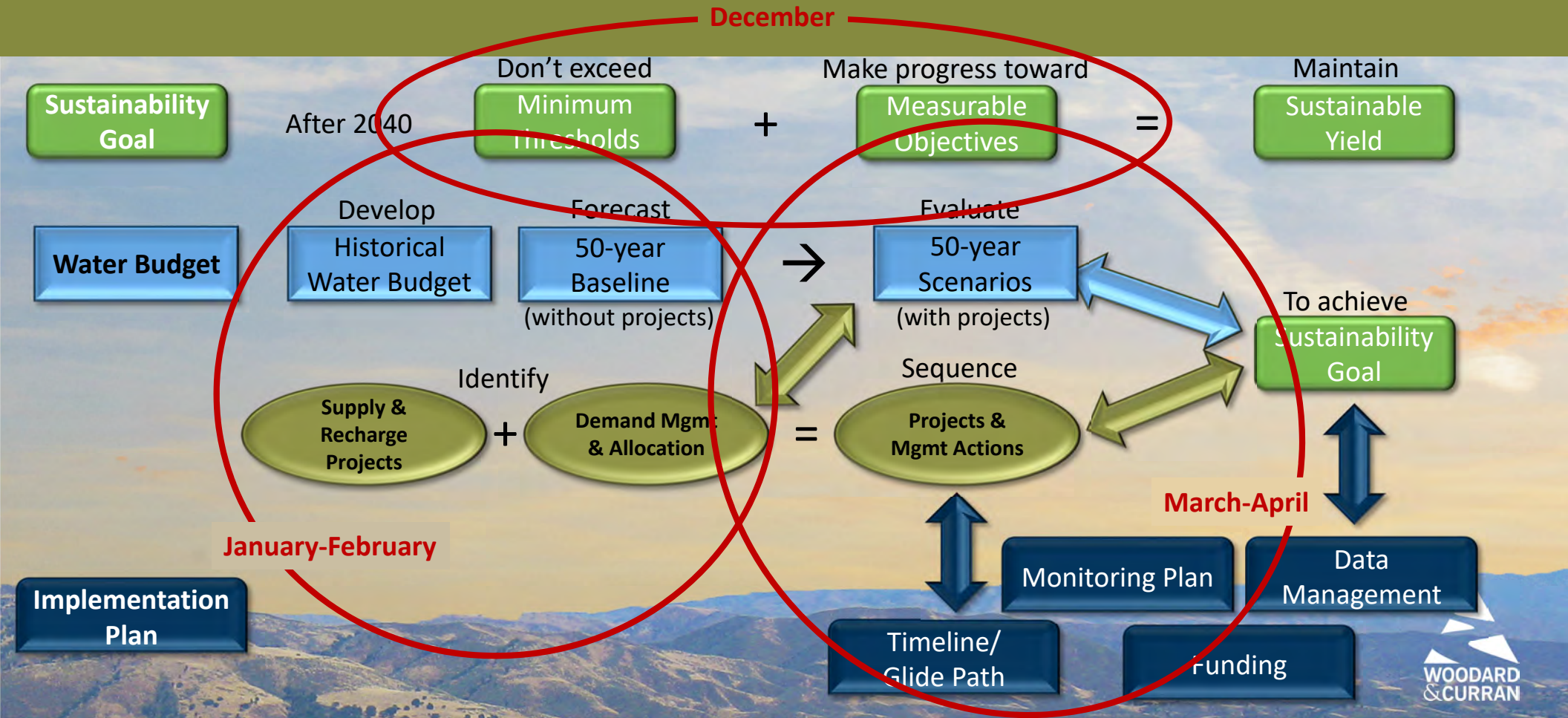
April GSP Accomplishments

- ✓ Developed draft Projects & Actions and Implementation Plan GSP sections
- ✓ Developed draft Executive Summary
- ✓ Updated Water Budget and Sustainability Threshold GSP sections in response to stakeholder comments
- ✓ Submitted GSP Public Draft, including all sections, for review
- ✓ Submitted initial invoice to DWR for payment on SGMA grant

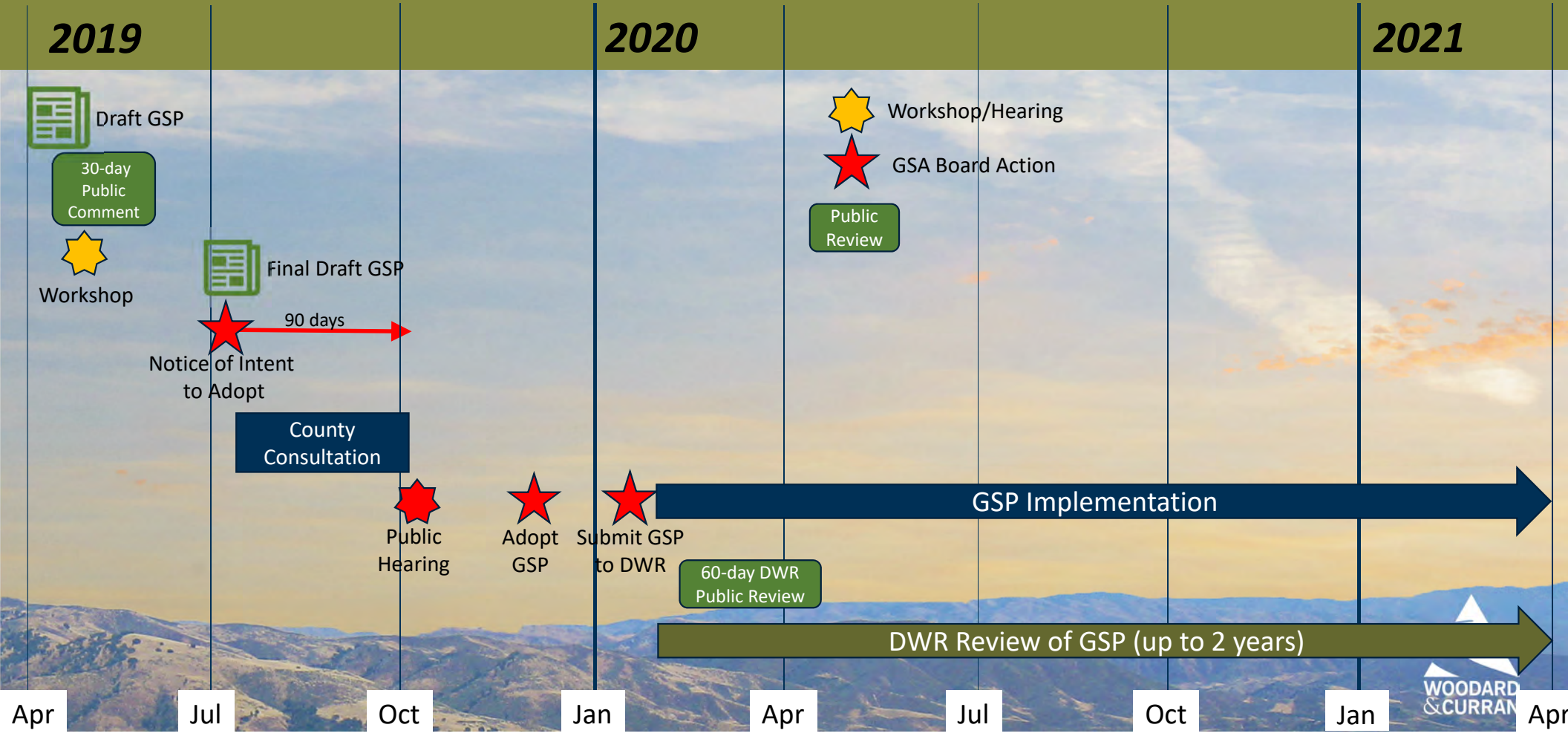
GSP Discussion Approach & Terminology



GSP Discussion Approach & Terminology



GSP Public Review and Adoption Process



TO: Standing Advisory Committee
Agenda Item No. 5ai

FROM: Lyndel Melton, Woodard & Curran (W&C)

DATE: April 25, 2019

SUBJECT: Discussion on GSP Public Draft

Issue
Discussion on the Groundwater Sustainability Plan public draft.

Recommended Motion
None – information only.

Discussion
An overview on the Groundwater Sustainability Plan (GSP) public draft is provided as Attachment 1. The draft GSP Executive Summary is provided as Attachment 2. The comment and response matrices for the Sustainability Thresholds section, Water Budget section, and Placeholder section are provided as Attachment 3.

Cuyama Basin Groundwater Sustainability Agency

Discussion on GSP Public Draft

April 25, 2019

GSP Sections

1. Introduction
   - 1.1 Intro & Agency Information
   - 1.2 Plan Area
   - 1.3 Notice and Communication
2. Basin Settings
   - 2.1 HCM
   - 2.2 GW Conditions
   - 2.3 Water Budget
   - *Appendix:* Numerical GW Model Documentation
3. Undesirable Results
   - 3.1 Sustainability Goal
   - 3.2 Undesirable results statements
   - 3.2 ID Current Occurrence
4. Monitoring Networks
   - 4.1 Existing Monitoring Used
   - 4.2 GSP Monitoring Networks
5. Sustainability Thresholds
   - 5.1 Threshold Regions
   - 5.2 Minimum Thresholds, Measurable Objectives, Margin of Operational Flexibility, Interim Milestones
6. Data Management System
   - *Appendix:* DMS User Guide
7. Projects & Management Actions
8. Implementation Plan

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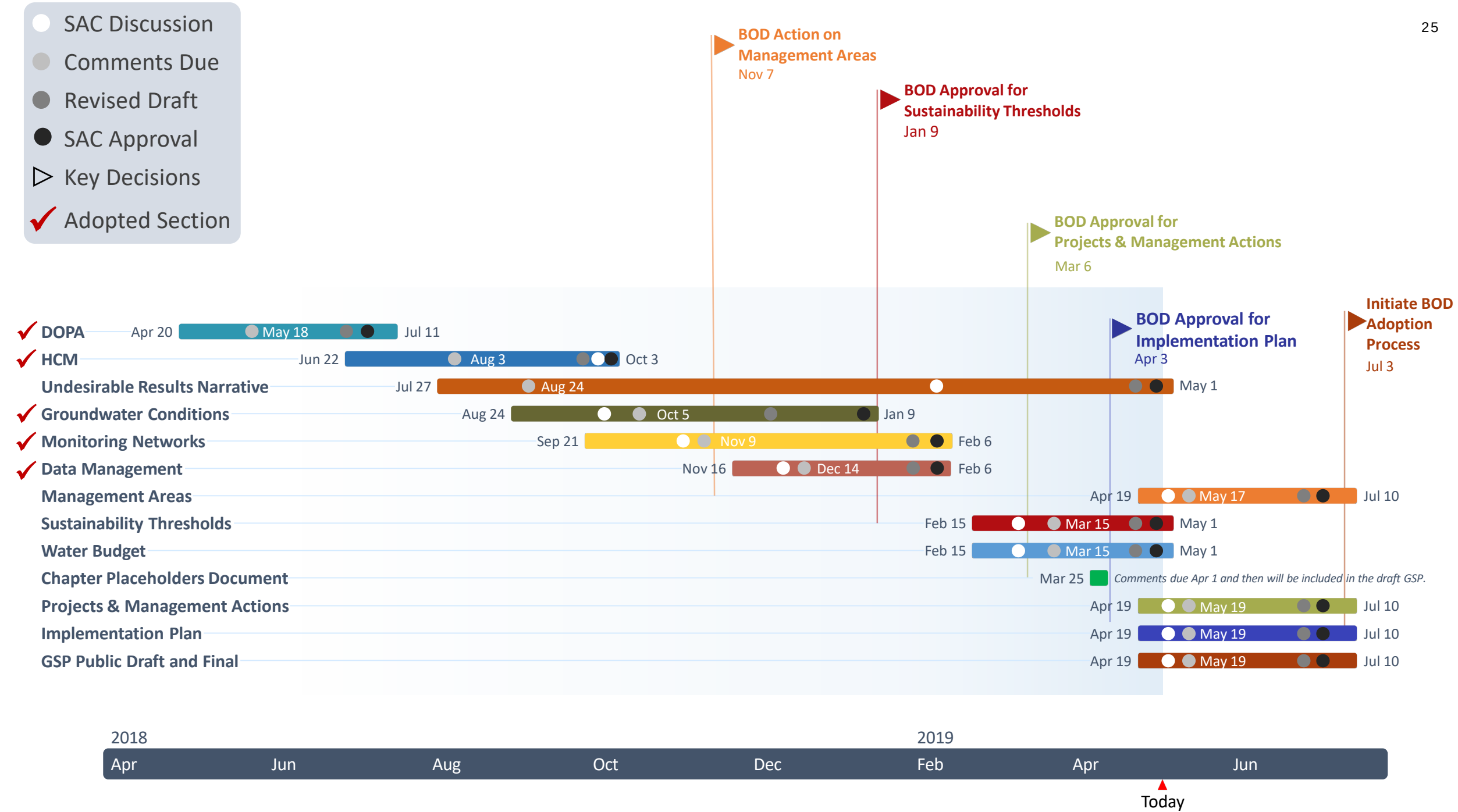
SAC Discussion
Comments Due
Revised Draft
SAC Approval
Key Decisions
Adopted Section
BOD Action on Management Areas
Nov 7
BOD Approval for Sustainability Thresholds
Jan 9
BOD Approval for Projects & Management Actions
Mar 6
BOD Approval for Implementation Plan
Apr 3
Initiate BOD Adoption Process
Jul 3
DOPA Apr 20 May 18 Jul 11
HCM Jun 22 Aug 3 Oct 3
Undesirable Results Narrative Jul 27 Aug 24 May 1
Groundwater Conditions Aug 24 Oct 5 Jan 9
Monitoring Networks Sep 21 Nov 9 Feb 6
Data Management Nov 16 Dec 14 Feb 6
Management Areas Apr 19 May 17 Jul 10
Sustainability Thresholds Feb 15 Mar 15 May 1
Water Budget Feb 15 Mar 15 May 1
Chapter Placeholders Document Mar 25 Comments due Apr 1 and then will be included in the draft GSP.
Projects & Management Actions Apr 19 May 19 Jul 10
Implementation Plan Apr 19 May 19 Jul 10
GSP Public Draft and Final Apr 19 May 19 Jul 10
2018
2019
Apr
Jun
Aug
Oct
Dec
Feb
Apr
Jun
Today

Chapter 1: Agency Information, Plan Area, and Communication

- Introduction and Agency Information
  - Contact info; management structure; legal authority
- Plan Area
  - Plan Area definition & setting; existing monitoring & management programs
  - Approved by CBGSA Board in July 2018
- Notice and Communication
  - Beneficial users & uses; list of public meetings; summary of comments received; GSA decision-making process; opportunities for public engagement

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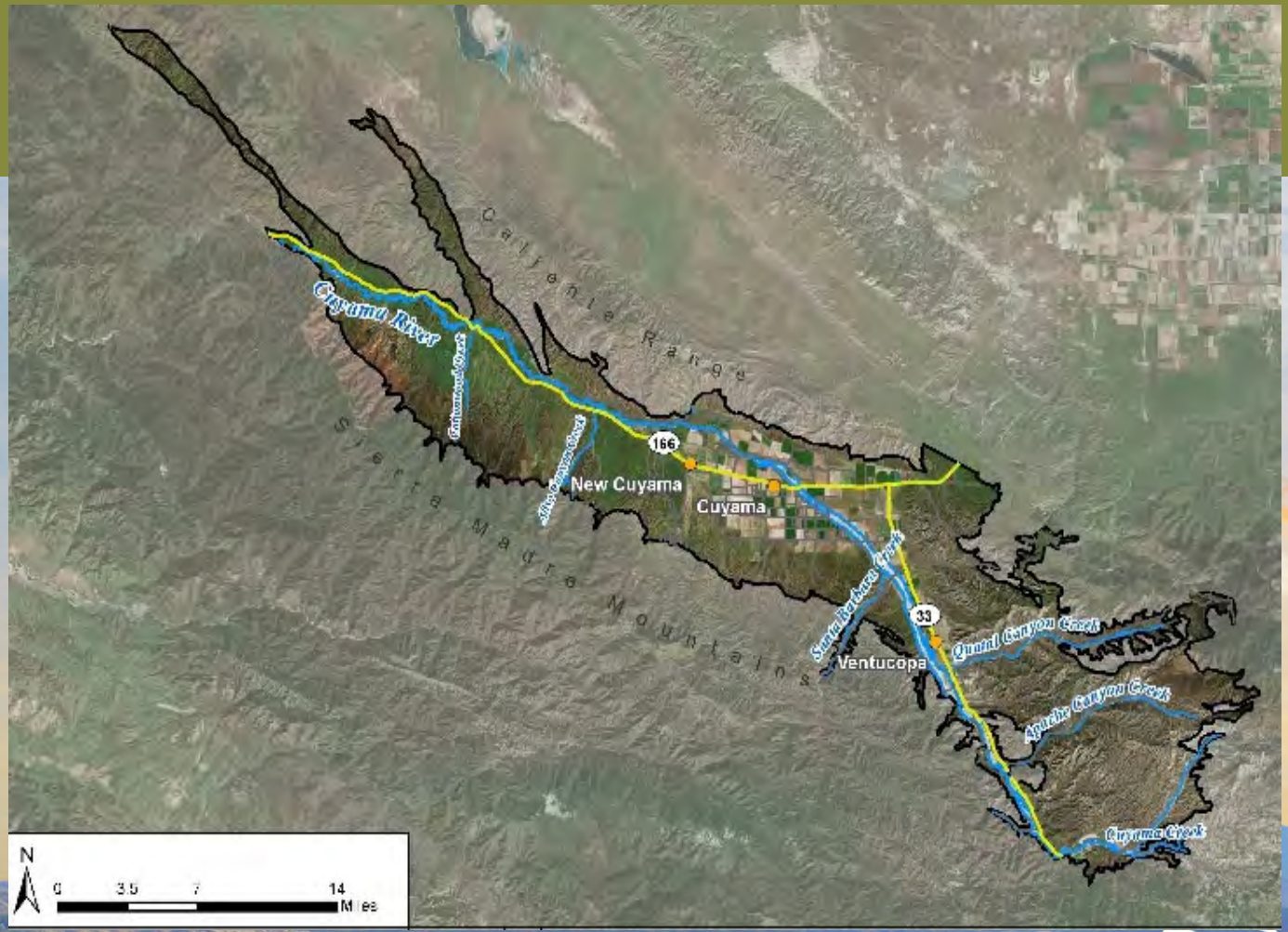
Plan Area

- Plan Area definition and setting
- Existing monitoring and management programs



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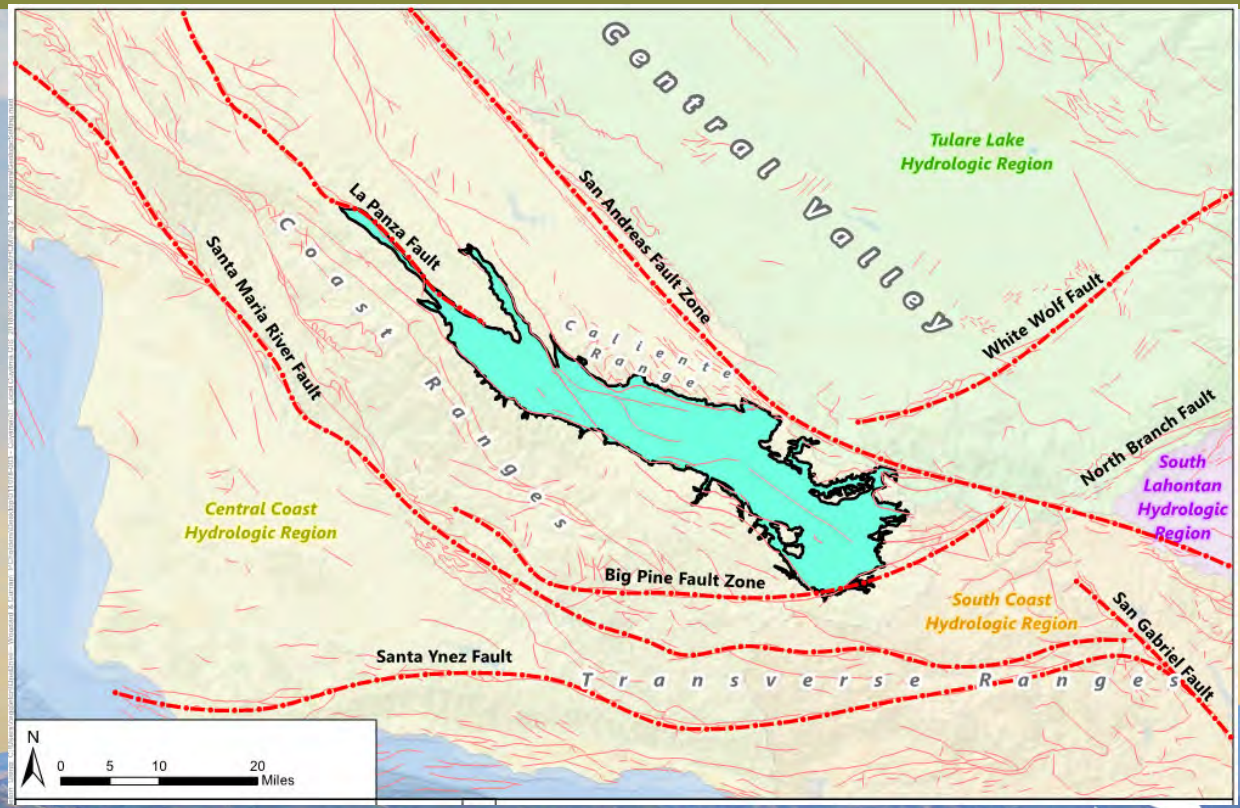
Chapter 2: Basin Settings

- Hydrogeological Conceptual Model (HCM)
  - Approved by CBGSA Board in October 2018
- Groundwater Conditions
  - Approved by CBGSA Board in January 2019
- Water Budget
  - April 2019 draft reflects comments received on February 2019 draft

Hydrogeological Conceptual Model (HCM)

- Regional geology
- Faults and structural features
- Basin boundaries
- Principal aquifers and aquitards
- Topography, surface water and recharge



Groundwater Conditions

- Groundwater trends
- Change in groundwater storage
- Land subsidence;
- Groundwater quality;
- Interconnected surface water system
- Groundwater dependent ecosystems (GDEs)

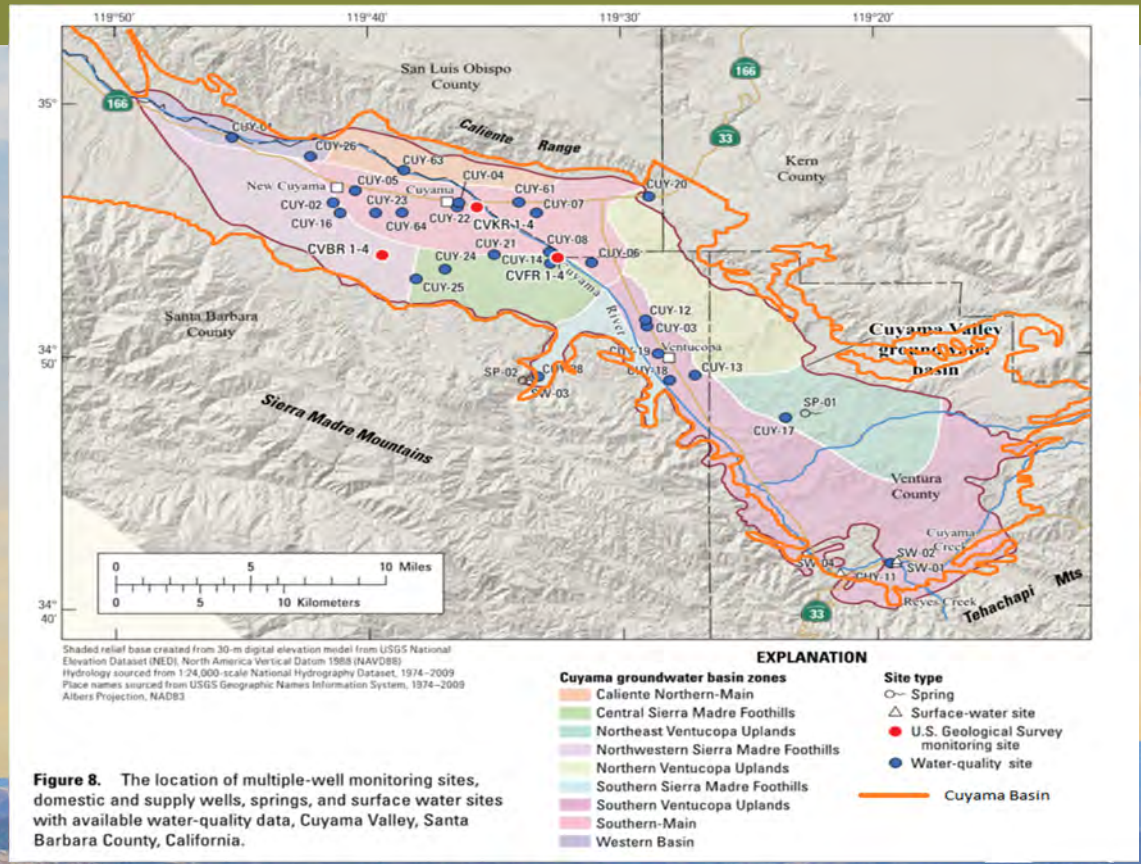


Figure 8. The location of multiple-well monitoring sites, domestic and supply wells, springs, and surface water sites with available water-quality data, Cuyama Valley, Santa Barbara County, California.

