

CUYAMA BASIN GROUNDWATER SUSTAINABILITY AGENCY

STANDING ADVISORY COMMITTEE

Committee Members

Roberta Jaffe (Chair) Brenton Kelly (Vice Chair) Claudia Alvarado Brad DeBranch Louise Draucker Jake Furstenfeld

Joe Haslett Mike Post Hilda Leticia Valenzuela

AGENDA

November 1, 2018

Agenda for a meeting of the Cuyama Basin Groundwater Sustainability Agency Standing Advisory Committee to be held on Thursday, November 1, 2018 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
 - 1. GSP Schedule and Outline
 - 2. Sustainability Discussion
 - 3. Management Areas Adoption
 - b. Discussion on Monitoring Networks Chapter
 - c. DWR Technical Support Services Update

- d. Technical Forum Update
- e. Stakeholder Engagement Update
- 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 Standing Advisory Committee Meeting

September 27, 2018

Draft Meetings Minutes

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

PRESENT:

Jaffe, Roberta – Chair
Kelly, Brenton – Vice Chair
Alvarado, Claudia
DeBranch, Brad
Draucker, Louise
Furstenfeld, Jake
Haslett, Joe
Post, Mike
Valenzuela, Hilda Leticia
Beck, Jim – Executive Director
Hughes, Joe – Legal Counsel

ABSENT:

None

1. Call to Order

Chair Roberta Jaffe called the Standing Advisory Committee (SAC) to order at 4:00 pm.

Chair Jaffe briefed the group on the idea of study sessions, as discussed in previous meetings, and informed the group that they would be incorporating the study session concept into the meeting today. She reported that Woodard & Curran (W&C) was able to adjust the Groundwater Sustainability Plan (GSP) schedule to allow the SAC to have two meetings to review each GSP section. The first meeting would occur prior to comments being due and would function as a point for the SAC and stakeholders to ask any questions they have on the section or chapter. The second meeting would occur after comments are integrated in the GSP sections and additional clarification can be made at this meeting by the SAC or stakeholders. Chair Jaffe reported that this new format will allow the SAC to have a more in-depth discussion on each GSP section/chapter.

2. Roll Call

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

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

August 30, 2018 SAC minutes. A motion was made by Committee member Louise Draucker to adopt the minutes and seconded by Vice Chair Brenton Kelly. A roll call vote was made, and the motion passed.

Chair Jaffe commented that she appreciated how well the conversations were captured in the August 30, 2018 SAC minutes.

5. Report of the General Counsel

Nothing to report.

6. Groundwater Sustainability Agency

a. Report of the Executive Director

Mr. Beck provided an overview of the SAC meeting schedule for the remainder of the year. He stated that the October 2018 SAC meeting will be held on November 1, 2018 and the November SAC meeting will be held on November 29, 2018. Mr. Beck reported the December 5, 2018 joint SAC and Board meeting, along with the public workshop, will have to be rescheduled due to an overlapping event at the Cuyama Valley Recreation District. He said that GSP outreach consultant the Catalyst Group (Catalyst) will be looking into alternative dates and locations. Additionally, Mr. Beck let the SAC know that the December SAC meeting will need to be rescheduled to an alternative date, such as January 3 or January 7, 2019, due to the holidays. He said the SAC does not need to make a motion on the December SAC date today, but it is something to consider in the near future.

b. Board of Directors Agenda Review

Mr. Beck provided an overview of the October 3, 2018 CBGSA Board of Directors agenda.

Mr. Beck reported that the CBGSA continues to be on schedule and on budget. He mentioned that there were no ad hoc committee meetings last month.

7. Groundwater Sustainability Plan

a. Groundwater Sustainability Plan Update

Woodard & Curran Project Manager Brian Van Lienden provided an update on GSP activities which is included in the SAC packet.

Mr. Van Lienden reported the CBGSA held a public workshop on September 5, 2018 and the major topic for discussion at the November 1, 2018 SAC meeting will be on sustainability objectives.

Mr. Van Lienden reported that W&C received input on potential monitoring well sites from the tech forum for the California Department of Resources (DWR) Technical Support Services.

Mr. Van Lienden presented a draft schedule of the GSP section approval process.

Vice Chair Kelly asked when the unwritten portion of the Groundwater Conditions section will be available. Mr. Van Lienden said W&C was going to provide those updated sections in the final draft GSP plan.