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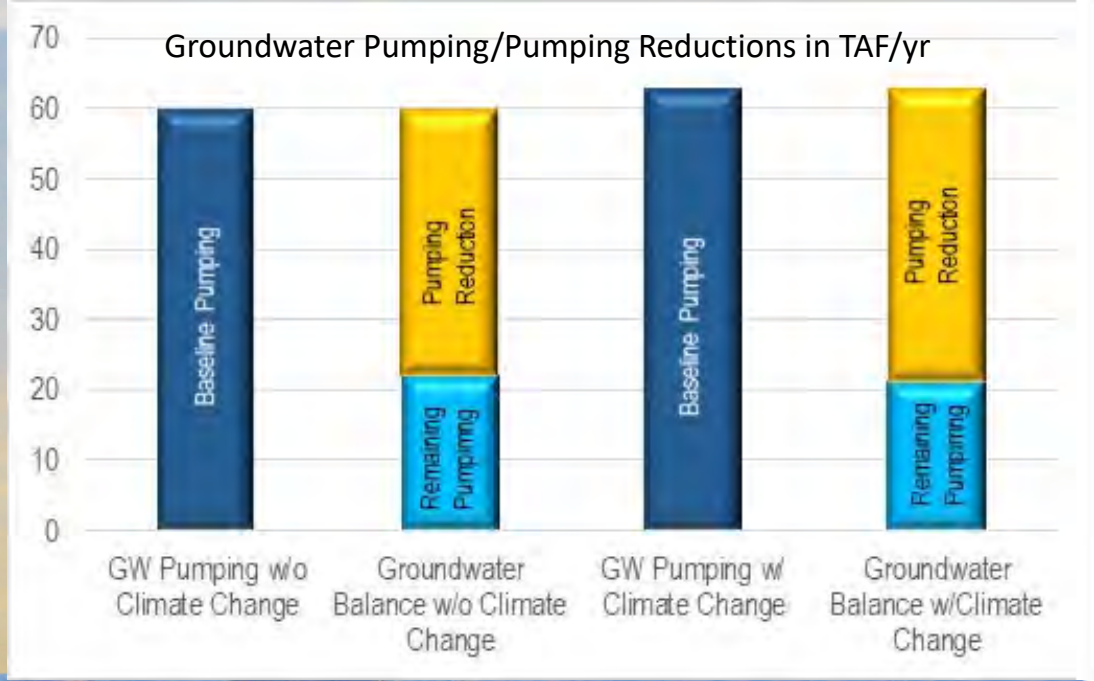
Water Budget

- Historical water budget
  - 23 TAF/year overdraft
    (Range of uncertainty:
    21-26 TAF/year)
- Current and projected water budgets
  - 26-27 TAF/year overdraft
- Sustainable yield estimates
  - 20-21 TAF per year without water supply projects



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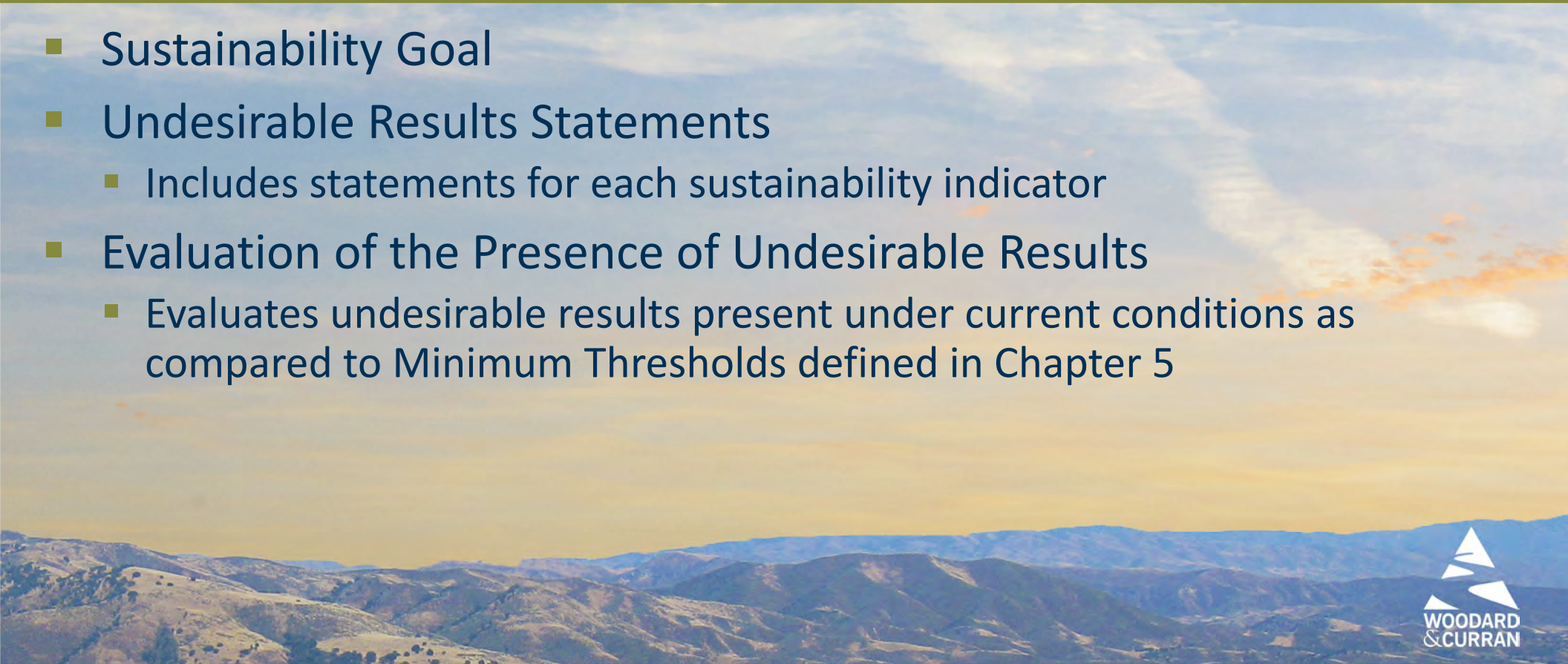
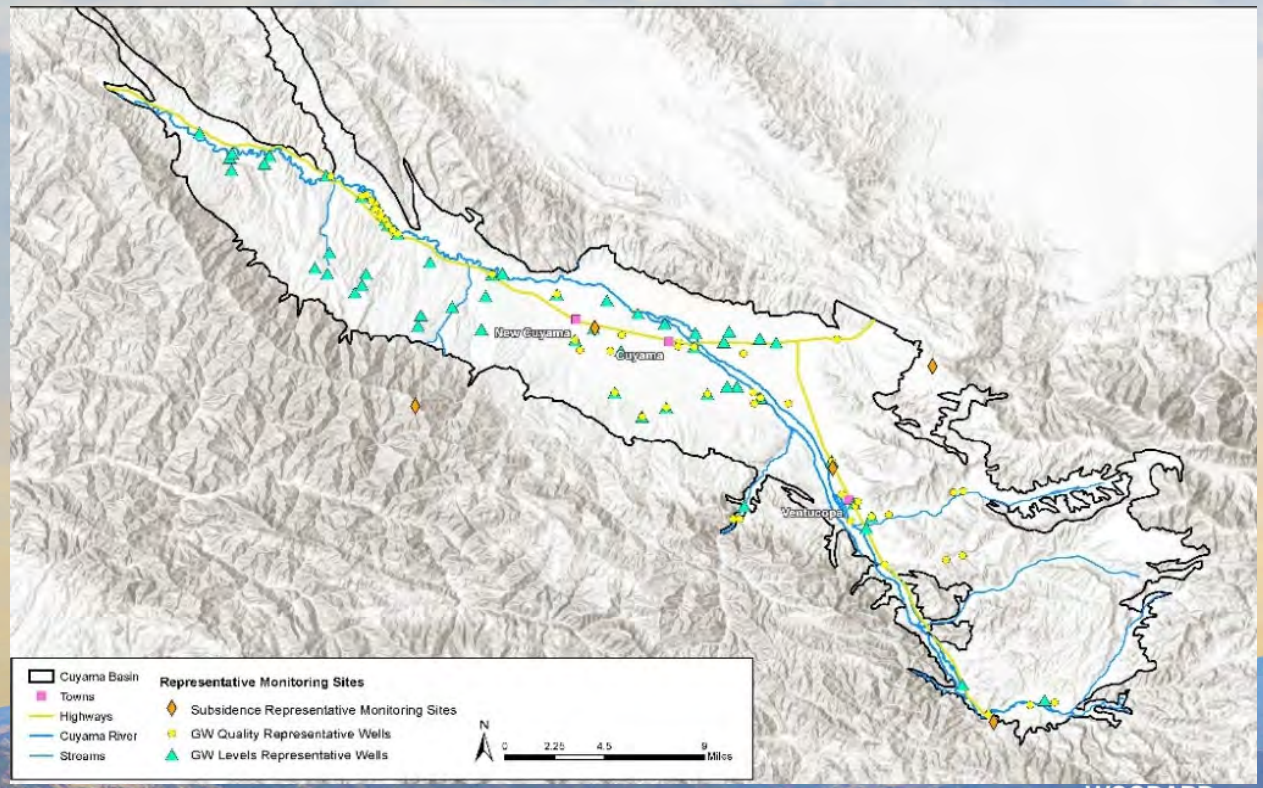
Chapter 3: Undesirable Results

- Sustainability Goal
- Undesirable Results Statements
  - Includes statements for each sustainability indicator
- Evaluation of the Presence of Undesirable Results
  - Evaluates undesirable results present under current conditions as compared to Minimum Thresholds defined in Chapter 5



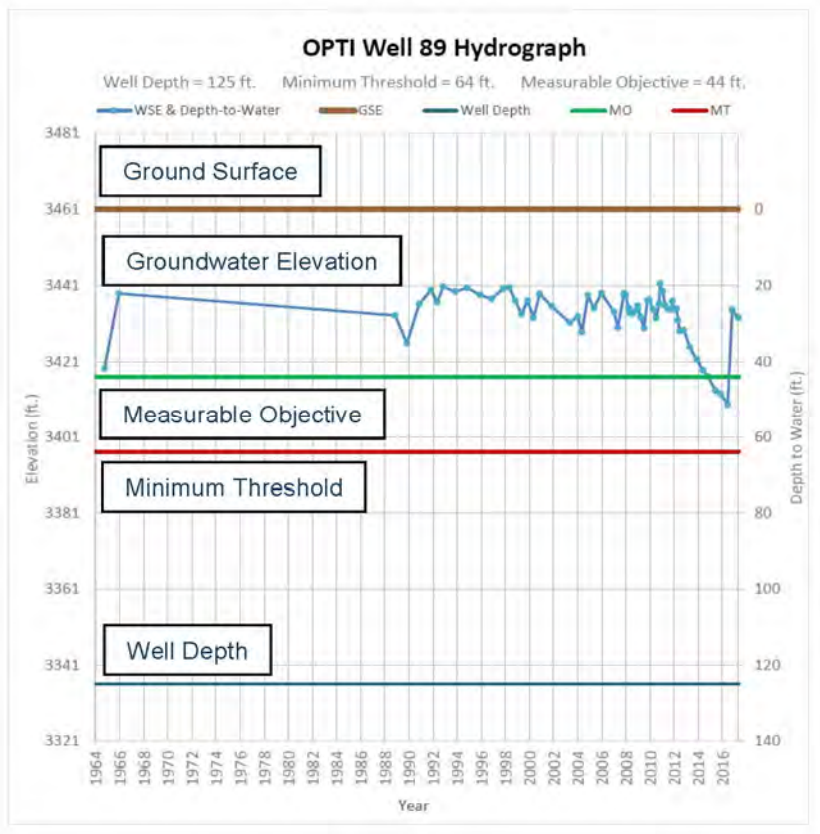
Chapter 4: Monitoring Networks

- Existing Monitoring Used
- GSP Monitoring Networks
  - Groundwater levels
  - Groundwater storage
  - Degraded groundwater quality
  - Land Subsidence
  - Depletions of interconnected surface water
- Approved by CBGSA Board in February 2019



Chapter 5: Minimum Thresholds, Measurable Objectives, and Interim Milestones

- Threshold Regions
- Sustainability Thresholds:
  - Groundwater levels
  - Groundwater storage
  - Degraded groundwater quality
  - Land Subsidence
  - Depletions of interconnected surface water
- April 2019 draft reflects comments received on February 2019 draft



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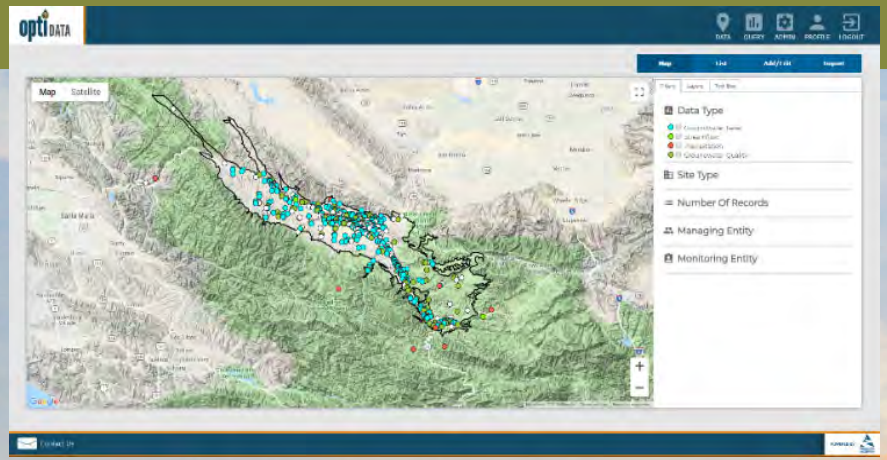
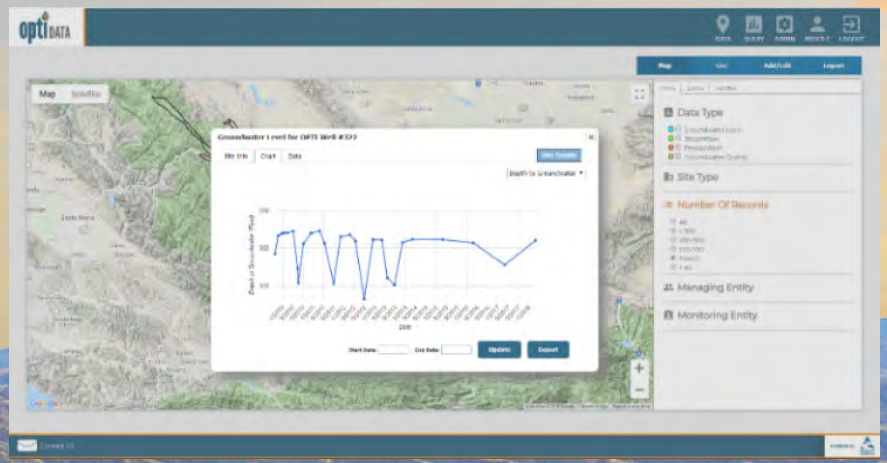
Chapter 6: Data Management System

- Overview
- Functionality
- Data Included
- Approved by CBGSA Board in February 2019





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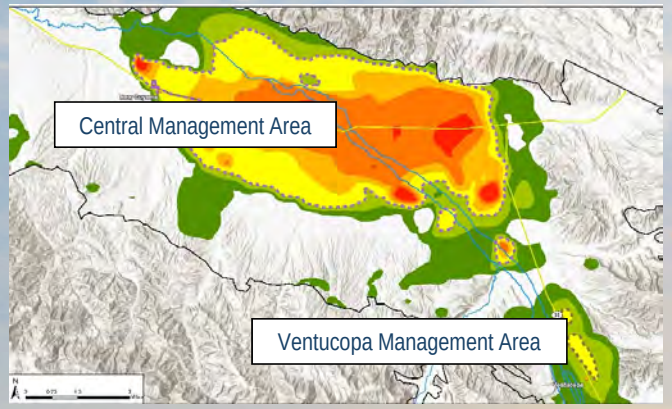
Chapter 7: Projects and Management Actions

- Management Areas
- Projects
  - Flood/stormwater capture
  - Precipitation enhancement
  - New wells for local communities
- Management Actions
  - Basin-wide economic analysis
  - Pumping allocations in Central Basin management area



Target Area for Stormwater Capture

Target Area for Precipitation Enhancement

Chapter 8: Implementation Plan

- Schedule
- Costs and funding sources
- Annual reports
- Five-year reevaluation reports

2020	2025	2030	2035	2040
Set up and Initiate Monitoring and Pumping Allocation Programs	**Project Implementation and GSP Evaluation/Update**	**Project Implementation and GSP Evaluation/Update**	**Achieve Groundwater Basin Sustainability**	
• Establish monitoring network and initiate monitoring and reporting • Evaluate/refine thresholds and monitoring network • Install new wells • Develop pumping monitoring program* • Set up and initiate pumping allocation program* • Project analysis and feasibility • Public outreach	• **GSA conducts 5-year evaluation/update** • Monitoring and reporting continues • Evaluate/refine thresholds and monitoring network • Refine water budget • Pumping monitoring program continues* • Continue implementation of pumping allocation program* • Plan/design/construct small to medium sized projects* • Outreach continues	• **GSA conducts 5-year evaluation/update** • Monitoring and reporting continues • Evaluate/refine thresholds and monitoring network • Refine water budget • Pumping monitoring program continues* • Continue implementation of pumping allocation program* • Plan/design/construct larger projects* • Outreach continues	• **GSA conducts 5-year evaluation/update** • Monitoring and reporting continues • Evaluate/refine thresholds and monitoring network • Refine water budget • Pumping monitoring program continues* • Pumping allocation program fully implemented* • Project implementation completed* • Outreach continues	

Implementation Plan Schedule of Activities
* Represents Management Area activities

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EXECUTIVE SUMMARY

Introduction

In 2014, the California legislature enacted the Sustainable Groundwater Management Act (SGMA) in response to continued overdraft of California's groundwater resources. The Cuyama Groundwater Basin (Basin) is one of 21 basins and subbasins identified by the California Department of Water Resources (DWR) as being in a state of critical overdraft. SGMA requires preparation of a Groundwater Sustainability Plan (GSP) to address measures necessary to attain sustainable conditions in the Basin. Within the framework of SGMA, sustainability is generally defined as the conditions that result in long-term reliability of groundwater supply, and the absence of undesirable results.

Critical Dates for the Cuyama Basin

- 2020 By January 31: submit GSP to DWR
- 2025 Review and update GSP
- 2030 Review and update GSP
- 2035 Review and update GSP
- 2040 Achieve sustainability for the Basin

In 2017, in response to SGMA, the Cuyama Basin Groundwater Sustainability Agency (CBGSA) was formed. The CBGSA is a joint-powers agency that is comprised of Kern, Santa Barbara, San Luis Obispo and Ventura counties, plus the Cuyama Community Services District and the Cuyama Basin Water District. The CBGSA is governed by an 11-member Board of Directors, with one representative from Kern, San Luis Obispo and Ventura counties, two representatives from Santa Barbara County, one member from the Cuyama Community Services District, and five members from the Cuyama Basin Water District.

The Draft Cuyama Basin GSP has been prepared and is now available for public review and comment. SGMA requires the CBGSA develop a GSP that achieves groundwater sustainability in the Basin by 2040. Although SGMA references 2015 as a basis for groundwater planning, SGMA does not require a GSP to address undesirable results that occurred before 2015. The Draft GSP outlines the need for significant reduction in pumping in the central portion of the Basin and has identified two projects for potential development that could help offset the projected reductions in pumping. Although current analysis indicates groundwater pumping reductions on the order of 50 to 67 percent may be required to achieve sustainability, additional efforts are required to confirm the level of pumping reduction required to achieve sustainability. These efforts include collecting additional data and a review of the Basin model, along with other efforts as outlined in the Draft GSP.

Plan Area

The CBGSA's jurisdictional area is defined by DWR's 2013 Bulletin 118, and in the 2016 Interim Update. The Basin generally underlies the Cuyama Valley, as shown in Figure ES-1.

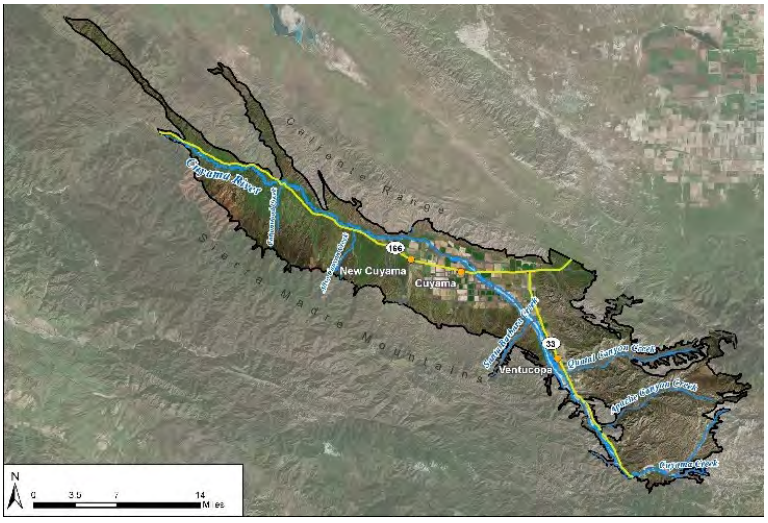

Figure ES-1: GSP Plan Area

Outreach Efforts

A stakeholder engagement strategy was developed to ensure that the interests of all beneficial users of groundwater in the Basin were considered. The strategy incorporated monthly CBGSA Standing Advisory Committee (SAC) meetings, monthly CBGSA Board meetings, quarterly community workshops, and information distribution to all property owners and residents in the Basin. Figure ES-2 shows attendees at one of the community workshops conducted during development of the GSP.

Figure ES 2 - Community Workshops

The SAC was established to encourage active involvement from diverse social, cultural, and economic elements of the population in the Basin. The SAC members represent large and small landowners and growers from different geographic locations in the Basin, longtime residents including Hispanic community members, and a manager of an environmentally-centric non-profit organization. The community workshops were conducted in both English and Spanish, creating an opportunity for local individuals to engage in the GSP development process.

Public Meeting	Number
Cuyama Basin GSA Board Meetings	20
Cuyama Basin GSA Standing Advisory Committee Meetings	18
Joint Meetings of Cuyama Basin GSA Board and Standing Advisory Committee	7
Community Workshops	5

Basin Setting

The Basin is located at the southeastern end of the California Coast Ranges, near the San Andreas and Santa Maria River fault zones and bounded on the north and south by faults. These faults create several constraints on groundwater flow through the Basin. Groundwater flows from the eastern portions of the Basin toward the western most portion of the Basin. Surface water flows in the same direction, with the major surface stream being the Cuyama River. Multiple smaller streams flow into the Cuyama River, and the Cuyama River flows to the west and eventually joins with the Santa Maria River. The location of the Basin is shown in Figure ES-3.

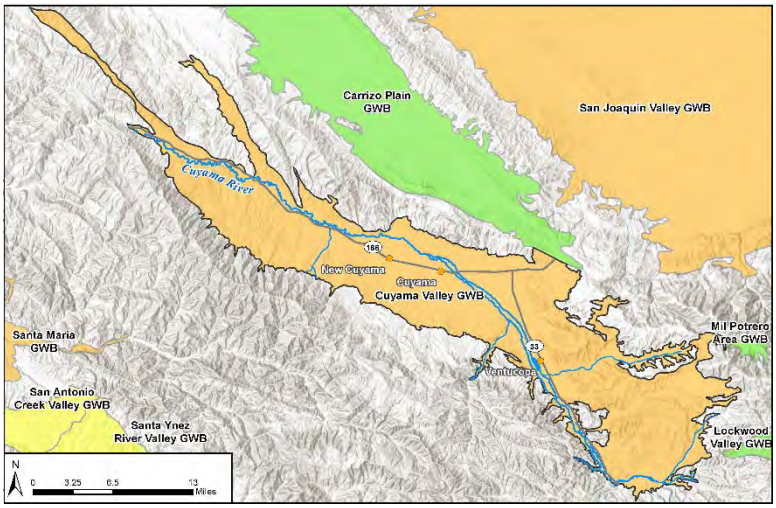

Figure ES-3: Basin Setting

Existing Groundwater Conditions

Groundwater levels in some portions of the Basin have been declining for many years while other areas of the Basin have experienced no significant change in groundwater levels. The change in groundwater levels varies across the Basin, with the greatest declines occurring in the central portion of the Basin where the greatest concentration of irrigated agriculture is practiced. The western and eastern portions of the Basin have experienced significantly less change in groundwater levels. However, additional irrigated agricultural acreage has been developed recently in the western portion of the Basin, warranting additional levels of monitoring to determine if there are any impacts to long-term groundwater levels and sustainability.

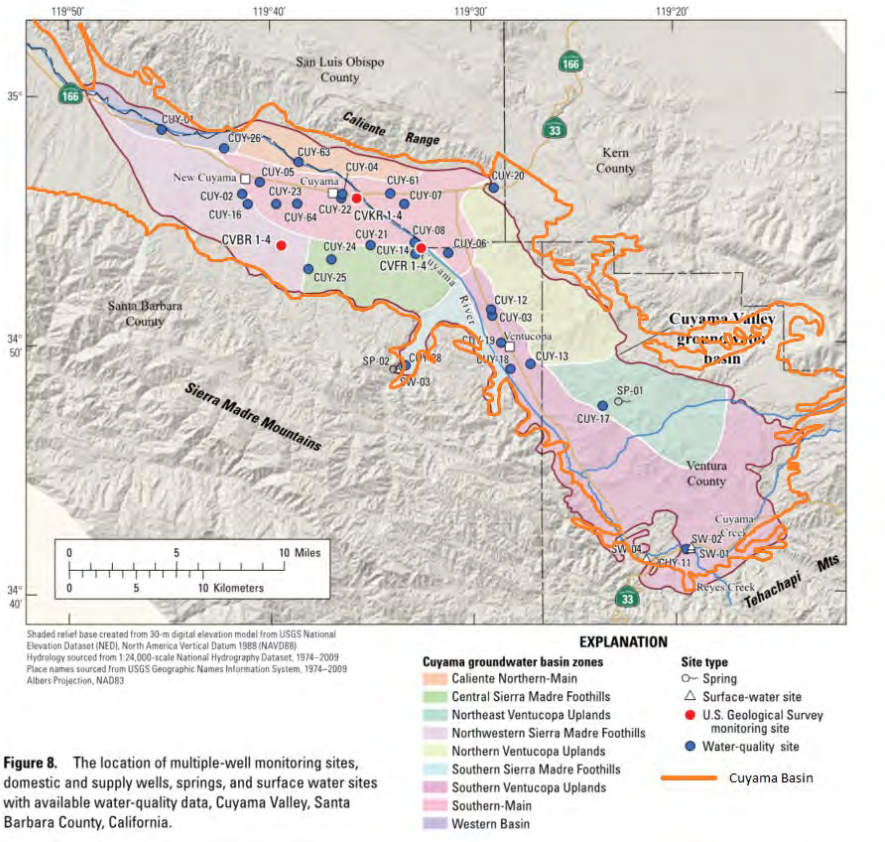

Figure 8. The location of multiple-well monitoring sites, domestic and supply wells, springs, and surface water sites with available water-quality data, Cuyama Valley, Santa Barbara County, California.

Figure ES-4: USGS Water Quality Sampling Locations

Groundwater quality in the Basin is variable, particularly along the periphery. Water quality in the Basin has historically had high levels of total dissolved solids (TDS) and sulfates. The United States Geologocal Survey (USGS) has conducted several water quality studies; areas where USGS has evaluated groundwater quality are shown in Figure ES-4. High concentrations of other constituents, such as nitrate, arsenic, sodium, boron, and hexavalent chromium are generally localized and not wide-spread. Groundwater ranges from hard to very hard and is predominantly of the calcium-magnesium-sulfate type. Average TDS concentrations across the Basin are as high as 1,500 to 6,000 milligrams per liter (mg/L) along portions of the Basin's southern boundary. These values exceed the California recommended maximum contaminant level (MCL) of 500 mg/L. Concentrations of boron at up to 15 mg/L have been observed along the southern Basin boundary, with concentrations of chloride at levels up to 1,000 mg/L in the same area.

Along the southern boundary, the groundwater quality reflects recharge from springs and runoff from the Sierra Madre Mountains. TDS concentrations in this part of the Basin range from 400 to 700 mg/L. Along the eastern edge of the Basin, near the Caliente Range, groundwater quality declines as concentrations of sodium, chloride, TDS, and boron increase. Concentrations of boron range up to 15 mg/L, concentrations of chloride increase up to 1,000 mg/L, and TDS concentrations range from 3,000 to 6,000 mg/L.

Undesirable Results

Undesirable results are defined as those conditions that cause significant and unreasonable reduction in the long-term viability of domestic, agricultural, municipal, or environmental uses of the Basin's groundwater. SGMA identifies six defined areas for classification of undesirable results, as shown in the adjacent callout. The one undesirable result that does not impact the Basin is seawater intrusion. Water quality in the Basin is generally not good due to high TDS and other constituents, and there is some limited subsidence in the Basin, but the major areas of undesirable results are associated with the following:

- Chronic lowering of groundwater levels
- Significant and unreasonable reduction in groundwater storage
- Depletions of interconnected surface water

Figure ES-5 is a graph showing the annual and cumulative long-term reduction in groundwater storage in the Basin. This reduction in groundwater storage coincides with the lowering of groundwater levels.

Categories of Undesirable Results

- Chronic lowering of groundwater levels indicating a significant and unreasonable depletion of supply if continued over the planning and implementation horizon
- Significant and unreasonable reduction of groundwater storage
- Significant and unreasonable seawater intrusion
- Significant and unreasonable degraded water quality, including the migration of contaminant plumes that impair water supplies
- Significant and unreasonable land subsidence that substantially interferes with surface land uses
- Depletions of interconnected surface water that have significant and unreasonable adverse impacts on beneficial uses of the surface water

The lowering of groundwater levels has corresponded with degradation of groundwater quality, and particularly levels of TDS. Additionally, lowering of groundwater levels has contributed to some minor but measurable levels of subsidence in the central portion of the Basin, and has contributed to depletions in interconnections of surface and groundwater systems.

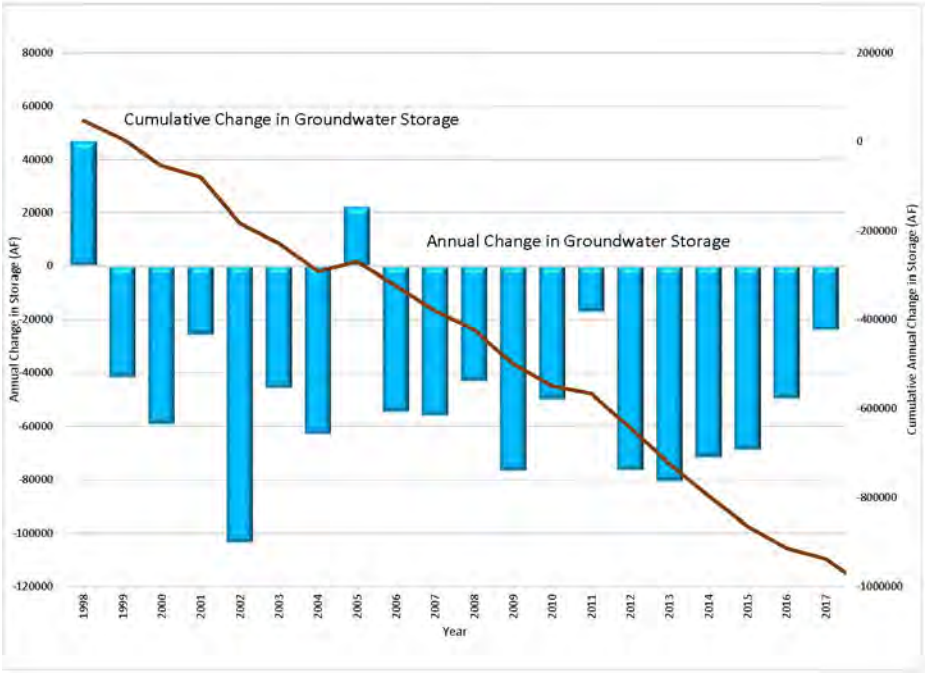

Figure ES-5: Annual and Cumulative Changes in Groundwater Storage

Sustainability

SGMA introduces several terms to measure sustainability, including:

- **Sustainability Goals** – These goals are the culmination of conditions reulting in an absence of undesirable results within 20 years.
- **Undesirable Results** – Undesirable results are the significant and unreasonable occurrence of conditions that adversely affect groundwater use in the Basin.
- **Sustainability Indicators** – Sustanability indicators refer to any of the adverse effects caused by groundwater conditions occurring throughout the Basin that, when significant and unreasonable, cause undesirable results, including the following:
  - Lowering groundwater levels
  - Reduction of groundwater storage
  - Seawater intrusion
  - Degraded water quality
  - Land subsidence
  - Depletion of interconnected surface water
- **Minimum Thresholds** – Minimum thresholds are a numeric value for each sustainability indicator, and are used to define when undesirable results occur, if minimum thresholds are exceeded in a percentage of sites in the Basin's monitoring network.
- **Measurable Objectives** – Measurable objectives are a specific set of quantifiable goals for the maintenance or improvement of groundwater conditions. They will be included in the adopted GSP, and will help the CBGSA achieve their sustainability goal for the Basin.

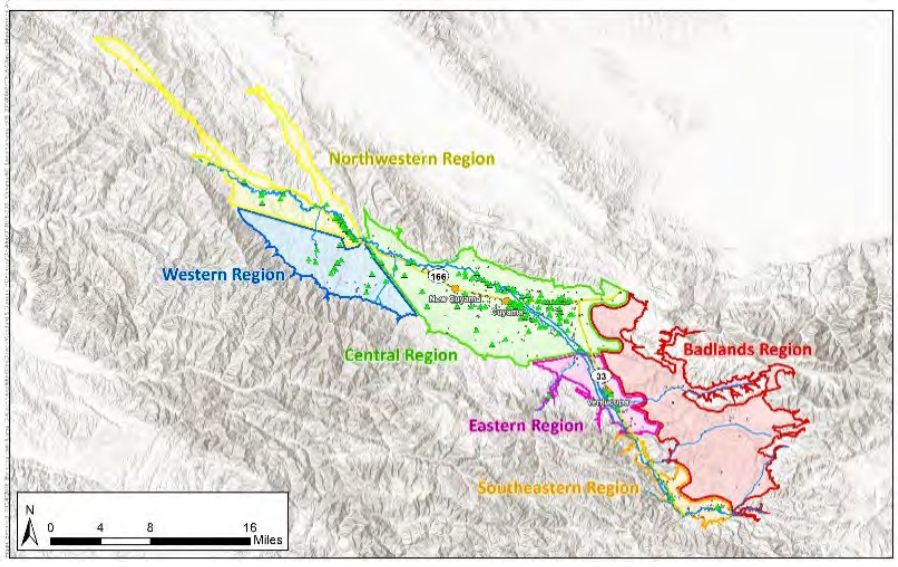

Figure ES-6: Threshold Regions

The method prescribed by SGMA to measure undesirable results involves setting minimum thresholds and measurable objectives for a series of representative wells. Geologic conditions and land use vary across the Basin. These varying conditions also cause groundwater conditions to vary across the Basin. The CBGSA Board of Directors concluded that one set of minimum thresholds for the entire Basin may not provide the appropriate degree of refinement needed to effectively manage Basin-wide sustainability. As a result, threshold regions were created to establish the appropriate sustainability criteria for each area of the Basin. The threshold regions are shown in Figure ES-6.

Representative wells were identified to provide a basis for measuring groundwater conditions throughout the Basin without having to measure each well, which would be cost prohibitive. Representative wells were selected based on availability and their history of recorded groundwater levels, and their potential to effectively represent the groundwater conditions surrounding the identified well, and consent of the well owner to utilize the identified well for monitoring purposes.

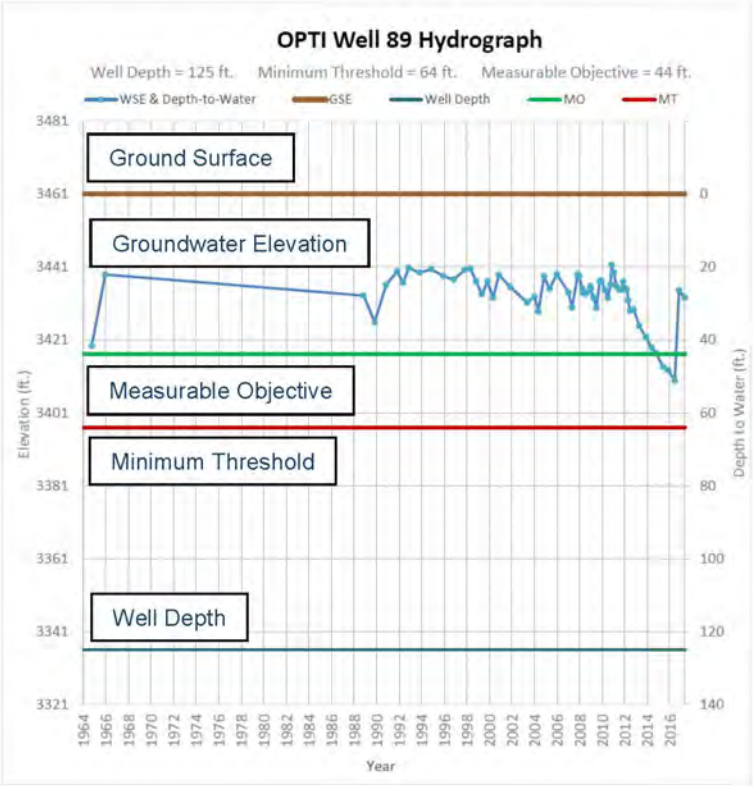

Figure ES-7: Sample Relationship Between Minimum Threshold and Measurable Objective

A total of 61 representative wells have been identified for measurement of groundwater levels in the Basin, and 64 representative wells have been identified for groundwater quality monitoring. There are five selected ground surface subsidence monitoring stations. Using groundwater level data as the basis for measuring change in groundwater storage, these representative wells and subsidence monitoring stations provide the basis for measuring the five potential undesirable results across the Basin.

Minimum thresholds and measurable objectives were developed for each of the identified representative wells. Figure ES-7 shows a typical relatonship of the minimum thresholds, measurable objectives, and other data for a sample well.

Thresholds were developed with reference to 2015 groundwater levels. In general, measurable objectives were established based on providing a 5-year drought buffer above the minimum threshold. The opposite approach was taken in the southeastern region where the measurable objective was established based on 2015 groundwater levels and the minimum threshold was determined by providing a 5-year drought buffer below the established measurable objective.

A table summarizing minimum thresholds and measurable objectives is included in the GSP. Graphs showing the minimum threshold and measurable objective for each of the representative wells are contained in an appendix to the GSP.

Water Budgets

The Basin has been in an overdraft condition for many years. Overdraft conditions in the Basin were first documented in the 1950s. Since then, groundwater pumping has increased in response to increased levels of agricultural production, leading to increased levels of groundwater overdraft.

The groundwater evaluations conducted as a part of GSP development have provided estimates of the historical, current and future groundwater budget conditions.

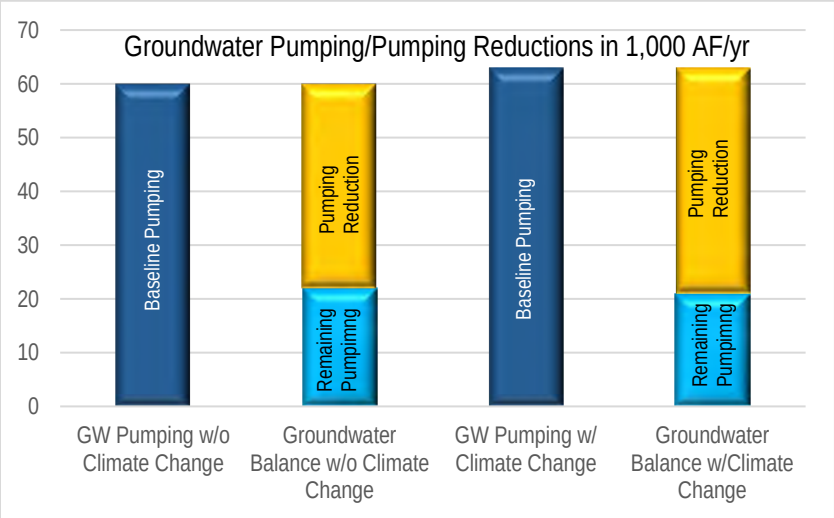

Figure ES-8: Basin-Wide Groundwater Pumping and Reductions Required to Achieve Sustainability

These analyses show that at current groundwater pumping levels, the average annual overdraft is estimated to be approximately 26,000 acre-feet, and the reduction in groundwater pumping required to achieve sustainability is approximately 40,000 acre-feet per year. Future groundwater conditions in the Basin will continue to show decreased groundwater levels based on projections of current land and water uses. Since there are no projected changes in land use or population in the Basin, the projected annual decline in groundwater storage is estimated to be the same as under current conditions.

The projected Basin water budget was also evaluated under climate change conditions. Under the intermediate climate change scenario prescribed by DWR, the annual groundwater overdraft is projected to increase to approximately 27,000 acre-feet, requiring an approximate 42,000 acre-feet per year reduction in groundwater pumping to achieve sustainability. These changes are shown in Figure ES-8.

The current analysis was prepared using the best available information and through development of a new groundwater modeling tool. Although the Basin has been studied for many years, the available data are not as robust in areas outside the center of the Basin as compared to many other basins, thus leading to some level of uncertainty in the analyses. A data collection program has been designed to augment existing information, and is included in the GSP. It is anticipated that as additional information becomes available, the new model can be updated, and more refined estimates of annual pumping and overdraft can be developed.

Analysis of the Basin as a whole shows that much of the Basin is in hydrologic balance. Existing and projected groundwater levels in the western portions of the Basin, along with the Southeastern Region, show those areas to be sustainable under current and projected conditions. However, the Central Threshold Region shows an annual water budget of approximately minus 25,000 acre-feet per year.