Landowner Ann Myhre commented that it should not be a surprise if there are gaps in the GSP sections because certain data is not available yet. Chair Jaffe surmised that the GSP section gaps are a work in progress.

CBGSA Board Director Byron Albano asked if W&C can refer to what we are waiting on in the unwritten sections within a given GSP section. Mr. Van Lienden and W&C Senior Hydrogeologist John Ayers said they could do this.

i. Monitoring Networks Section Release

Mr. Ayres provided an overview of the Monitoring Network section. Mr. Van Lienden reported the Monitoring Network section was released on September 21, 2018, and comments to the section are due on November 9, 2018 after an in-depth discussion at the November 1, 2018 SAC meeting.

Committee member Joe Haslett asked Mr. Ayres to clarify what water quality monitoring is required under the Sustainable Groundwater Management Act (SGMA). Mr. Ayres said the CBGSA cannot regulate major groundwater cleanup efforts. Committee member Haslett asked why we are worried about water quality if it cannot be regulated. Mr. Ayres replied that the legislation requires GSAs to investigate water quality issues. He mentioned that salinity can potentially have some influence on groundwater pumping and recharge activities.

ii. Update on Data Management System Release

Mr. Van Lienden reported that a link to the Data Management System (DMS) has been posted on the CBGSA website along with a quick-start guide to assist users. The DMS includes all the well data that W&C has been able to collect so far. Vice Chair Kelly asked if W&C included well completion reports or perforations in the DMS. Mr. Van Lienden said the DMS will include perforations if they were digitally entered by the contributing entity. Mr. Ayres reported that the USGS depth to groundwater levels were off in several places and a lot of the data is raw since not many studies have been done in Cuyama. Mr. Ayres said they have total depth to groundwater for about half of the wells, and this matches what he has seen in other areas of the State.

iii. Management Areas Discussion

Mr. Ayres reported that he would like to review the options for various management areas and present W&C's recommendation. He said the sustainability thresholds will be dependent on the monitoring areas. Mr. Van Lienden and Mr. Ayres reported the group will need to make a decision on management area soon to keep on track with the GSP schedule.

Mr. Ayres presented an example of management areas based on jurisdictional boundaries. He then displayed an option of management areas based on physical boundaries separated into a central basin, west basin and east basin. The third option was based on current basin conditions as measured by depth to groundwater.

Mr. Ayres recommended four management areas by using a combination of current basin conditions and physical conditions, where three of the four areas are delineated by the Russel Fault and Santa Barbara Canyon Fault.

Vice Chair Kelly commented that his property is between east of the central basin and the southeast basin area. He said there are some significant irrigated operations along the river channel. He asked what the rationale for splitting Ventucopa into two management areas is when that data is based on only a few wells. Mr. Ayres stated that his rationale for treating these parts of Ventucopa as separate areas was that the two wells in the southeast area of

Ventucopa respond exactly the same and the Ventucopa area wells also track with each other.

Committee member Haslett said he agreed with Mr. Ayres' reasoning for the management areas.

Committee member Brad DeBranch asked why there is a push to decide the management areas now as opposed to waiting a couple months. Mr. Ayres replied that W&C now has all the data to begin implementing the management areas.

Mr. Albano commented that he felt Mr. Ayres reasoned out the management area recommendations very well. He said he will contact Mr. Ayres about some additional well data he has, but he is unsure of how reliable the data is. Mr. Albano said he is willing to add his wells into the monitoring network. He commented that the groundwater responds significantly different up the road from his property where the bedrock comes down across the valley and would be interested to understand why that is.

Ms. Myhre asked if more data was collected in five years, would the management areas be revised. Mr. Ayres said it is ultimately up to the Board, but yes, everything is up for discussion in those five-year update periods.

Cuyama Valley Family Resource Center Executive Director Lynn Carlisle asked why the Cuyama Community Services District (CCSD) was listed as a management area. Mr. Ayres said it was shown for purely jurisdictional reasons, but he is not an advocate of that option since it does not necessarily represent conditions.

Committee member DeBranch asked if different measurable objectives could be set without management areas. Mr. Ayres said it is possible, but he has received different information from DWR regarding this question.