Monitoring Networks

The Draft GSP outlines the monitoring networks for the five sustainability indicators that apply to the Basin. The objective of these monitoring networks is to monitor conditions across the Basin and to detect trends toward undesirable results. Specifically, the monitoring network was developed to do the following:

Five Sustainability Indicators Applicable to the Cuyama Groundwater Basin

- Chronic lowering of groundwater levels
- Reduction in groundwater storage
- Degraded water quality
- Land subsidence
- Depletions of interconnected surface water

- Monitor impacts to the beneficial uses or users of groundwater
- Monitor changes in groundwater conditions relative to measurable objectives and minimum thresholds
- Demonstrate progress toward achieving measurable objectives described in the GSP

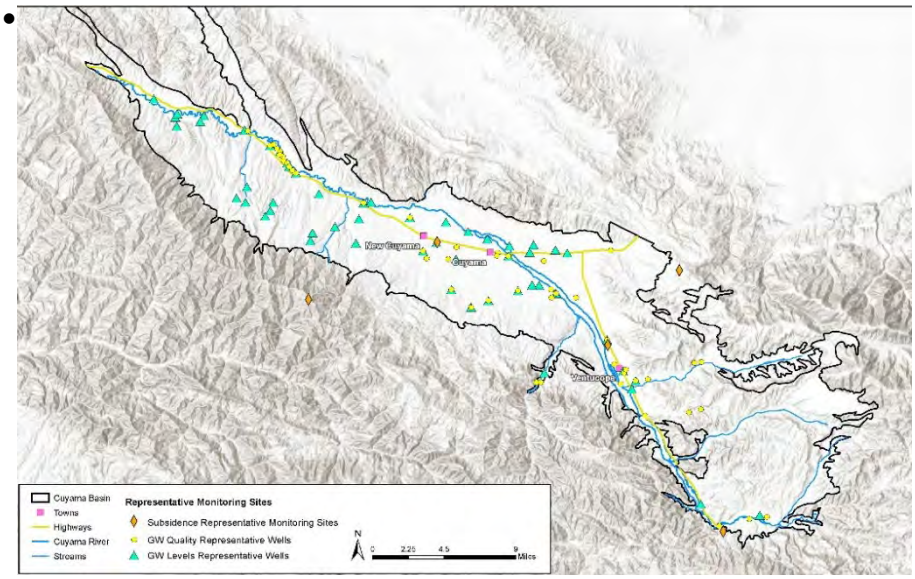

Figure ES-9: Groundwater Monitoring Wells

The monitoring networks were designed by evaluating data sources provided by DWR, including the California Statewide Groundwater Elevation Monitoring (CASGEM) Program, the USGS, participating counties, and private landowners. The monitoring network consists of wells that are already being used for monitoring in the Basin. Additional wells are being added, and there is the potential for installing new dedicated monitoring wells through DWR's Technical Support Services program.

Summary of Existing Monitoring Wells	
Number of CASGEM wells	6
Number of voluntary wells	107
Total number of DWR and CASGEM wells	222
Earliest measurement year	1946
Longest period of record	68 years
Median period of record	12

Most wells in the monitoring network are measured on either a semi-annual or annual schedule. Historical measurements have been entered into the Basin Data Management System (DMS), and future data will also be stored in the Basin DMS.

A summary of the existing monitoring wells is shown in the adjacent table.

Data Management System

The Basin DMS was built on a flexible, open software platform that uses familiar Google maps and charting tools for analysis and visualization. The Basin DMS serves as a data-sharing portal that enables use of the same data and tools for visualization and analysis. These tools support sustainable groundwater management and create transparent reporting about collected data and analysis results.

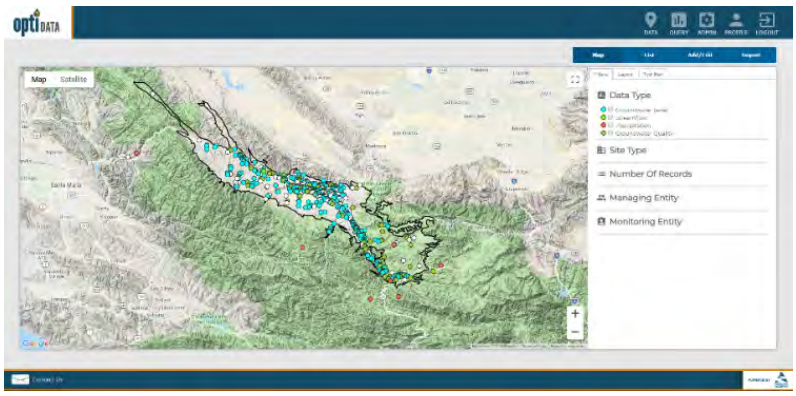

Figure ES-10: Opti DMS Screenshot

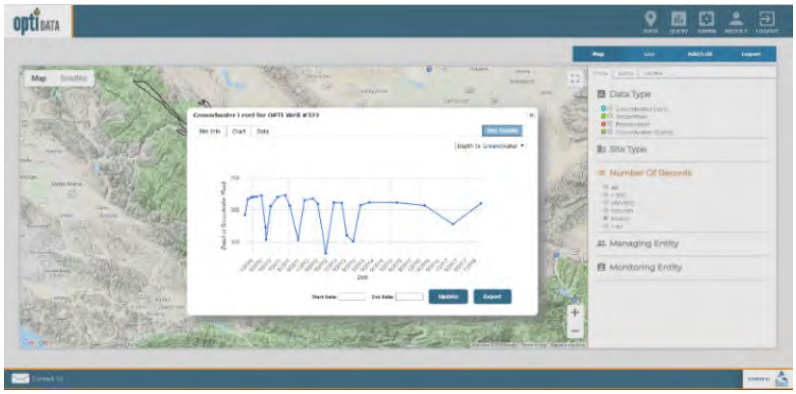

Figure ES-11: Typical DMS Data Display

The Basin DMS is web-based; the public can easily access this portal using common web browsers such as Google Chrome, Firefox, and Microsoft Edge. The Basin DMS is currently populated with available historical data. Additional data will be entered into the system as it is collected.

The Basin DMS portal provides easy access and the ability to query information stored in the system. Groundwater data can be plotted for any of the available data points, providing a pictorial view of historical and current data.

The DMS can be accessed https://opti.woodardcurran.com/cuyama/login.php.

Projects and Management Actions

Achieving sustainability in the Basin requires implementation of management actions and, if demonstrated to be feasible, projects that will increase water supply. One management action, which is reductions in groundwater pumping, is required to achieve sustainability irrespective of the feasibility of any other water supply projects. The exact amount of required reduction in groundwater pumping will be reevaluated after additional data are collected and analyzed. Based on current information, groundwater pumping in the Basin may have to be reduced by as much as 50 to 67 percent. Additional evaluations of pumping reductions required to achieve sustainability are planned over the next several years. These additional evaluations may lead to modification of levels of pumping reduction associated with the attainment of reliability.

Additional management actions included in the Draft GSP include the following:

- Monitoring and recording of groundwater levels, groundwater quality, and subsidence data
- Maintaining and updating the Basin DMS with newly collected data
- Monitoring of groundwater use through use of satellite imagery
- Annual monitoring of progress toward sustainability
- Annual reporting of Basin conditions to DWR as required by SGMA

Several alternative projects to potentially increase water supply availability in the Basin were identified and considered. The initial set of alternatives were reviewed with the Basin SAC and the CBGSA Board of Directors, resulting in two potential water supply projects included in the Draft GSP. These projects require further analysis and permitting to determine feasibility and cost effectiveness. These projects are described below.

The first project is rainfall enhancement through what is commonly referred to a cloud seeding. Cloud seeding is a type of weather modification with the objective to increase the amount of precipitation that would fall in the Basin watershed. The concept is to introduce silver iodide, or similar substance, into the clouds to induce greater rainfall. Cloud seeding has been used in numerous areas throughout California and other western states. Preliminary estimates suggest up to approximately 5,000 acre-feet per year of additional water supply could be added to the Basin. The target area for rainfall enhancement is shown in Figure ES-12.

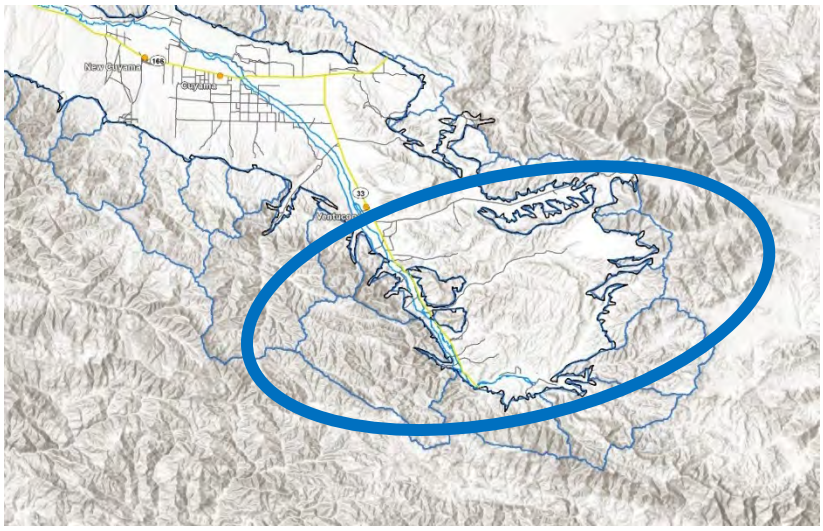

Figure ES-12: Target Area for Potential Rainfall Enhancement

The next step toward implementation of this water supply project is to refine the analysis to better determine the potential increase in precipitation that could be achieved, and to refine the estimated cost of implementation. The project would require completion of an environmental document consistent with the requirements of the California Environmental Quality Act (CEQA).

The second potential project is capture of high stormwater flows in the Cuyama River, and diversion into recharge basins that would be sited in the Central Area of the Basin. The captured stormwater flows would percolate into the groundwater basin resulting in increased recharge of groundwater. The potential stormwater recharge project has several challenges associated with it, including ensuring water rights availability, managing sediment that will be present in any diverted stormwater flows, and obtaining lands for construction of the recharge basins. Preliminary estimates suggest that up to 4,000 acre-feet per year of additional water supply could be added to the Basin. The general location of the potential recharge basins are shown in Figure ES-13.

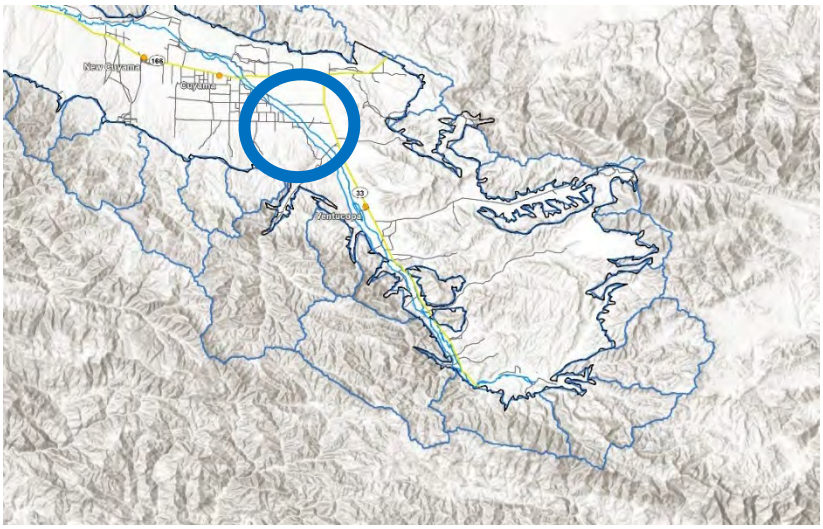

Figure ES-13: General Location of Potential Recharge Basins

The next step toward implementation of this potential project is to evaluate each of these areas of uncertainty and to develop more refined estimates of potential water supply benefit and cost.

The Draft GSP also includes projects specific to the domestic water systems in Ventucopa, Cuyama, and New Cuyama. These projects include installing new wells to secure reliability of water supply to residents of these communities. Implementation of these community well projects would be the responsibility of each of the three communities, as the projects address reliability of available supply for each community.

GSP Implementation

Achieving sustainability in the Basin requires implementation of management actions and, if demonstrated to be feasible, projects that will increase water supply. One management action, which is reductions in groundwater pumping, is required to achieve sustainability irrespective of the feasibility of any other water supply projects. Implementing project and management actions can best be achieved through development of Basin Management Areas to focus necessary activities on the areas of the Basin with projected long-term overdraft.

Two Management Areas have been established in the Basin to aid in administering projects and management actions, as shown in Figure ES-14. The Central and Ventucopa Management Areas were identified based on projected groundwater levels decreasing at a rate of 2 feet or more per year over the next 20 years.

Figure ES-15 depicts the general boundaries of the proposed Management Areas. The highlighted colors show the projected annual change in groundwater levels, with clear and green indicating no change to less than 2 feet of projected annual decline in groundwater levels, and the yellow, orange and red areas indicating areas of increasing projections of annual declines in groundwater levels, ranging from more than 2 feet per year up to more than 4 feet per year.

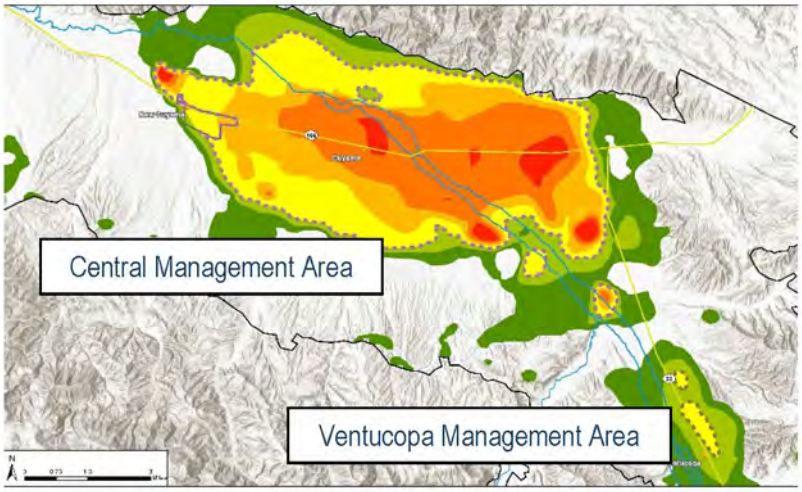

Figure ES-14: Location of Central and Ventucopa Management Areas

Overdraft conditions in the Central Management Area requires reductions in groundwater pumping. The exact amount of required reduction in groundwater pumping will be reevaluated after additional data are collected and analyzed. However, based on current information, total Basin-wide groundwater pumping may have to be reduced by as much as 50 to 67 percent, with the major proportion or reduction required in the Central Management Area.

Both Management Areas will be administered by the CBGSA. However, the CBGSA may elect to delegate administrative responsibility to another party such as the Cuyama Basin Water District, since all wells supplying the affected lands are within the Cuyama Basin Water District boundary.

Implementing the GSP will require numerous management activities that will be undertaken by the CBGSA, including the following:

- Preparing annual reports summarizing the conditions of the Basin and progress towards sustainability and submitting them to DWR
- Monitoring groundwater conditions for all five sustainability indicators twice each year
- Entering updated groundwater data into the Basn DMS
- Monitoring basin-wide groundwater use using satellite imagery
- Updating the GSP once every five years

The CBGSA Board adopted a preliminary schedule for reduction of groundwater pumping in the Central Management Area.

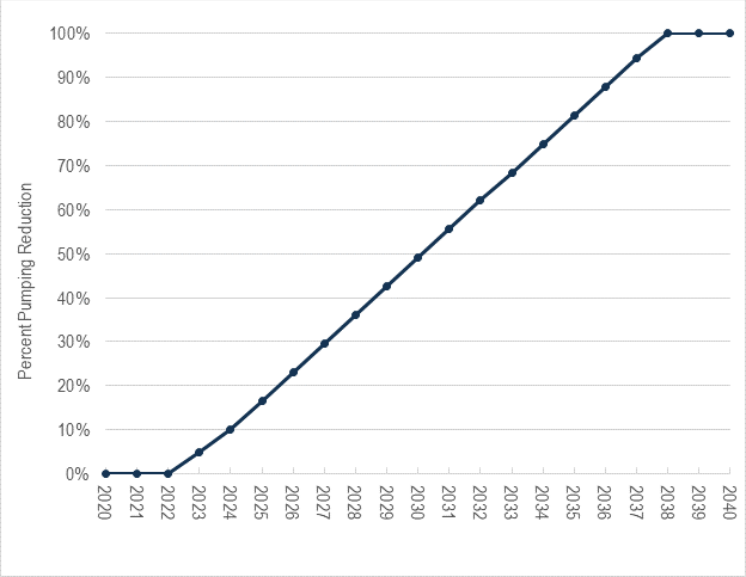

Figure ES-15: Schedule for Proposed Reductions in Groundwater Pumping

For the Central Management Area, pumping reductions are scheduled to begin in 2023 with full implementation by 2040, as shown in Figure ES-15. This approach provides adequate time to put into place methods necessary to monitor groundwater use and reductions. The specific methods for monitoring and reporting will be developed beginning in 2021, with the target of methods being in place by the end of 2022 to allow effective monitoring to beginning in 2023. In 2023, monitoring in 2023 will demonstrate achievement of the proposed levels of pumping reduction by the end of that year.

Pumping reductions are not currently recommended for the Ventucopa Area. The recommendation is to undertake additional monitoring, incorporate new monitoring wells, and further evaluate groundwater conditions in the area over the next two to five years. Once additional data are obtained and evaluated, the need for any reductions in pumping will be determined.

Evaluation and possible implementation of the two identified projects will also be initiated between 2020 and 2025. Further evaluation of the two projects is necessary to determine technical, economic, and institutional feasibility. A critical aspect of feasibility for the stormwater diversion project will be confirmation of water rights availability. Downstream water right holders will have to be maintained whole for the project to be feasible, requiring a more in-depth analysis of water flows and availability. As a result, the first step in determining feasibility will be to evaluate the potential for obtaining a right for diversion from the Cuyama River.

Figure ES-16 presents the overall schedule of activities over the next 20 years

Figure ES-16: Implementation Plan Schedule of Activities
* Represents Management Area activities

Funding

Implementation of the GSP requires funding sources. To the degree they become available, outside grants will be sought to assist in reducing cost of implementation to residents and landowners of the Basin. However, there will be a need to collect funds to support implementation.

The areas associated with GSA-wide management and GSP implementation will be borne by the landowners across the Basin. These costs include:

- GSA administration
- Groundwater level monitoring and reporting
- Groundwater quality monitoring and reporting
- Ground surface subsidence monitoring and reporting
- Water use estimation
- Data management
- Stakeholder engagement
- Annual report preparation and submittal to DWR
- Developing and implementing a funding mechanism
- Grant applications
- GSP updates (every five years)

For budgetary purposes, the estimated initial cost of these activities is on the order $800,000 to $1.2 million per year. The CBGSA Board of Directors will evaluate options for securing the needed funding. Options for funding include fees based on groundwater pumping, acreage, or combinations of these, and pursuit of any available grant funds.

Activities associated with the two Management Areas will be borne by the landowners and water users within the two Management Areas.

For the Ventucopa Management Area, the costs include monitoring of groundwater level data and evaluation of the need for additional or new representative wells and potential need for pumping allocations. The estimated initial cost of these activities is on the order $40,000 to $80,000 per year.

For the Central Management Area, costs include the following:

- Developing and implementing a system for pumping allocations, tracking, and management
- Developing and implementing a funding mechanism
- Evaluation and implementing water supply projects

The estimated initial cost of these activities is on the order $200,000 to $500,000 per year, plus costs associated with evaluating and implementing either of the two potential water supply projects. Depending on feasibility, the annual costs of the rainfall enhancement project would be on the order of $150,000 per year. The stormwater water capture project cost could be on the order of $3 to $4 million per year to amortize the capital cost of the project and to provide funds for annual operations and maintenance.

The CBGSA Board of Directors will evaluate options for securing the needed funding. Similar to the funding options for the GSA-wide activities, options for funding include fees based on groundwater pumping, acreage, or combinations of these, and pursuit of any available grant funds. The CBGSA Board of Directors will evaluate options for securing the needed funding.

Funding for new community wells or well improvements is the responsibility of the three Basin communities. There are potential opportunities for grant funds, depending on timing and state and federal grant funding availability.

Cuyama Basin Sustainability Section
Summary of Public Comments and Responses
April 22, 2019

Comment #	Commenter	Commenter Organization	Section	Section Paragraph #	Paragraph's Sentence #	Sentence Starts with, "...	Comment	Response to Comment
1	Matt Klinchuch	CBWD	5.1 Useful Terms			Sustainability Goals – The culmination	The definitions are almost verbatim from the regs but could use some translation for a general audience, esp Sustainability Goals	To make sure that we are consistent with the Regulations, we have kept the definitions as is.
2	Matt Klinchuch	CBWD	5.2.1 Threshold Regions…Southeastern Threshold			The northern boundary of this region is the narrows at the Cuyama river,	"and the eastern boundary" - You mean western boundary?	Although correct, the intention was to say the "eastern" because to the west of the boundary of the Basin and to the west is the Badlands Management Area. The intention was to destinguish the boundary between the two management areas.
3	Matt Klinchuch	CBWD	5.2.1 Threshold Regions…Eastern Threshold			The Eastern Threshold Region lies just east of the central part of the	…lies just southeast?	Text has been updated
4	Matt Klinchuch	CBWD	5.2.1 Threshold Regions…Eastern Threshold			Hydrographs in this region indicate that groundwater	Mention other aspects of Eastern Region: More variability in water levels? Locally important shallow production wells?	Text has been updated to provide more clarity to destinguish this region from the Central Region by discussing differences in water level. Also mentioned in this section is the Santa Barabara Canyon Fault, which is discussed in more detail in the HCM.
5	Matt Klinchuch	CBWD	5.2.1 Threshold Regions…Western Threshold			The eastern boundary is defined by the Russell Fault,	Brief explanation of which land uses are differentiated	Text has been updated
6	Matt Klinchuch	CBWD	5.2.1 Threshold Regions…Northwestern Threshold			The southeastern border was drawn to differentiate between the	Suggest "southern border" or border with the western region"; also, which land uses differentiated?	Text has been updated
7	Matt Klinchuch	CBWD	Figure 5-1: Cuyama GW Basin Level			Map	Suggest text callout labels on the map to make it easier to tell which region is which	The figure has been updated
8	Matt Klinchuch	CBWD	Figure 5-1: Cuyama GW Basin Level			Map	Change Legend to say "Representative well with OPTI well ID number"	The figure is clear enough without this change.
9	Matt Klinchuch	CBWD	5.2.2 Minimum Thresholds…Southeastern Threshold			Placeholder for IM calculation	Show and reference example hydrograph (use real one) with example of trend and MT & MO calculation	Since the document has been changed to make all IMs equal to MTs, this is not needed
10	Matt Klinchuch	CBWD	5.2.2 Minimum Thresholds…Southeastern Threshold			Levels will be measured using	An embedded table to summarize monitoring frequency would be useful	Monitoring frequency is discussed in the Monitoring Networks chapter
11	Matt Klinchuch	CBWD	5.2.2 Minimum Thresholds…Eastern Threshold			The MT for this region intends to protect	Suggest combined hydrograph with multiple wells to illustrate trend	Hydrographs with thresholds are provided in an appendix
12	Matt Klinchuch	CBWD	5.2.2 Minimum Thresholds…Eastern Threshold			This 20% of the range was then added below	State period of historical range used (1995-2014, or entire range of data?)	Updated text for clarity
13	Matt Klinchuch	CBWD	5.2.2 Minimum Thresholds…Eastern Threshold			The MT values calculated by the two methods were then compared, and	Update method of setting MT & MO per 3/6/2019 GSA Board Meeting	Text has been updated. Board provided final approval for update to MTs and MOs at the 4/5/2019 meeting
14	Matt Klinchuch	CBWD	5.2.2 Minimum Thresholds…Central Threshold			If no measurement was taken during this 4-month period	State period used to evaluate range	Updated text for clarity
15	Matt Klinchuch	CBWD	5.2.2 Minimum Thresholds…Western Threshold			The MT was calculated by taking the difference between the total well depth and the value closest to mid-February, 2018	2018 or 2015? Explain reason for change in assumed baseline	Updated text for clarity
16	Matt Klinchuch	CBWD	5.2.2 Minimum Thresholds…Northwestern Threshold			This value was then set as the MT.	In other words, an allowable loss of 15% of the estimated saturated thickness of the aquifer was proposed.	This is correct.
17	Matt Klinchuch	CBWD	Table 5-1 - Representative Monitoring			2030 IM	IM???	IM = Interim Milestone
18	Matt Klinchuch	CBWD	Table 5-1 - Representative Monitoring	OPTI well 77, Final MO 400			How do the MT's agree across the Basin? Table shows significant difference in parameter ranges in different Threshold Regions. Are we going to have some agreement across the Basin or will it bust? The Central Region has a range of 600 feet, Western 130 feet, and Eastern 70 feet.	Thresholds have been calculated to be protective of certain areas of the Basin and the conditions within those portions of the Basin while also considering beneficial uses of GW. In other regions, they have been calculated to achieve sustainability over the planning horizon. While threshold levels may differ across regions, these thresholds will 1) help move the Basin
19	Matt Klinchuch	CBWD	Table 5-1 - Representative Monitoring	OPTI well 324, Final MT 311			Suggest using a contour or symbolic post map to illustrate overall basin MTs and MOs. May show some discontinuities that you will want to address in the text.	Spatial density of wells may not be sufficient to provide a map that is accurate to represent the MOs across the entire basin. When more data is available, this may be an option.

Cuyama Basin Sustainability Section
Summary of Public Comments and Responses
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Comment #	Commenter	Commenter Organization	Section	Section Paragraph #	Paragraph's Sentence #	Sentence Starts with, "...	Comment	Response to Comment
20	Matt Klinchuch	CBWD	5.3 Reduction in Groundwater	2	1	Reduction of groundwater storage is not a concern for the Basin	I kinda thought this was the main concern, actually. Might want to re-word this a little. Maybe something like "Separate monitoring of groundwater storage changes apart from groundwater levels is not proposed..."	Text has been updated for clarity
21	Matt Klinchuch	CBWD	5.3 Reduction in Groundwater	3	1	Second, because the primary aquifer in the Basin is not confined	Storage also is linear with water levels in confined systems, you just have a much smaller storage coefficient.	Comment noted. No change needed.
22	Matt Klinchuch	CBWD	5.5 Degraded Water Quality	3	1	Because the undesirable result for degraded water quality	Suggest clarifying this. Maybe "Because undesirable water quality results are defined under SGMA only as those chemical constituents which are influenced by SGMA-related groundwater management activities, not all chemicals of concern in Cuyama Basin groundwater will be monitored or regulated by the GSA. Total dissolved solids (TDS) will..."	Text has been updated for clarity
23	Matt Klinchuch	CBWD	Table 5-2: MOs	Table		MO column	Suggest making a symbolic post map, color "heat map" or contours to illustrate the basin as a whole, or maybe by threshold region, even though you aren't using those for WQ. Still people have gotten used to them and now think along those lines.	Spatial density of wells may not be sufficient to provide a map that is accurate to represent the MOs across the entire basin. When more data is available, this may be an option.
24	Matt Klinchuch	CBWD	5.6.3 Minimum Thresholds	1	1	Because current subsidence rates are not believed to be significant and	P521 is outside the basin. VCST is in the basin.	Updated text for clarity
25	Matt Klinchuch	CBWD	5.6.3 Minimum Thresholds	2	2	Thus, the MO for subsidence is set for zero	Isn't CUHS subsidence ~11 inches? More than zero...	Text has been updated for clarity. Although approximatly 295 mm of subsidence has occurred in the last 14.5 years (estimated by taking -5mm around mid 2002 ti -300 around Jan 2017), the rate of subisdence has been about 0.8 inches per year.
26	Matt Klinchuch	CBWD	5.7 Depletions of Interconnected	2	2	In January 1, 2015 surface flows infiltrated into the groundwater	Are you talking about a single 1-day flood event? This sentence is unclear if you are describing general conditions or a specific event.	Updated the text for clarity
27	Matt Klinchuch	CBWD	5.7 Depletions of Interconnected	2		Conditions have not changed since January 1, 2015	How does this correspond to the water budget showing significant surface water outflows?	Updated the text for clarity
28	Brenton Kelly	Quail Springs	General Comment				No explanation is offered for the absence of Interim Milestones. How and when will these be calculated? Placeholders for these important sustainability goals represent a critical gap in this chapter and need some explanation as to the timing and process for their completion.	The updated draft sets all IMs for water levels and water qualities to equal MTs
29	Brenton Kelly	Quail Springs	General Comment				Minimum Thresholds for the Eastern Region are being reconsidered and adjusted by the GSA and are not accurately reflected in this draft for review.	Text has been updated. Board provided final approval for update to MTs and MOs at the 4/5/2019 meeting
30	Brenton Kelly	Quail Springs	General Comment				The sustainability criteria of subsidence, loss of storage, water quality and the depletion of interconnected surface waters are underemphasized to the point of misrepresenting the undesirable results that are currently being experienced by beneficial users and uses other than agriculture in the basin.	Comment noted. No change needed.
31	Brenton Kelly	Quail Springs	General Comment				There is a dismissive approach to addressing the undesirable results of the Sustainability Criteria and to the setting of MTs. All the available data indicates conditions of overdraft in the basin but many MTs allow for continued declines in groundwater elevations and groundwater quality. The perspective towards sustainability appears to be coming from the viewpoint of the commercial agricultural beneficial user and dismissive of the needs of others, such as domestic and environmental users. Many water quality issues are avoided, such as arsenic and nitrates and domestic supply needs. Subsidence is dismissed and increasingly tolerated. Interconnected surface waters and GDEs are assumed to be irrelevant without the responsibility for protection. This is unexceptable to this stakeholder and I would hope and expect that the DWR would agree	Comment noted. No change needed.
32	Brenton Kelly	Quail Springs	5.2 Chronic Lowering				Of the six Threshold Regions that were defined for specific MT/MO/IMs, only two specifically note protection of environmental uses: Southeastern Threshold Region, and Eastern Threshold Region. However, W&C has defined likely GDEs in the Northwestern region and parts of the Central region. Without the associated maps and GDE report, it was unclear if these wells with MTs and MOs are protective of these likely GDEs. Most MTs/MOs in these wells (Table 5-1) are really deep; a few wells have MTs < 100ft and MOs <50 ft. It would be important for be able see where those wells overlay with the potential GDEs (both original NC dataset potential GDEs and the W&C likely GDEs). How is it demonstrated that the lowering of groundwater levels with these thresholds won't adversely impact these beneficial uses?	Well locations relative to GDEs can be assessed when Monitoring Network data gaps are addressed during the GSP implementation phase.
33	Brenton Kelly	Quail Springs	5.2.1 Threshold Regions				This subsection does not discuss the strategies used to calculate the MOs, MTs, and Milestones for each Threshold Region, as stated in the text, but only describe the characteristics and location of the regions. Strategies are presented in subsection 5.2.2.	Text has been updated for clarity
34	Brenton Kelly	Quail Springs	5.2.2 Minimum Thresholds…Southeastern Threshold				The MT is intended to be "protective of domestic, private, public, and environmental uses", yet for one of the only two monitoring wells in this region the MT is set only one foot above the bottom of the well (Opti well #2). How is that being protective?	MT is set at levels determined and approved by the GSA Board. If levels drop below MTs, the Board can take action in the future.
35	Brenton Kelly	Quail Springs	5.2.2 Minimum Thresholds…Eastern Threshold				It has been noted that these rationales do not work well for this region and that the monitoring wells are not representative of the wells in this region. The rationales for this region need to be reconsidered by the GSA and then this subsection rewritten before review.	Text has been updated. Board provided final approval for update to MTs and MOs at the 4/5/2019 meeting
36	Brenton Kelly	Quail Springs	5.2.2 Minimum Thresholds…Western Threshold				This sentence makes no sense; "This would allow users in this Threshold Region to utilize their groundwater supply without increasing the risk of running a dry well beyond acceptable limits, and this methodology is responsive to the variety of conditions and well depths in this region." A well running dry would surely constitute an Undesirable Result.	Text has been updated for clarity
37	Brenton Kelly	Quail Springs	5.2.2 Minimum Thresholds…Western Threshold				OPTI Well 474 is not in this region, why is it mentioned here?	Well 474 is in the western region

Cuyama Basin Sustainability Section
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Comment #	Commenter	Commenter Organization	Section	Section Paragraph #	Paragraph's Sentence #	Sentence Starts with, "...	Comment	Response to Comment
38	Brenton Kelly	Quail Springs	5.2.2 Minimum Thresholds…Northwestern Threshold				Very little publicly verified information is available for this region which until recently had never been developed for irrigation. Only two years of data exists from the new wells in the region. How was the "total average saturated thickness for the primary storage area of the region" determined with any validity? With such limited historical data available, how was 50 feet determined to be 5 years of storage? Local landowner input is suspect to be biased in the interest of their recent commercial development and is therefore questionable at best. In the case of such uncertainty it seems imprudent and risky to set MTs so far below current conditions in a critically overdrafted basin. Were the "Far-west Northwestern" wells put into a newly designated Threshold Region, moved into the "Western" region, or just "reclassified" because the rational is inappropriate? Is this an appropriate solution? This was never discussed by the SAC or GSA.	Information about this region was provided in two memorandums emailed to the Cuyama mailing list on 12/13/2018. The GSA Board was able to take this information into account when setting MTs for this region.
39	Brenton Kelly	Quail Springs	5.3 Reduction in Groundwater				Reduction of groundwater storage is certainly a concern for the Basin for obvious reasons. A lack of sufficient monitoring data in several areas of the Basin (western, northwestern, far west northwestern, eastern, and southeastern) inadequately represent conditions of groundwater storage. Chronic groundwater elevation declines in many areas of the Basin indicate significant reduction in storage. The historic and current condition of overdraft (-26 TAF/Y) has reduced groundwater storage in the basin by well over 1,000,000 AF, and is projected to continue until some substantial changes are made to the management of this resource. The reduction of groundwater storage caused by continued overdraft is an undesirable result experienced by every beneficial user in the basin	The text has been revised to just note that direct measurement of storage is not needed, while removing reference to storage not being a concern.
40	Brenton Kelly	Quail Springs	5.5 Degraded Water Quality				Because of the causal nexus between excessive groundwater extraction and degrading groundwater quality, the GSA is responsible for monitoring the changes in concentrations of any constituent that would represent an undesirable degradation of water quality due to groundwater extraction. These include Arsenic, Nitrates and TDS. Limiting the GSP to monitoring TDS alone is not sufficient and does not satisfy the requirements of SGMA with regards to monitoring groundwater quality.	Direction was provided by the GSA Board (through approval of the Monitoring Networks GSP section) to only include TDS for monitoring and sustainability in the GSP. As stated in the text, other contamination sites are regulated by the RWQC, nitrates are unde the jurisdiction of the ILRP, and the GSA does not possess land use authroity to incluence fertlizer use. Additionally, Arsenic occurs at specific depths in the Basin and is not managed a the GSA regional scale.
41	Brenton Kelly	Quail Springs	5.5.3 Minimum Thresholds				TDS levels in the groundwater detrimentally impact the agricultural economy of the Basin because crops like potatoes, beets and leafy greens, formerly a much larger part of local production, are no longer commercially viable. Carrots may tolerate the high TDS, but they suffer in quality, taste and sweetness. It should be noted that to defend poor water quality and tasteless produce does not serve the local agricultural economy well and the GSP should not include this sort of language. Further, there is no mention made of the undesirable effect experienced by domestic and livestock users due to the poor water quality. It should be noted that carrot production is not the only beneficial user of groundwater in the basin. Disadvantaged communities in the valley are not well resourced to treat drinking water sources or redrill domestic wells.	High TDS in the Basin, as stated in the text (Sustainability Thresholds Sectio nand Groundwater Conditions) is naturally occuring within the Basin. The GSA has voted to monitor TDS, but may only influece TDS concentrations through groundwater levels, through additional inputs. These inputs travel through highly saline rock, contributing to additional TDS in the groundwater. Per SGMA regulations, the GSA is also only required to maintain water quality conditions that exist as of January 1, 2015. The GSA may choose to refine these thresholds later as more data is collected.
42	Brenton Kelly	Quail Springs	Table 5-2: MOs				How is it that all the Interim Milestones set for TDS have progressively higher concentrations over time? For example Opti well 99, with a MT of 1562, has an IM of 1490 - 1508 mg/L for 2025, 1490 - 1526 mg/L for 2030, and 1490 - 1544 mg/L for 2035. This appears to be getting worse not better! Why is it that many wells in the table (all of the last 17) have MO the same as the MTs, with IMs that have no range or change? For example; Opti well 845 has an MO of 1250 and an MT of 1250, and all three IMs are 1250 - 1250 mg/L. This data table implies worsening TDS concentrations over time and needs further clarification.	Interim Milestone calculations have been updated such that IMs equal the MTs at all intervals.
43	Brenton Kelly	Quail Springs	5.6 Subsidence				With the current accelerating rate of subsidence of approximately 0.5 inches per year, what is the rationale of a MT of 2 inches per year? This is far too permissive and clearly allows for up to 10 inches of collapse in 5 years at four time the current rate. Ground surface instability and associated storage loss of this caliber is not achieving sustainability and would constitute a significant undesirable result. There needs to be a clearer explanation of why this undesirable result is allowable	No undesirable result has been identified for subsidence of up to 2 inches per year
44	Brenton Kelly	Quail Springs	5.7 Depletions of Interconnected				Riparian habitat and phreatophytes in the Cuyama River have been drying up and dying since long before January 1, 2015, as groundwater levels decline and the river bank storage is lost. Conditions continue to degrade with the depletion of interconnected surface water as less of the river experiences surface flows due to declining groundwater elevations. Deforestation and riparian habitat loss is an undesirable result due to the adverse effects of continued overdraft. Groundwater dependent ecosystems are similarly adversely impacted by this undesirable result. SGMA requires GSAs to identify, quantify and manage these beneficial uses to avoid any undesirable results. This GSP fails to recognize that requirement or manage for these undesirable results.	Comment noted. Please review the GDE report for additoinaly information.
45	Brenton Kelly	Quail Springs	5.7 Depletions of Interconnected				Without the baseline information in the Groundwater Conditions, especially in the newly developed Northwestern region, it is difficult to justify the decision to allow for the continued decline of groundwater levels with these MT/MO.	Comment noted. The MTs and MOs reflect the values approved by the Board.
46	Byron Albano	Cuyama Orchards	5.2.1 Threshold Region... Southeastern Threshold				I believe it is inaccurate to describe this Region as having groundwater levels that are "generally high in this area, with levels around 50 feet or less below the ground surface which indicates that this region is likely in a 'full' condition." If the GSP is going to characterize this region like that, then it needs to point out that it is based on limited history from two wells in the southern headlands half of the region, and that little or no data exists for the areas north toward the narrows. Data does, however, exist, and I think it should inform our understanding and description of the region. At the request of staff, I have twice sent 3rd party documentation in the form of various well drilling reports as well as additional information about the significant fluctuations in static water levels that have occurred historically within this region. Those documents , well videos and air-line measurements show that static water levels in this region have fluctuated significantly during drought periods to at least as low as 108' bgs. I believe there needs to be a recognition of the historical fluctuation of water levels in this region, and that this section should include something like the following wording: "Groundwater is generally high in this area with levels around 100 feet or less below ground surface. Groundwater levels in this region are subject to significant declines during drought periods but have typically recovered to within 50' or less of ground surface during historically wet periods."	Text has been updated to add additional language.
47	Byron Albano	Cuyama Orchards	5.2.1 Threshold Region...Eastern Threshold				The Eastern Threshold Region description should include a little more information: It only mentions conditions during the past 20 years, whereas our understanding of the reliability and availability of water in this region relates to a much longer time horizon. Our historical modeling is informed by 50 years of data, and I think we should at least descriptively recognize what's happened in this region over a longer history. I think we should include wording to the effect that "Hydrographs in this region indicate that groundwater levels have ranged widely and repeatedly over the past 50 years. Hydrographs in the Ventucopa area indicate that groundwater levels have been, in general, declining for the past 20 years.	Example is OPTI Well 85. Text has been updated for clarity.
48	Byron Albano	Cuyama Orchards	5.2.2 Minimum Thresholds…Southeastern Threshold				Although the charts and thresholds are all good, I believe the threshold description rationale is in error. It reverses the use of the terms MO and MT.	Text has been updated to correct this error.

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49	Byron Albano	Cuyama Orchards	5.2.2 Minimum Thresholds…Southeastern Threshold	2	1	The MT for the Southeastern Threshold Region…	It should read: "The MO for Southeastern Region…."	Text has been edited
50	Byron Albano	Cuyama Orchards	5.2.2 Minimum Thresholds…Southeastern Threshold	3	1	To provide an operational flexibility range, the…	Sentence should read "To provide an operational flexibility range, the MT was calculated by adding 5-years of groundwater storage to the MO."	Text has been edited
51	Byron Albano	Cuyama Orchards	5.5.3 Minimum Thresholds				The section seems to say that the TDS levels in the water need to be better measured and understood, and that we can't do much about them, and they're not necessarily impacting the economy that much, but then goes on to set Minimum Thresholds at very strict levels sometimes just above a recent historical level. At least some of the OPTI wells in the DMS have very limited data associated with the TDS, or even just two data points, sometimes with the same date (OPTI 83) and have a falsely narrow range of readings. Under the MT formula, this results in an exceptionally strict MT such as in OPTI 83 where the MT is set at just 6 ppm over the only reading on the well which was August of 2011. TDS levels vary broadly over short distances, and can vary significantly from year to year. My own sampling results show TDS results varying by as much as 800 ppm from one well to the next and by similar amounts on an individual well over time. If water quality readings that violate MTs will be an issue, then I believe the proposed MTs should be rethought and not expressed in terms of historical ranges, but rather as a percentage factor over recent values.	Comment noted. The Board can reassess the thresholds in the future as more data is collected.
52	Matt Young	SBCWA	5.1 Useful Terms	Final			Typo in use of MI instead of IM.	Text has been updated
53	Matt Young	SBCWA	5.2.1 Threshold Regions	1		These conditions are influenced by geographic…	This sentence is confusing and needs revision	Text has been updated
54	Matt Young	SBCWA	5.2.1 Threshold Regions…Southeastern Threshold				Typo "southeaster"	Text has been updated
55	Matt Young	SBCWA	5.2.1 Threshold Regions…Southeastern Threshold				Describing groundwater levels is sufficient, no need to editorialize about "full" condition", or at least state that it is currently in a full condition.	Text has been updated
56	Matt Young	SBCWA	5.2.1 Threshold Regions…Central Threshold			Hydrographs in this region indicate that groundwater levels have been…	Should note that the levels have been substantially declining, or give a sense of the average rate of decline.	Comment noted. This is shown in the Groundwater Conditions section.
57	Matt Young	SBCWA	5.2.1 Threshold Regions…Western Threshold				Mention types of land use to distinguish it from NW Region Also, describing groundwater levels is sufficient, no need to editorialize about "full" condition", or at least state that it is currently in a full condition.	Text has been updated
58	Matt Young	SBCWA	5.2.1 Threshold Regions…Northwestern Threshold			The Northwestern Threshold Region is the bottom of the Cuyama…	Please be more specific and revise to something like: " The Northwestern Threshold Region is at the western edge of the Cuyama Basin and has undergone changes in land use from grazing to irrigated crops over the past 4 years." Also, describing groundwater levels is sufficient, no need to editorialize about "full" condition", or at least state that it is currently in a full condition.	Text has been updated
59	Matt Young	SBCWA	5.2.1 Threshold Regions…Badlands Threshold			There is no monitoring in this region, and this	Revise to "… and no sustainability criteria were developed for this region."	Text has been updated
60	Matt Young	SBCWA	5.2.2 Minimum Thresholds	General Comment			MTs were established for wells, not regions. So the text should state that MTs were calculated for wells in a given region.	Text has been updated
61	Matt Young	SBCWA	5.2.2 Minimum Thresholds	General Comment			Include additional reasoning why the various threshold rationales were chosen.	Comment noted. This will be included in the Undesirable Results Narrative.
62	Matt Young	SBCWA	5.2.2 Minimum Thresholds…Central Threshold			The MT for the Central Threshold Region	Typo "The MT for the Central Threshold Region was calculated by taking finding…"	Text has been updated
63	Matt Young	SBCWA	5.2.2 Minimum Thresholds…Central Threshold			OPTI Wells 74, 103, 114, 568, 609, and	Please explain the reason for this in the text (e.g., "Because OPTI Wells 74, 103, 114, 568, 609, and 615 did not have sufficient measurements…")	The text has been updated. These wells did not have measurements to within the specified time range to represent January 1, 2015 conditions and thus utlized a linear trendline to extroplate and estimated value.
64	Matt Young	SBCWA	5.2.2 Minimum Thresholds…Western Threshold			OPTI Well 474 utilizes a modified MO calculation	Please explain why in the text.	Text has been updated
65	Matt Young	SBCWA	5.3 Reduction in Groundwater	2		Reduction of groundwater storage is not a concern for the Basin for two reasons.	Reduction of groundwater storage may be able to measured using levels as a proxy, but it is inaccurate to say that it is not a concern. Even areas that may be currently "full" may suffer reductions in groundwater storage going forward. Suggest deleting this discussion.	The text has been revised to just note that direct measurement of storage is not needed, while removing reference to storage not being a concern.
66	Matt Young	SBCWA	5.5 Degraded Water Quality	3		Because the undesirable result for degraded	Explain in text why TDS will be monitored. Current discussion is only about constituents not to be monitored.	Text has been updated
67	Matt Young	SBCWA	5.5 Degraded Water Quality	3		Arsenic occurs at specific depths in the basin, but the location	If arsenic increases with depth, then managing declines in groundwater levels would manage arsenic concentrations.	Text has been updated
68	Matt Young	SBCWA	5.5.3 Minimum Thresholds	3	1	Due to these factors the MT for representative well sites are set	Please give an example of how this is calculated with an example well for clarity in the text. Also provide the calculations in Table 5.2 or in an appendix. Columns with the total range and the 90th percentile of measurements would be useful.	Text and Table has been updated

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69	Matt Young	SBCWA	Table 5-2: MOs				Table should state that these concentrations are for TDS. Include units for MO and MT as they are for the IMs. For ease of table reading, could move units to the header.	Table has been updated
70	Matt Young	SBCWA	5.6.2 Representative Monitoring				It's not just water-related infrastructure that is impacted by land subsidence. It can be roads, bridges, etc.	Text has been updated
71	Matt Young	SBCWA	Figure 5-4				Needs to be referenced	Text has been updated
72	Matt Young	SBCWA	5.7 Depletions of Interconnected	2	2	In January 1, 2015 surface flows infiltrated into the groundwater	This statement, and this whole section is confusing and should be revised. I think that the intent is to say that there has been no change in surface water depletion since 2015, but the wording is quite awkward and would not be coherent to a reader without significant background knowledge.	Text has been updated
73	Diane Kukol	Cuyama Valley GSA	General Comment				In general, the Central Coast Water Board recommends that the number of chemical constituents included in the Minimum Thresholds (MT), Measurable Objectives (MO), and Interim Milestones (IM) be increased. The Central Coast Water Board agrees that MTs, MOs and IMs should be established for total dissolved solids (TDS), however, including only that single constituent is insufficient for determining whether a groundwater basin is being managed sustainably with respect to water quality or for determining if undesirable results are being addressed. Land use in the Cuyama Valley is dominated by commercial agriculture, an industry that utilizes a variety of chemicals and practices that pose threats to groundwater quality. Therefore, the Central Coast Water Board recommends expanding the list of chemical constituents in the MT, MO, and IM to include nitrate, arsenic, and major dissolved ions. The reasoning for this recommendation is described in detail below.	Direction was provided by the GSA Board (through approval of the Monitoring Networks GSP section) to only include TDS for monitoring and sustainability in the GSP. Therefore, this Section will only include water quality sustainability indicators for TDS, unless alternate direction is provided by the Board.
74	Diane Kukol	Cuyama Valley GSA	General Comment				Nitrate: Nitrate contamination of groundwater from agricultural activities is widely documented in the Central Coast region, including within the Cuyama Valley. Approximately 9% of on-farm domestic wells in the Cuyama Valley exceed the human health standard for nitrate concentration in drinking water1. The draft chapter states that the Cuyama Valley groundwater sustainability agency (GSA) does not have the authority to influence fertilizer use, and we are not suggesting the GSA should undertake such a regulatory role. However, the GSPs are required to implement thresholds and monitoring that can identify when undesirable results are occurring. Given the current impairment from nitrate in the basin and ongoing agricultural activity, it is appropriate to require thresholds and monitoring for nitrate in the Cuyama Valley groundwater basin. Nitrate monitoring is not unusual in agriculturally-dominated basins; for example, the Salinas Valley GSA is recommending an expanded suite of chemical constituents for its thresholds and monitoring. The recommendation in their most recent draft includes up to 25 different chemical constituents, including nitrate and arsenic. Finally, we recommend that nitrate be reported as nitrogen (nitrate as N), because this convention allows for easy comparison and summation (e.g., calculation of total nitrogen).	Direction was provided by the GSA Board (through approval of the Monitoring Networks GSP section) to only include TDS for monitoring and sustainability in the GSP. Therefore, this Section will only include water quality sustainability indicators for TDS, unless alternate direction is provided by the Board.
75	Diane Kukol	Cuyama Valley GSA	General Comment				Arsenic: Arsenic is a toxic chemical compound that occurs naturally in relatively high concentrations in many of the sediments that form California groundwater basins, including those of the Central Coast. Groundwater data from the Water Board's GeoTracker GAMA website indicates that 12% of the wells in the Cuyama Valley groundwater basin exceed the maximum contaminant level (MCL) for arsenic in drinking water. The highest concentration recorded in the basin occurred in 2011 and was more than six times greater than the MCL. Furthermore, recent studies in the Central Valley of California and the Mekong Delta in Thailand have demonstrated that ground subsidence associated with groundwater over-pumping can mobilize arsenic by 'squeezing' it out of subsurface clay layers. The resulting mobilized arsenic can then enter groundwater and increase arsenic concentrations in nearby water supply wells. Because there is documented overdraft and subsidence in the Cuyama Valley, there is the potential risk of anthropogenically-induced arsenic contamination of groundwater due to arsenic mobilization from clay layers in the Cuyama Valley basin. Lastly, in addition to sediment related sources, arsenic is a component in many pesticides commonly used on various crops. These factors suggest that arsenic should be included in the MTs, MOs, and IMs for the Cuyama Valley basin.	Direction was provided by the GSA Board (through approval of the Monitoring Networks GSP section) to only include TDS for monitoring and sustainability in the GSP. Therefore, this Section will only include water quality sustainability indicators for TDS, unless alternate direction is provided by the Board.
76	Diane Kukol	Cuyama Valley GSA	General Comment				Major Dissolved Ions: Major dissolved cation and anion composition in groundwater reflects the source of recharge water, lithological and hydrological properties of the aquifer, groundwater residence time, and chemical processes within the aquifer. As such, major dissolved ions are valuable for identifying different groundwater types (via Piper or Stiff diagrams) and for "fingerprinting" source water from individual wells. In addition, ionic charge balance provides quality assurance that all the major ions are actually included in the analysis and that TDS concentrations are accurate. Finally, collection and analysis of major dissolved ion samples is easy and inexpensive, and the cost of the analysis is well worth the data provided, particularly if the well is already being sampled for other constituents.	Direction was provided by the GSA Board (through approval of the Monitoring Networks GSP section) to only include TDS for monitoring and sustainability in the GSP. Therefore, this Section will only include water quality sustainability indicators for TDS, unless alternate direction is provided by the Board.
77	Cathy Martin	SLO County	5.1 Useful Terms				Suggest that the GSA Board is aware that the representative wells are theoretical until an agreement between the GSA and well owner is executed. Does the Consultant have a list of other potential representative wells in case a well is not operational, or an agreement cannot be executed?	All the wells that could be used as representatives wells are included, and thus no alternative list is available. The text has been updated for clarity
78	Cathy Martin	SLO County	5.2.1 Threshold Regions…Southeastern Threshold	1	1	The Southeaster Threshold Region	Spelling	Text has been updated
79	Cathy Martin	SLO County	5.2.1 Threshold Regions…Southeastern Threshold	1	2	Groundwater is generally high	Consider adding a timeframe or date to when this area was defined as full.	Text has been edited for clarity
80	Cathy Martin	SLO County	5.2.1 Threshold Regions…Southeastern Threshold	1	3	The northern boundary of this region is the	Consider defining all four boundary directions for the Southeastern Threshold Region.	Text has been updated
81	Cathy Martin	SLO County	5.2.1 Threshold Regions…Eastern Threshold	1	4	The northern boundary of this region	Consider defining all four boundary directions for the Eastern Threshold Region.	Text has been updated
82	Cathy Martin	SLO County	5.2.1 Threshold Regions…Central Threshold	1	3	The south-eastern boundary is defined by	Consider defining all four boundary directions for the Central Threshold Region.	Text has been updated
83	Cathy Martin	SLO County	5.2.1 Threshold Regions…Western Threshold	1	1	The Western Threshold Region is characterized	Consider adding a timeframe or date to when this area was defined as full.	The text has been updated.
84	Cathy Martin	SLO County	5.2.1 Threshold Regions…Western Threshold	1	3	The eastern boundary is defined by	Consider defining all four boundary directions for the Western Threshold Region.	Text has been updated
85	Cathy Martin	SLO County	5.2.1 Threshold Regions…Northwestern Threshold	1	2	Hydrographs in this portion of the	Consider adding a timeframe or date to when this area was defined as full.	The text has been updated.

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86	Cathy Martin	SLO County	5.2.1 Threshold Regions…Northwestern Threshold	1	3	The southeastern border was drawn to	Consider defining all four boundary directions for the Northwestern Threshold Region.	Text has been updated
87	Cathy Martin	SLO County	5.2.1 Threshold Regions…Eastern Threshold	1	3	The northern boundary of this region is	Consider defining all four boundary directions for the Eastern Threshold Region.	Text has been updated
88	Cathy Martin	SLO County	5.2.1 Threshold Regions…Central Threshold	1	3	The south-eastern boundary	Consider defining all four boundary directions for the Central Threshold Region.	Text has been updated
89	Cathy Martin	SLO County	5.2.1 Threshold Regions…Western Threshold			The Western Threshold Region is characterized	Consider adding a timeframe or date to when this area was defined as full.	The text has been updated.
90	Cathy Martin	SLO County	5.2.1 Threshold Regions…Western Threshold			The eastern boundary is defined by the	Consider defining all four boundary directions for the Western Threshold Region.	Text has been updated
91	Cathy Martin	SLO County	5.2.1 Threshold Regions…Northwestern Threshold	1	2	Hydrographs in this portion of the Basin	Consider adding a timeframe or date to when this area was defined as full.	The text has been updated.
92	Cathy Martin	SLO County	5.2.1 Threshold Regions…Northwestern Threshold	1	3	The southeastern border	Consider defining all four boundary directions for the Northwestern Threshold Region.	Text has been updated
93	Cathy Martin	SLO County	5.2.1 Threshold Regions…Badlands Threshold	1	2	There are few active wells and little	Consider removing the word little and adding an estimated value of groundwater from the groundwater model.	The text has been edited.
94	Cathy Martin	SLO County	5.2.1 Threshold Regions…Badlands Threshold	1	3	There is no monitoring in this region	Consider defining the geology of the Badlands area, such as adding Ballinger, Quatal, and Apache Canyons. This will help explain why this area has few active wells	This is in the HCM section.
95	Cathy Martin	SLO County	5.2.2 Minimum Threhsolds	1	1		Consider adding a summary of why each region may have a different MT and MO.	This information is provided in the text
96	Cathy Martin	SLO County	5.2.2 Minimum Thresholds…Southeastern Threshold				Consider adding a hydrograph figure to help explain each threshold region for MO & MT.	Hydrographs with thresholds are provided in an appendix
97	Cathy Martin	SLO County	5.2.2 Minimum Thresholds…Eastern Threshold				Consider adding a hydrograph figure to help explain each threshold region for MO & MT.	Hydrographs with thresholds are provided in an appendix
98	Cathy Martin	SLO County	5.2.2 Minimum Thresholds…Central Threshold				Consider adding a hydrograph figure to help explain each threshold region for MO & MT.	Hydrographs with thresholds are provided in an appendix
99	Cathy Martin	SLO County	5.2.2 Minimum Thresholds…Western Threshold				Consider adding a hydrograph figure to help explain each threshold region for MO & MT.	Hydrographs with thresholds are provided in an appendix
100	Cathy Martin	SLO County	5.2.2 Minimum Thresholds…Northwestern Threshold				Consider adding a hydrograph figure to help explain each threshold region for MO & MT.	Hydrographs with thresholds are provided in an appendix
101	Cathy Martin	SLO County	5.2.2 Minimum Thresholds…Badlands Threshold			The Badlands Threshold Region has no	Page 5-8 states that the area has few active wells, please clarify or correct.	Text has been updated
102	Cathy Martin	SLO County	5.2.3 Selected Minimum Thresholds				Consider adding a summary table for MO / MT, such as the one shown in the GSA Board agenda packet on March 6th.	Summary table is provided - Table 5-1
103	Cathy Martin	SLO County	5.5.3 Minimum Thresholds	2	3	Much of the crops grown	Consider referencing the crop types or adding a figure on crop types to support this statement.	This information would be inlcuded in the plan in the Basin Settings section
104	Cathy Martin	SLO County	General Comment				Consider adding adaptive management as a section in this chapter to provide flexibility to the GSA Board for MO, MT, and interim milestones. Revisions to the MO, MT, and interim milestones could be based on the data collected and analyzed from the GSP monitoring and overall plan effectiveness.	Addaptive management will be included in the Projects and managmeent action section.
105	Cathy Martin	SLO County	Refernces			California Department of Water Resources (DWR),	Wrong agency?	Text has been updated
106	Cathy Martin	SLO County	Refernces			rrigated Land Regulatory Program (IRLP),	Correction - ILRP	Text has been updated

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1	Catherine Martin	SLO County	2.3.4 Water Budget…Current and Projected	1		Because there is no basis to assume any changes in Cuyama Basin	Consider adding projects to the projected water budget.	The Water Budget section on sustainable yield now includes an analyses that incorporates potential projects.
2	Brenton Kelly	Quail Springs	General Comments				"As defined by the Groundwater Sustainability Plan (GSP) regulations promulgated by the California Department of Water Resources (DWR), the water budgets section is intended to quantify the following: (5) If overdraft conditions occur, a quantification of overdraft over a period of years during which water year and water supply conditions approximate average conditions." These are the only two times the word "overdraft" is used in this whole chapter, yet the data indicates that of the 60 TAF extracted every year from the Cuyama Groundwater Basin for agriculture, 23 to 26 TAF of it is in excess of available recharge, otherwise known as "overdraft". That's 44% overdraft, almost ½ the amount that is being extracted. That is before climate change or GDEs are factored into the budget. Yet there is not one mention of the word overdraft! Change in Storage is an unclear euphemism that must be qualified with another disassociating term, such as positive/negative or gain/loss. In a basin that is designated by DWR as critically overdrafted, the GSP should not be hiding the problem behind misleading terminology that downplays the issue. Call it by its real name; Overdraft.	A note has been added that reduction in storage is overdraft.
3	Brenton Kelly	Quail Springs	2.3.5 Water Budget Estimates				The terms used for the components of the surface and groundwater budgets should be clearly defined in a Useful Terms section. What is specifically meant by these terms and how are they calculated,estimated or measured; Evapotranspiration, Deep Percolation, Applied Water, Runoff, Stream Seepage, Subsurface inflow, Reduction in storage	A Useful Terms section has been added
4	Brenton Kelly	Quail Springs	2.3.6 Historical Water Budget			The Basin average annual historical groundwater budget has greater	This sounds like chronic overdraft. To accurately quantify it would be to compare it to the total pumping demand. 23 TAF/Y has no reference to the basin as a whole. 44% overdraft is a quantification. The decision makers who are charged with balancing this basin are not well served when the problem is not clearly stated.	Required pumping reductions to eliminate overdraft are now quantified in the sustainable yield section.
5	Brenton Kelly	Quail Springs	2.3.7 Current and Projected Water Budget				The water budget considers native vegetation within the surface water system of the water budget. Native vegetation evapotranspiration (174,000 AFY) is a significant portion (60%) of the average annual surface water budget. Because the section of the report related to Groundwater Dependent Ecosystems is not yet available for review, it is unknown if some portion of the native vegetation could be utilizing groundwater as its water source. It is also recognized that this is one of the many real data gaps, as this Basin's hydrologic connection to the native ecosystems is poorly understood. The Project of Rangeland Management fits in here with a possible win/win between ecological services and a water Budget. Fire, as a management strategy for maintaining a more mature natural ecosystem, can augment groundwater recharge in the main basin. Where is the Data Gap section to help refine this understanding to help improving these Thresholds into the future.	GDEs are now discussed in the Groundwater Conditions section. The rangeland management project is not included in the GSP per direction from the Board
6	Brenton Kelly	Quail Springs	2.3.7 Current and Projected Water Budget				The text incorrectly identifies Figure 2.3-9 and Figure 2.3-10 as historical when they are current and projected numbers. The text also fails to quantify the overdraft of 42% by only stating that the "budget has greater outflows than inflows, leading to an average annual decrease in groundwater storage of 25,000 AF" By presenting only the value of the imbalance, the degree of overdraft is not conveyed and the severity of the situation is avoided and misrepresented. This is an unacceptable disservice to contextual understanding, which misleads and decontextualized the situation to decision-makers and stakeholders.	The text has been corrected. Required pumping reductions to eliminate overdraft are now quantified in the sustainable yield section.
7	Brenton Kelly	Quail Springs	Table 2.3-4: Current and Projected				What is meant by these Water Year Types? How many inches of rain per type of water year? This table could be informative if it had more reference or context. What is the % of normal or average?	Water year types were developed for the Cuyama Basin based on historical Basin precipitation.
8	Brenton Kelly	Quail Springs	2.3.8 Sustainable Yield Estimate				DWR requires an estimate of sustainable yield for the basin. Why is this incomplete? This section can be developed without the projects and management actions modeling analysis. Why not estimate the Sustainable Yield for the baseline condition before projects and management actions? Some amount less than the sum of Deep Percolation + Stream Seepage + Subsurface Inflow would be a Sustainable Yield. That's < 35,000 AF or 56% of currant pumping. Quantify what we do already know.	Sustainable yield information is now included in the section.
9	Brenton Kelly	Quail Springs	General Comments				It is disingenuous to present alarming data without reference or context for the understanding of its severity. DWR requires the quantification of the overdraft. W&C has not only failed to clearly quantify the degree of overdraft, but they refrained from even using the term at all. For the sake of stakeholder understanding and effective decision making it is critical that all information is presented in full context. Complex issues need their significance and their implications explained clearly.	A note has been added that reduction in storage is overdraft.
10	Matt Young, Matt Scrudato, Fray Crease	SBCWA	2.3.1 Water Budget Information	3			It would be useful to be more specific which regulations are binding than the entire California Code of Regulations.	A footnote has been added as suggested below.
11	Matt Young, Matt Scrudato, Fray Crease	SBCWA	Figure 2.3-2				Please double-check the cumulative departure calculations. Based on visual inspection, the calculations appears to be off in places (e.g., 2003 received 12 inches below average precip, but the cumulative departure only drops about 8 inches)	The figure has been updated
12	Matt Young, Matt Scrudato, Fray Crease	SBCWA	2.3.4 Water Budget…Current and Projected	1		This baseline uses current land and water use	This is not accurate based on previously presented information in the Technical Forum. It was previously understood that you are varying assumed land use going forward to match historical changes in annual crops.	The text has been revised for clarity.
13	Matt Young, Matt Scrudato, Fray Crease	SBCWA	General Comments				There does not appear to be a placeholder for a projected groundwater budget considering climate change.	A section on climate change has been added.
14	Matt Klinchuch	CBWD	2.3.1 Water Budget Information	3		In this document, consistent with the	Suggest citing in footnote: California Code of Regulations, Title 23. Waters, Division 2. Department of Water Resources, Chapter 1.5. Groundwater Management, Subchapter 2. Groundwater Sustainability Plans	This has been added.
15	Matt Klinchuch	CBWD	Figure 2.3-2				Align and standardize vertical scales to allow direct comparison for a given year or set of years.	The figure has been updated
16	Matt Klinchuch	CBWD	General Comments				The IWFM was calibrated for the period 1995-2015. The historical budget is for the period 1998-2017. Presumably the 2016 and 2017 periods are predicted by the model. Where is the post audit of those results?	These can be made available to the Tech Forum members
17	Matt Klinchuch	CBWD	2.3.4 Water Budget…Historical	1	2	The hydrologic period of 1998	This results in cumulative removal of 18 inches of water relative to the long-term average.	Comment noted. No change required in document.
18	Matt Klinchuch	CBWD	2.3.5 Water Budget Estimates			The following components are included in the groundwater budget	Are spring flows negligible/ignored?	Spring flows are negligible compared to the overall water budget.
19	Matt Klinchuch	CBWD	Table 2.3-2			Average Annual Land Surface Water Budget	Incorporate "20-yr" and "50-yr" in table title	These have been added as footnotes to the table

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20	Matt Klinchuch	CBWD	Table 2.3-3			Average Annual Land Surface Water Budget	Move tables closer to text where they are discussed.	The section has been re-formatted
21	Matt Klinchuch	CBWD	Table 2.3-4			"Runoff" cell	Is this flow out of the basin?	Yes
22	Matt Klinchuch	CBWD	Table 2.3-3			Cell with 25,000 value in 3rd column for Deep Percolation	Rounding error? Why not 26,000 AFY as with land surface deep percolation?	Yes, this difference is due to ronding.
23	Matt Klinchuch	CBWD	Figure 2.3.4			Historical Land Surface Water Budget	Need to be rigorous about land surface and groundwater budgets; do not refer to basin budget components.	The text has been revised as recommended.
24	Matt Klinchuch	CBWD	2.3.6 Historical Water Budget			The Basin experiences about 285,000 AF	"Basin" - The unsaturated soil zone, not the basin; groundwater is part of the basin water budget.	The text has been revised as recommended.
25	Matt Klinchuch	CBWD	2.3.6 Historical Water Budget			The Basin experiences about 285,000 AF	"inflows" - Land surface inflows	The text has been revised as recommended.
26	Matt Klinchuch	CBWD	2.3.6 Historical Water Budget			About 225,000 AFY is consumed as evapotranspiration	These amounts make sense?	Yes, the evapotranspiration estimates are reasonable given the available land use data. The stream seepage and deep percolation estimates are reasonable given the data that is available.

Cuyama Basin Placeholder Sections
Summary of Public Comments and Responses
April 22, 2019

Comment #	Commenter	Commenter Organization	Section	Section Paragraph #	Paragraph's Sentence #	Sentence Starts with, "…	Comment	Response to Comment
1	Cathy Martin	County of SLO	1.2.8 Plan Elements from CWC Section 10727.4	1	1	The plan elements from…	Suggest revising language in 1.2.8 - first sentence	The text has been revised
2	Cathy Martin	County of SLO	2.2.4 Change in Groundwater Storage	1	5	The color of bar…	Consider revising the river name	The year type index has been clarified.
3	Cathy Martin	County of SLO	2.2.10 Data Gaps	1			Consider adding a table on all the data gaps mentioned below in 2.2.10, including data gaps required by DWR GSP regulations.	This is not needed
5	Brenton Kelly	Quail Springs Permaculture	General				Overdraft continues to be hidden within confusing language. Clarity with this issue is paramount and should not be at all ambiguous.	The text has been revised to note that negative change in storage is overdraft
6	Brenton Kelly	Quail Springs Permaculture	General				Some shake up in classifying GDEs has made two unrealistic elimination of either 56% or 82% potential GDEs.	Comment noted. A more detailed analysis of GDEs can be performed during implementation if the Board chooses to do so.
7	Brenton Kelly	Quail Springs Permaculture	General				Additional Data Gaps for the Groundwater Conditions we noted.	The data gaps section has been edited.
8	Brenton Kelly	Quail Springs Permaculture	General				Due to the absence of any stream gauges in the Cuyama in the basin the model is calculating all the amounts and the relationships between the surface and groundwater. This interpreted Interconnectivity of surface waters with the groundwater in not well reflected from the model onto the Figure. More inter-relativity in the presentation is needed.	Comment noted.
9	Brenton Kelly	Quail Springs Permaculture	2.1.10 Hydrogeologic Conceptual Model Data Gaps				It has been recognized that the interconnectivity between Groundwater and surface water is poorly understood, and represents a significant Data Gap in the HCM and throughout this GSP. Many historic seeps, springs and wetlands indicate a complex cascading basin in the three main aquifers with perched groundwater elevations on top of clay layered aquitards. This affects the Groundwater Dependent Ecosystems across the basin and needs further understanding.	Comment noted. A more detailed analysis of GDEs can be performed during implementation if the Board chooses to do so.
10	Brenton Kelly	Quail Springs Permaculture	2.2.4 Change in Groundwater Storage	1	4	Average annual use over the twenty-year period was...	The text does not express the degree or severity of the overdraft. The sentence is incorrect and misinforming. It does not even use the euphemism “change in storage”, the word “use” should read “overdraft”.	The text has been revised to note that negative change in storage is overdraft
11	Brenton Kelly	Quail Springs Permaculture	2.2.4 Change in Groundwater Storage	1	1	Historical change in storage in the Cuyama Basin…	The text does not express the degree or severity of the overdraft. In this sentence, at least the first “change in storage” could be replaced for clarity with “overdraft”. At the very least quantify it as “negative change in storage”.	The text has been revised to note that negative change in storage is overdraft
12	Brenton Kelly	Quail Springs Permaculture	2.2.4 Change in Groundwater Storage				The water year type should be correlated to a Cuyama Basin type of water year, not the central valley. Please define what is designated by the water year type as a percent of deviation from an average or normal year.	The year type index has been clarified.
13	Brenton Kelly	Quail Springs Permaculture	2.2.8 Interconnected Surface Water Systems				Is this the same Appendix X as the GDE Report Appendix X?	The text has been revised to clarify that this is referring to the IWFM model appendix.
14	Brenton Kelly	Quail Springs Permaculture	2.2.8 Interconnected Surface Water Systems				Presumably, the Cuyama Basin IWFM Model can be used to analyze groundwater interactions between all the surface water flows in the Basin. Figure 2.2 only represents the Cuyama River, and four of the creeks. Are these the only reaches being analyzed from the model? And can we get more analysis of this data? Show amounts and percentages of gain and loss by reach.	While runoff from all watersheds is simulated in the model, these are the only reaches explicitly simulated as creeks in the model.
15	Brenton Kelly	Quail Springs Permaculture	2.2.8 Interconnected Surface Water Systems				As is noted in the Section 4-10 below, this modeling is being done without any stream gauge data points, because there are no stream gauges, yet.	Comment noted.
16	Brenton Kelly	Quail Springs Permaculture	Table 2-1				This table needs a couple of additional rows on the bottom for Totals & Averages by Reach. This would illustrate the patterns better than the Total column does and it would be helpful to overlay on Figure 2-2 (which needs relabeling). Range of data and the % of Total would also be informative additional rows to this chart	An average annual row has been added.
17	Brenton Kelly	Quail Springs Permaculture	2.2.9 Groundwater Dependent Ecosystems				How and why did we go from reducing to 497 acres from the 2700 acres of GDEs in the DWR’s Natural Communities Commonly Associated with Groundwater (NCCAG) dataset, to these 123 “probable GDEs” and 275 “probable non-GDEs”? What happened to acreage? It is not reasonable to eliminate such a large % (82% & 56% respectively) of possible GDE acres from a desktop analysis of aerial imagery and such little field study (1 & ½ days and only six discreet sites). All of the GDEs up Santa Barbara Canyon are on public land and are full of seeps, springs & wetlands. You just have to walk in to verify them, not drive. Why are they classified as non-GDEs? Figure 2-5 misspelled “Likely Wetlands” and shows no discernable wetlands at all. This report drastically underrepresents the remaining GDEs and risks the continued loss of this important beneficial use of the groundwater resources.	Comment noted. A more detailed analysis of GDEs can be performed during implementation if the Board chooses to do so.
18	Brenton Kelly	Quail Springs Permaculture	2.2.9 Groundwater Dependent Ecosystems	2	2	The NCCAG dataset was compiled by the Nature Conservancy…	Is this true? I thought it was CWDR. The text and Figure 2-3 should credit DWR, not The Nature Conservancy. And that is all the more reason to ground truth verify the data before tossing it out	The text has been revised.
19	Brenton Kelly	Quail Springs Permaculture	2.2.10 Data Gaps				Additional Data Gaps in the Groundwater Conditions include the following: All the major faults are not well understood with regard to the degree they represent a barrier to flow and at what depth below the surface.	The data gaps section has been edited.
20	Brenton Kelly	Quail Springs Permaculture	2.2.10 Data Gaps				Additional Data Gaps in the Groundwater Conditions include the following: The wells in the database and in the Monitoring Network are not well known and must be canvassed to verify well depth, perforation interval and current status.	The data gaps section has been edited.
21	Brenton Kelly	Quail Springs Permaculture	2.2.10 Data Gaps				Additional Data Gaps in the Groundwater Conditions include the following: The size of the Basin with regard to groundwater in storage is not well known and after 40 years of chronic overdraft and the loss of over 1 MAF, what remains in storage?	The data gaps section has been edited.
22	Brenton Kelly	Quail Springs Permaculture	4.10 Depletions of Interconnected Surface Water Monitoring Network			Monitoring Networks for depletions of surface water cannot …	It is appreciated by this reviewer that the lack of any surface water gage stations on the Cuyama River in the Basin is recognized as an impediment to accurate modeling. No amount of numeric estimating can make up for the lack of real data points. When can we see these new stream gages installed?	Comment noted.
23	Brenton Kelly	Quail Springs Permaculture	Appendix X				This Technical Memorandum could have been more informative with a brief Publication Review. Historical reference with field verification and local experience would have yielded different conclusions. With only six actual field sites visited, this was not a significant field verification and the aerial imagery analysis was inadequate to identify the many existing GDEs that were disqualified in this report.	Comment noted. A more detailed analysis of GDEs can be performed during implementation if the Board chooses to do so.

TO: Standing Advisory Committee
Agenda Item No. 5b

FROM: Brian Van Lienden, Woodard & Curran (W&C)

DATE: April 25, 2019

SUBJECT: Technical Forum Update

Issue
Update on the Technical Forum.

Recommended Motion
None – information only.

Discussion
At the request of Cuyama Valley landowners, Cuyama Basin Groundwater Sustainability Agency Groundwater Sustainability Plan (GSP) consultant Woodard & Curran (W&C) has been meeting monthly with technical consultants representing landowners to discuss W&C's approach and to provide input where appropriate.

A summary of the topics discussed at the April 22, 2019 technical forum meeting is provided as Attachment 1, and the next forum date is May 24, 2019.

Cuyama Basin Groundwater Sustainability Agency

Technical Forum Update

April 25, 2019

WOODARD &CURRAN

April 22nd Technical Forum Discussion

- Documented comments on GSP Numerical Modeling
- Discussed additional potential issues for discussion by Technical Forum
- No additional Technical Forum meetings are scheduled

Technical Forum Members

- Catherine Martin, San Luis Obispo County
- Matt Young, Santa Barbara County Water Agency
- Matt Scrudato, Santa Barbara County Water Agency
- Matt Klinchuch, Cuyama Basin Water District
- Jeff Shaw, EKI
- Anona Dutton, EKI
- John Fio, EKI
- Dennis Gibbs, Santa Barbara Pistachio Company
- Neil Currie, Cleath-Harris Geologists
- Matt Naftaly, Dudek

COMMITMENT & INTEGRITY
DRIVE RESULTS

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MEETING MEMORANDUM

PROJECT: Cuyama Basin Groundwater Sustainability Plan Development

MEETING DATE: 4/22/2019

MEETING: Technical Forum Conference Call

ATTENDEES: Matt Young (Santa Barbara County Water Agency)
Matt Naftaly (Dudek)
Neil Currie (Cleath-Harris Geologists)
John Fio (EKI)
Jeff Shaw (EKI)
Dennis Gibbs (Santa Barbara Pistachio Company)
Brian Van Lienden (Woodard & Curran)
Sercan Ceyhan (Woodard & Curran)
Micah Eggleton (Woodard & Curran)

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1. AGENDA

- Document comments on GSP numerical modeling
- Discuss potential additional issues for Technical Forum

2. DISCUSSION ITEMS

The following table summarizes comments raised before and during the conference call.

These items will be addressed as part of updating the GSP Public Draft.

Item No.	Comment	Commenter
1	There could be significant improvements in the model geometry in the western Basin that better reflects the geology.	Neil Currie
2	In their analysis in the vicinity of the CCSD, they have not been able to confirm the presence of a fault or the model hydraulic conductivities used in the model.	Matt Naftaly
3	Model data files for the GSP current and future conditions analyses would be helpful for our analysis	Matt Naftaly
4	The GSP should include an analysis of the sensitivity to different parameters related to development of the water budget. Change in storage and overdraft estimates should be presented with a range of uncertainty.	Jeff Shaw
5	The term deep percolation is misleading because the tritium analysis previously performed did not support the occurrence of deep percolation – it should be termed infiltration or recharge. Also, infiltration or deep percolation numbers should be broken out by zone.	Dennis Gibbs

6	There have been 6 previously published studies of the Cuyama Basin – the range of overdraft estimated in those studies could be a measure of uncertainty.	Dennis Gibbs
7	There would be benefit in having another Technical Forum call to discuss technical questions regarding the Public Draft	Dennis Gibbs, Jeff Shaw
8	During GSP implementation, it may be beneficial for the Technical Forum to provide input on potential monitoring sites.	Dennis Gibbs, Jeff Shaw

TO: Standing Advisory Committee
Agenda Item No. 5bi

FROM: Brian Van Lienden, Woodard & Curran (W&C)

DATE: April 25, 2019

SUBJECT: Discussion on Numerical Model

Issue
Discussion on the numerical model.

Recommended Motion
None – information only.

Discussion
Woodard & Curran (W&C) understands there is a measure of uncertainty with the numerical model and have documented that uncertainty in the Groundwater Sustainability Plan (GSP).

On Friday, April 19, 2019, Cuyama Basin Water District's (CBWD) consultant EKI provided a letter to W&C that expresses thoughts on how they think uncertainty should be characterized in the GSP.

In response to EKI's memo, W&C will augment its documentation on model uncertainty and will include stakeholder comments on this in the GSP.

A memo from W&C on the model uncertainty is provided as Attachment 1, and a memo from EKI regarding model uncertainty is provided as Attachment 2.

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MEMORANDUM

TO: Cuyama Basin GSA Board of Directors and Standing Advisory Committee

CC: Jim Beck, Taylor Blakslee

FROM: Lyndel Melton

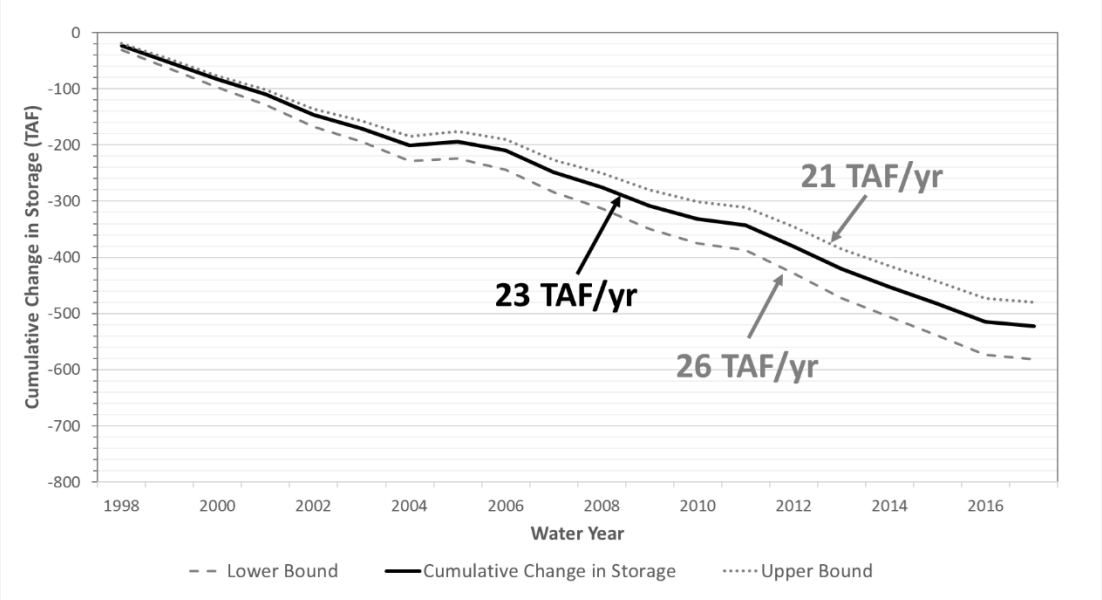
DATE: April 24, 2019

RE: Numerical Model Uncertainty

Woodard & Curran is in receipt of comments from EKI addressing uncertainty in the numerical model and implications upon the predicted basin overdraft. A copy of the memorandum from EKI is attached. In addition, we have requested all parties to the Technical Forum provide any comments they may have on the numerical model so that we may address not only EKI's comments, but all Technical Forum comments. Once we have received any additional comments, we will summarize those comments and will prepare an addendum that addresses the comments received and our response to those comments. This addendum to the GSP will be provided to the Board of Director, the Standing Advisory Committee, and the public for review and comment.

The Draft GSP includes acknowledgement of uncertainty in the numerical modeling. References to uncertainty in the numerical model are included in the Executive Summary, the Draft GSP, and in Appendix C, CBWRM Model Documentation. The figure below, which is included in Appendix C to the Draft GSP, shows the results of our internal evaluation of areas of uncertainty associated with the historical annual change in storage represented in the numerical model. This evaluation was prepared prior to receiving the EKI memorandum, and their memorandum was prepared without having seen our evaluation of uncertainty. We intend to review our evaluation of model uncertainty once we have received any additional comments on the numerical model.

Historical Annual Change in Storage



19 April 2019

MEMORANDUM

To: Matt Klinchuch, Cuyama Basin Water District (CBWD)
Derek Yurosek, CBWD

From: Jeff Shaw, EKI
John Fio, EKI
Dave Leighton, EKI

Subject: Model Uncertainty and Predicted Basin Overdraft
Cuyama Basin Groundwater Flow Model
(EKI B70069.00)

Based on EKI's partial review of the Cuyama Basin Integrated Water Resources Model (CBIWRM, or "the model"), there are a few key points to articulate regarding the use of modeling results to prepare the Groundwater Sustainability Plan for the Cuyama Basin.

Uncertainty addressed by SGMA. SGMA regulations define uncertainty, in part, as the lack of understanding of the basin setting that significantly affects an Agency's ability to develop sustainable management criteria and appropriate projects and management actions (23-CCR §351 (ai)). SGMA regulations state that an Agency shall take into account the level of uncertainty associated with the basing setting when developing projects and management actions (23-CCR §354.44 (d)).

Uncertainty of Model Predictions. Transient numerical models like the CBIWRM are based substantially on historical data and employ physical or empirical relationships to project future changes. Models approximate real-world conditions, and therefore by definition include error (model uncertainty). Moreover, datasets available to construct the model include gaps and errors that also contribute to model uncertainty.

Sensitivity of Model Predictions to Changes in Inputs. Some model input is more "sensitive" than others, meaning that a small change in the modeled value results in a relatively large change in model-calculated output. Model sensitivity is relevant when the range in model-calculated output based on the range of uncertainty in model input is great enough to change the decisions made based on the model results.

Uncertainty in Predicted Changes in Groundwater Storage. Predictions of future overdraft by the model have so far been presented as averages of annual values, or as time-series of cumulative groundwater storage losses. Model results have been presented as single numbers or definitive time-series plots without depiction or consideration of the effects of uncertainty that demonstrably exists within the model. Decisions based on those results, as presented, will not have been equipped to consider the range of possible outcomes, i.e., how wrong they might be.

For example, our preliminary model review identifies how uncertainty in a single model input (horizontal conductivity of the Morales Formation) contributes to substantial uncertainty in predicted groundwater storage loss as calculated by the model.

- The model's representation of water-transmitting properties (horizontal hydraulic conductivity, or "Kh") appears to be inconsistent with USGS field-based data in some units. Figure 1 uses statistical box plots to compare the range in reported measured Kh values for the major formations represented by the three model layers to values used in the model. 52% to 71% of the measured Kh values fall within the range delineated by the blue boxes in Figure 1. The red brackets to the left of each boxplot indicate the range in modeled horizontal hydraulic conductivity for the corresponding formations and model layers.

- Figure 1 shows that the range in Kh values for the Younger Alluvium (Model Layer 1) and Older Alluvium (Model Layer 2) generally is consistent with the range in measured values of Kh (i.e., substantial overlap exists between the measured values represented by the box plots, and the modeled ranges represented by the red brackets).

- In contrast, the modeled Kh of the Morales Formation (Model Layer 3) is 10 to 100 times lower than measured Kh values (the modeled range represented by the red bracket is smaller and much lower than the range in actual values represented by the box plot).

- When the Kh values specified in the model for Model Layer 3 (Morales Formation) are increased by factors of 10 and 100 to make the model inputs more in agreement with field-measured data, the model results indicate that model-calculated storage loss within the Cuyama Basin Water District decreases by 25% to 50% (see Figure 2). The Cuyama Basin Water District represents 34% of the basin area, thus, this uncertainty in predicted storage loss is highly significant. We noted during our review that incorporation of the more-realistic Kh values into the model does not adversely affect model calibration (comparisons between measured and model-calculated water levels) at locations observed within Cuyama Basin Water District (Figure 3).

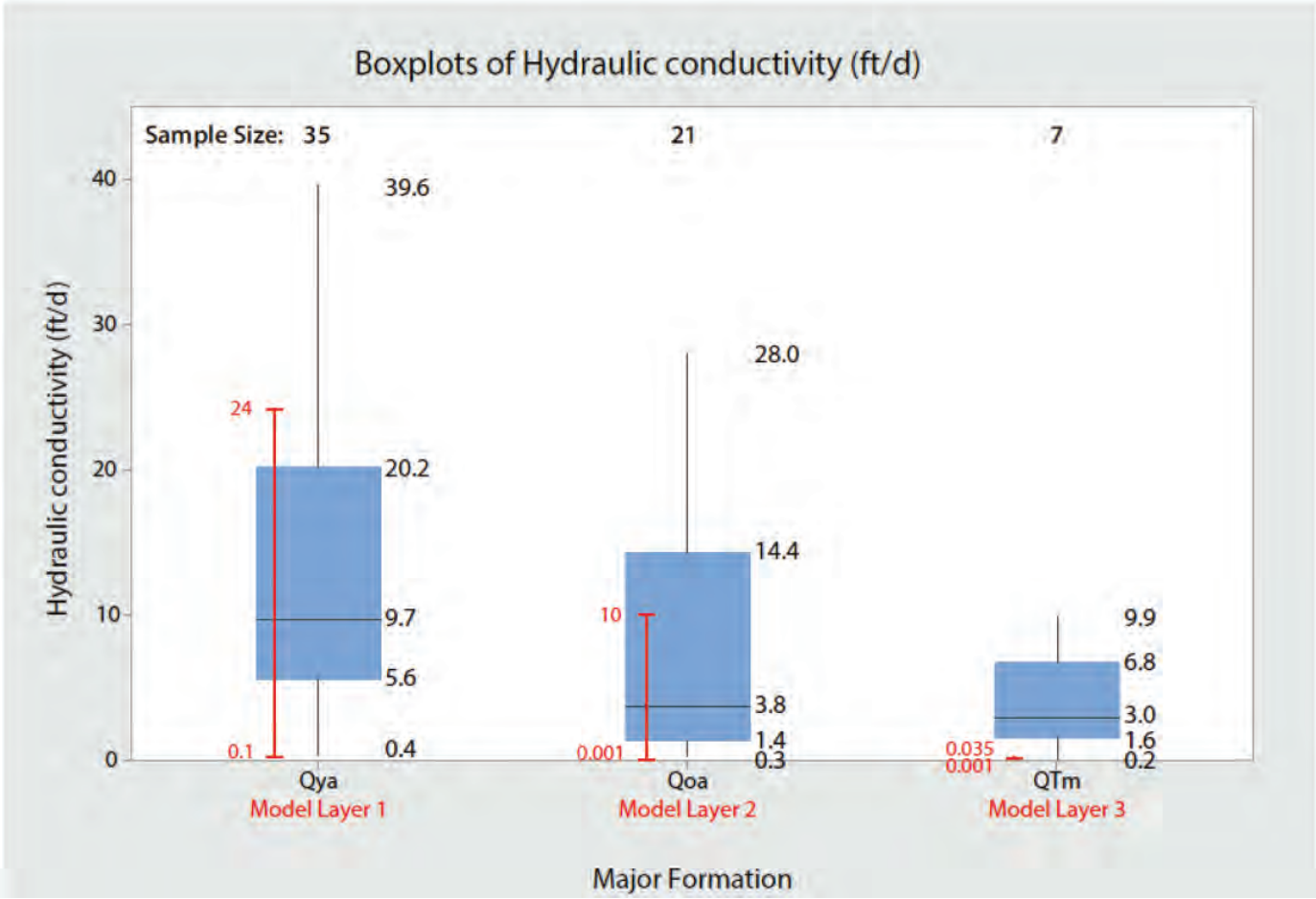
Recommendations. EKI recommends that the GSA Board refrain from making decisions related to Projects and Management Actions or pumping allocations based solely on the future overdraft conditions projected by the CBWIRM, as currently presented. It is important to remember that models do not make decisions. Rather, planners and managers make decisions based on model results, and those decisions include other relevant information. While the model is a potentially useful tool for projecting changes in basin conditions in response to proposed management actions, decisions based on model results must consider model uncertainty (how wrong the modeled projections might be).

As noted above, SGMA regulations state that an Agency shall take into account uncertainty associated with the basin setting when developing projects and management actions (23-CCR §354.44 (d)).

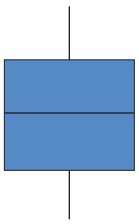
Accordingly, the uncertainty in model-projected conditions must be considered when developing projects and management actions.

The information provided by the CBWIRM should be provided to the GSA Board in a clear graphical form that acknowledges model uncertainty. At a minimum, the following is needed to support the Cuyama GSA Board decision-making process.

1. Identify the most sensitive model input parameters and compare the modeled values to measured values, when available. The lack of measured values for model input, if any, is itself indicative of model uncertainty.
2. Expand current graphics to present the range of uncertainty in projected groundwater levels, changes in storage, and other water budget components owing to uncertainty in the most sensitive model input parameters, to allow decisionmakers to understand the range of outcomes that are predicted by the model, rather than just one realization or scenario.
3. Evaluate the effect of uncertainty in model-projected water levels in wells on sustainable management criteria such as minimum thresholds.



Legend



Maximum

75th percentile

Median

25th percentil

Minimum

Notes

Major Formations
Qya - Younger alluvium
Qoa - Older alluvium
QTm - Morales Formation

Sources

Measured values from Everett, et. al., 2013, Geology, Water-Quality, Hydrology, and Geomechanics of the Cuyama Valley Groundwater Basin, California, 2008-12, U.S. Geological Survey Scietific Investigations Report 2013-5108.
Modeled values extracted from the Cuyama Integrated Water Resource Model.

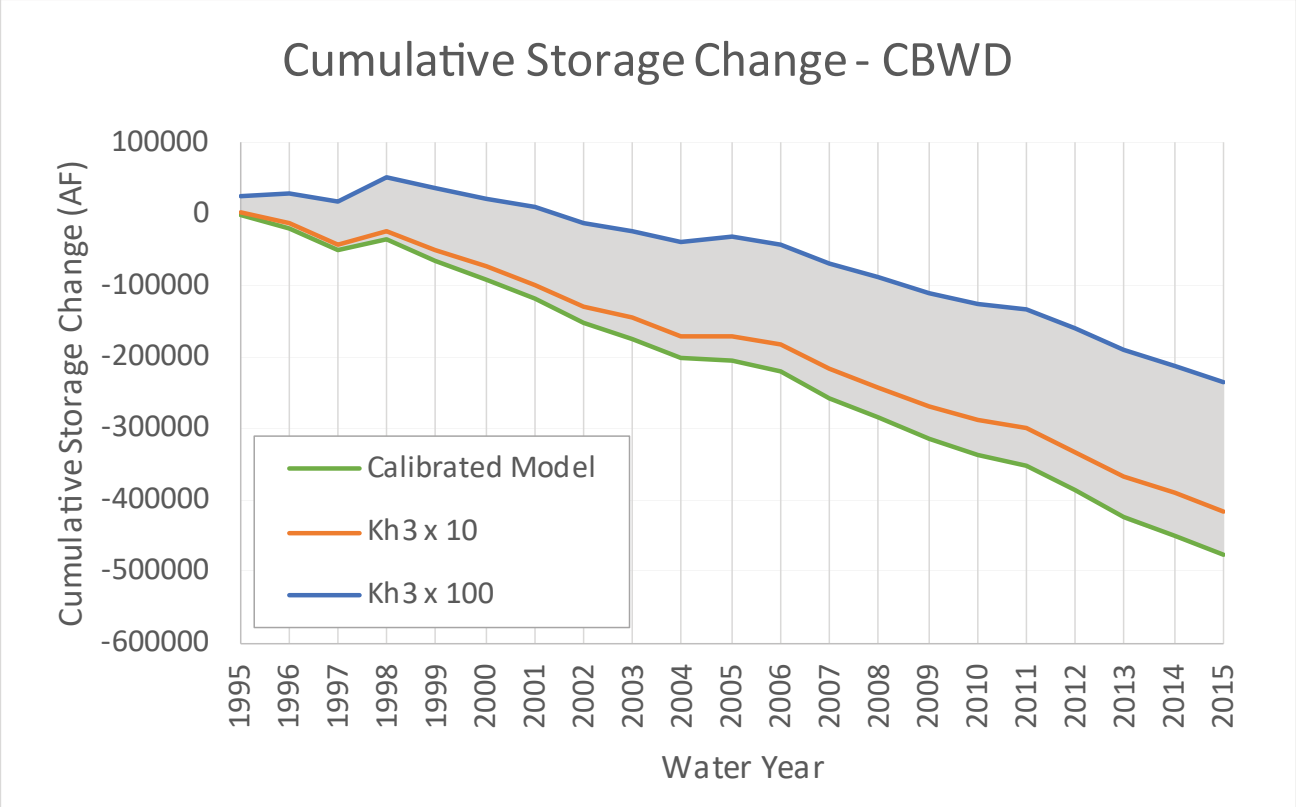
DRAFT

Comparison of Published Horizontal Hydraulic Conductivity Values with those use in the Cuyama Basin Integrated Water Model

Cuyama Basin Water District
Cuyama Valley, CA
April 2019
EKI B70069.00

eki environment & water

Figure 1



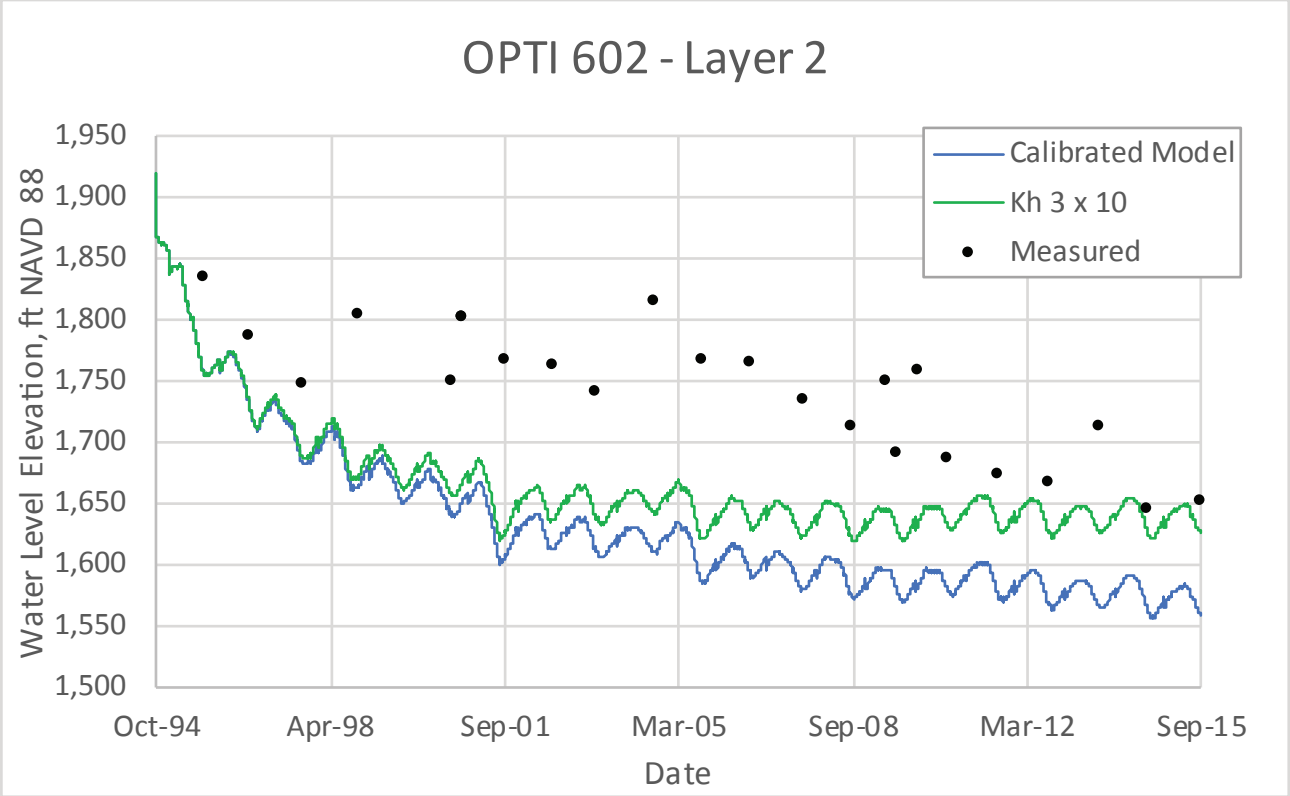
DRAFT

Sensitivity of Cumulative Storage Change to Changes in Model Layer 3 Horizontal Hydraulic Conductivity

Cuyama Basin Water District
Cuyama Valley, CA
April 2019
EKI B70069.00

Figure 2

eki environment & water



DRAFT

Sensitivity of Water Level Elevation to Changes in Model Layer 3 Horizontal Hydraulic Conductivity

Cuyama Basin Water District
Cuyama Valley, CA
April 2019
EKI B70069.00

Figure 3

TO: Standing Advisory Committee
Agenda Item No. 5c

FROM: Mary Currie, Catalyst Group

DATE: April 25, 2019

SUBJECT: Stakeholder Engagement Update

Issue

Update on the Cuyama Basin Groundwater Sustainability Agency Groundwater Sustainability Plan stakeholder engagement.

Recommended Motion

None – information only.

Discussion

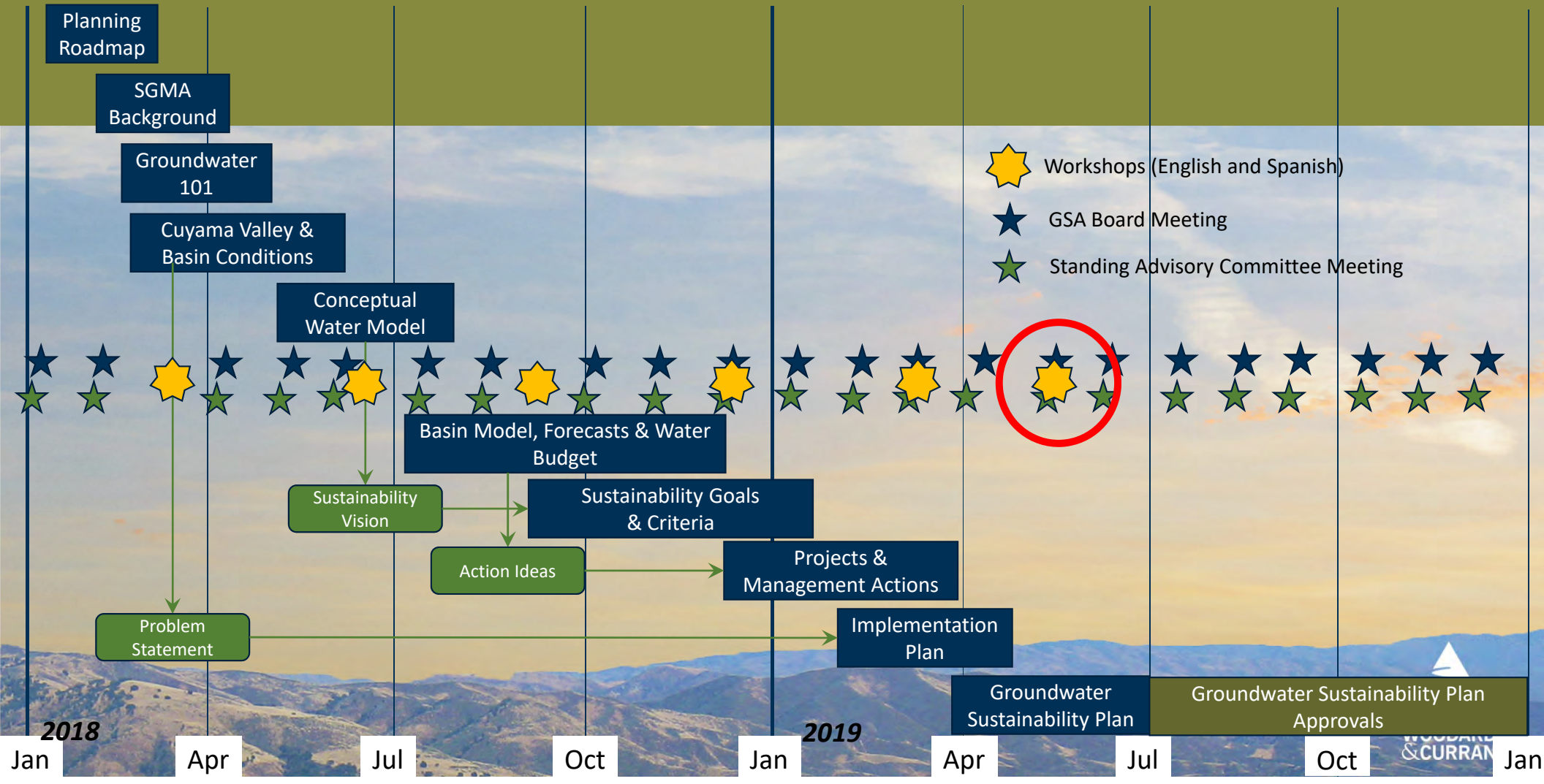
Cuyama Basin Groundwater Sustainability Agency (CBGSA) Groundwater Sustainability Plan (GSP) outreach consultant the Catalyst Group's stakeholder engagement update is provided as Attachment 1.

Cuyama Basin Groundwater Sustainability Agency

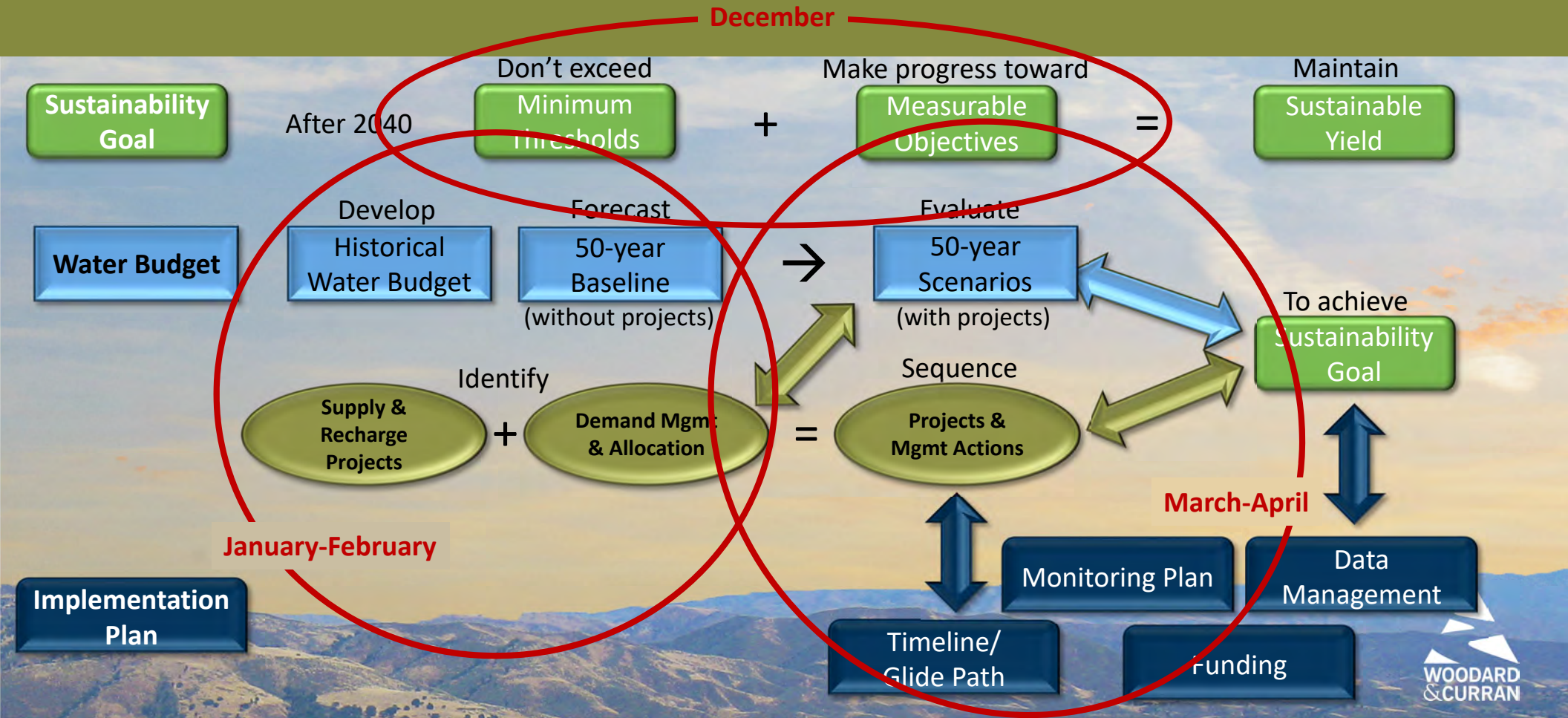
Groundwater Sustainability Plan Stakeholder Engagement Update

April 25, 2019

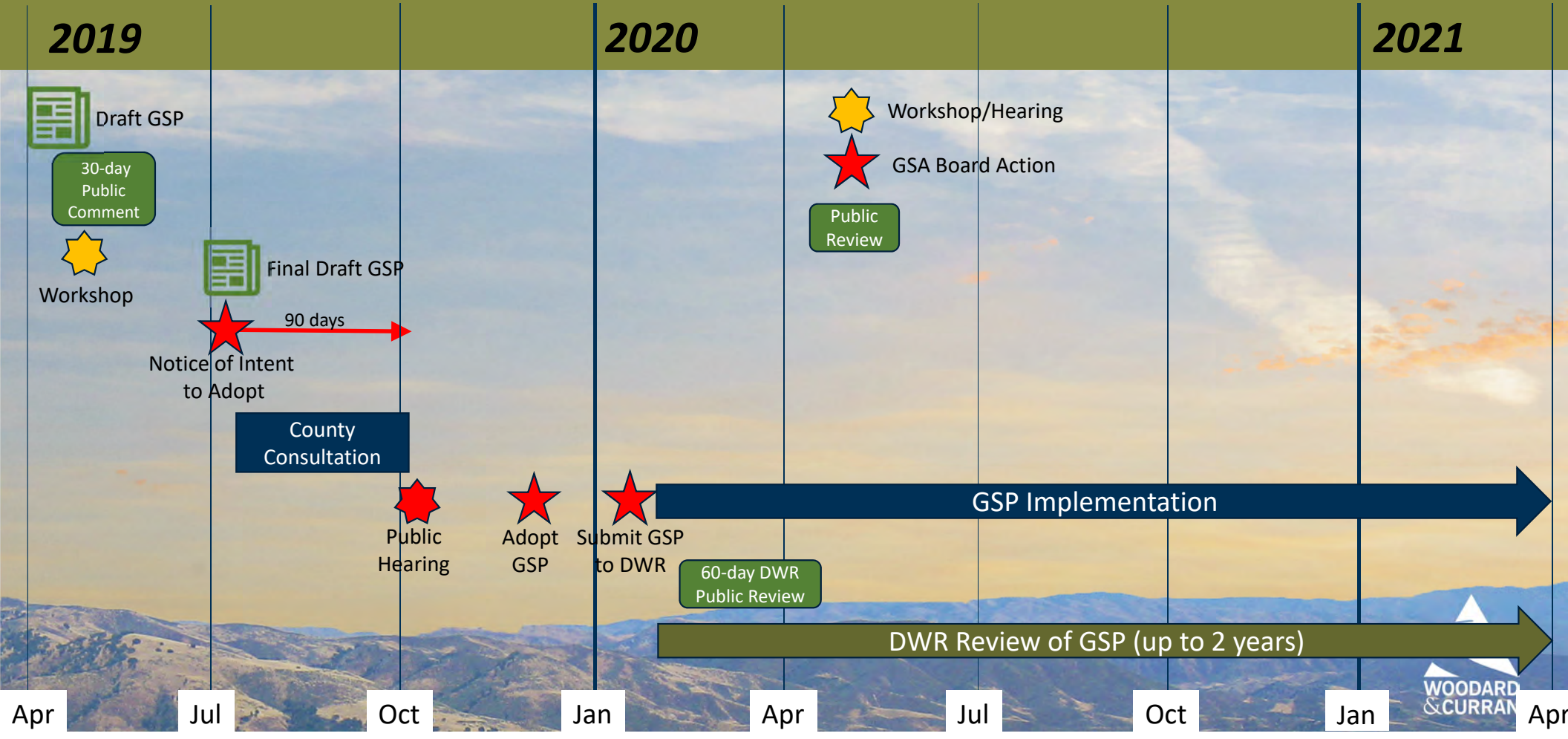
Cuyama Basin Groundwater Sustainability Plan – Planning Roadmap



GSP Discussion Approach & Terminology



GSP Public Review and Adoption Process



Update on Outreach Activities

- Community Workshops Wednesday, May 1
  - Highlights of the draft GSP
  - Public review process and comment opportunities
  - Community discussion and comment
- Notification
  - GSA Newsletter – email April 15 and hard copies at USPS and around the valley
  - Postcard – April 16 to property owners and PO Box holders
  - Volunteer hand distribution – April 17 through 29
  - SLO County email – week of April 22
  - CBGSA reminder email – April 25
- Public Comments due May 22

WOODARD &CURRAN

TO: Standing Advisory Committee
Agenda Item No. 6b

FROM: Jim Beck, Executive Director

DATE: April 25, 2019

SUBJECT: Board of Directors Agenda Review

Issue
Review of the May 1, 2019 Cuyama Basin Groundwater Sustainability Agency Special Joint Board of Directors and Standing Advisory Committee meeting agenda

Recommended Motion
None – information only.

Discussion
The May 1, 2019 Cuyama Basin Groundwater Sustainability Agency Special Joint Board of Directors and Standing Advisory Committee meeting agenda is provided as Attachment 1 for review.

SPECIAL JOINT MEETING OF CUYAMA BASIN GROUNDWATER SUSTAINABILITY AGENCY SPECIAL BOARD OF DIRECTORS AND STANDING ADVISORY COMMITTEE

Board of Directors

Derek Yurosek Chairperson, Cuyama Basin Water District
Lynn Compton Vice Chairperson, County of San Luis Obispo
Das Williams Santa Barbara County Water Agency
Cory Bantilan Santa Barbara County Water Agency
Glenn Shephard County of Ventura
Zack Scrivner County of Kern
Paul Chounet Cuyama Community Services District
George Cappello Cuyama Basin Water District
Byron Albano Cuyama Basin Water District
Jane Wooster Cuyama Basin Water District
Tom Bracken Cuyama Basin Water District

Standing Advisory Committee

Roberta Jaffe Chairperson
Brenton Kelly Vice Chairperson
Brad DeBranch
Louise Draucker
Jake Furstenfeld
Joe Haslett
Mike Post
Hilda Leticia Valenzuela

AGENDA

May 1, 2019

Agenda for a meeting of the Cuyama Basin Groundwater Sustainability Agency Board of Directors to be held on Wednesday, May 1, 2019 at 3:00 PM, at the Cuyama Valley Family Resource Center, 4689 CA-166, New Cuyama, CA 93254. To hear the session live call (888) 222-0475, code: 6375195#.

The order in which agenda items are discussed may be changed to accommodate scheduling or other needs of the Board or Committee, the public, or meeting participants. Members of the public are encouraged to arrive at the commencement of the meeting to ensure that they are present for discussion of all items in which they are interested.

In compliance with the Americans with Disabilities Act, if you need disability-related modifications or accommodations, including auxiliary aids or services, to participate in this meeting, please contact Taylor Blakslee at (661) 477-3385 by 4:00 p.m. on the Friday prior to this meeting. Agenda backup information and any public records provided to the Board after the posting of the agenda for this meeting will be available for public review at 4689 CA-166, New Cuyama, CA 93254. The Cuyama Basin Groundwater Sustainability Agency reserves the right to limit each speaker to three (3) minutes per subject or topic.

1. Call to Order
2. Roll Call
3. Pledge of Allegiance
4. Approval of Minutes
    a. April 3, 2019
5. Report of the Standing Advisory Committee
6. Technical Forum Update
    a. Discussion on Numerical Model

7. Groundwater Sustainability Plan
    a. Groundwater Sustainability Plan Update
    b. Discussion on GSP Public Draft
    c. Stakeholder Engagement Update
        i. Review of Public Draft Comment Period
8. Groundwater Sustainability Agency
    a. Report of the Executive Director
    b. Progress & Next Steps
    c. Report of the General Counsel
9. Financial Report
    a. Financial Management Overview
    b. Financial Report
    c. Annual Audit Firm Selection
    d. Fiscal Year 2019-20 Budget Adoption
    e. Review and Approval of Out-of-Scope Activities
    f. Payment of Bills
10. Reports of the Ad Hoc Committees
11. Directors' Forum
12. Public comment for items not on the Agenda

    At this time, the public may address the Board on any item not appearing on the agenda that is within the subject matter jurisdiction of the Board. Persons wishing to address the Board should fill out a comment card and submit it to the Board Chair prior to the meeting.
13. Correspondence
14. Public Workshops (6:30 pm) – New Cuyama High School Cafeteria, 4500 CA-166, New Cuyama, CA 93254
15. Adjourn (8:30 pm)