Committee member Draucker asked why Mr. Ayres said it would not do CCSD any good to be in a separate management area. Mr. Ayres said because the CCSD is being impacted by the surrounding area. Committee member Draucker asked if thresholds are set by certain elevations of groundwater. Mr. Ayres said it depends on the type, but generally there is a monitoring well with a minimum threshold set and when the groundwater falls below the minimum threshold on the well, the area is triggered as experiencing an undesirable result.

Vice Chair Kelly said he appreciated Mr. Ayres' presentation and recommendation, however his only concern is all the production is within the channel and the monitoring wells are somewhat far away from those areas. He recommended pursuing additional data points recently offered by Mr. Albano and Grapevine Capital's Ray Shady.

Committee member Mike Post recommended approving the management area map.

Committee member Jake Furstenfeld asked if land use changes and well levels are impacted in a management area, can action be taken to address potential impacts. Mr. Beck said those concerns can absolutely be addressed. Mr. Ayres stated that the annual report would be able to determine impacts within the management area. Committee member Furstenfeld appreciated the information and agreed with the W&C's management area recommendation.

Committee member Leticia Valenzuela asked how W&C is going to guarantee the frequency of monitoring done in each management area. Mr. Ayres replied that there are wells currently being monitored, and those will provide the minimal knowledge we will have going forward. He mentioned that W&C will be adding more monitoring points in the future.

Ms. Myhre said her concern about using the Russel Fault is the possible elimination of high groundwater levels when that boundary is not brought to New Cuyama.

Chair Jaffe commented that there is a gradient between management areas and it will not be black and white. She reported that there is consensus among the SAC members on W&C's Management Area approach. Mr. Van Lienden said this presentation was presented to the tech forum on September 21, 2018 and there was general buy-in from them as well.

Vice Chair Kelly asked if the model recognizes management areas and Mr. Van Lienden replied that the model will not, but in the reporting W&C will recognize management areas.

Blue Sky Center Director of Finance and Creative Projects Jack Forinash asked who makes the final decision on management areas and Mr. Ayres replied the CBGSA Board does. Mr. Forinash expressed concern that New Cuyama's interests could be impacted.

Chair Jaffe called for a five-minute recess

b. Discussion on Hydrogeologic Conceptual Model Section

Mr. Ayres provided an overview of the Hydrogeologic Conceptual Model (HCM) section and its contents.

Committee member DeBranch asked what the concern on faults are. Mr. Ayres said the potential breaks in faults is a concern. He mentioned that certain faults are believed to be in existence but are not found on any maps or publications.

Vice Chair Kelly asked if the principle aquifer cross sections on page 2-27 will be moved to another GSP section. Mr. Ayres said they are model outputs and do not belong in the HCM but will be in the model documentation.

Chair Jaffe asked what the "conceptual" part of the section title means. Mr. Ayres said the section was named in the regulations and that this word is used because it is the initial framework for the model. Chair Jaffe asked what the main takeaway points are from the HCM. Mr. Ayres replied Cuyama Basin is a very complex, but the main takeaways from the HCM are things like: what is the basin boundary, where the major faults are, the main formations, and the general typography. He said that the HCM is more about understanding the big picture and if it passes the smell test.

Vice Chair Kelly said he thought the HCM components were done well, but he felt the way the components work together was missing in the HCM. Mr. Ayres said W&C actually updated the model grid a couple times based on the data. Vice Chair Kelly said he thought it was important to use the HCM in understanding the Integrated Water Flow Model (IWFM). Mr. Ayres said the recharge components do not belong in the HCM, but the Water Budget section instead.

Chair Jaffe said it would be helpful to have a brief description of what each GSP section includes.

Mr. Beck asked W&C to look into what it would take to write a brief narrative on each GSP section. He mentioned the Hallmark Group will also distribute the GSP schedule again.

Mr. Albano asked if W&C had thought of acquiring a 3D model of the Cuyama Basin. A couple of the SAC members said it would be helpful. Mr. Beck said it could be helpful, but we would have to determine if we have the budget for it.

Vice Chair Kelly said that in the HCM comments presented several committee members have asked how the age dating of water will be presented in the Groundwater Conditions section. Mr. Ayres said the tritium study was not very compelling to him in that it is getting old and there is not much of it left. He mentioned that in deep aquifers, there is not a lot of movement, but there is mixing of newer water sources, and he is unsure of the ratio. Mr. Ayres said he will look at the tritium study again and respond.

Vice Chair Kelly mentioned that some of the mountain ranges, such as the Caliente range, are referenced but not labelled on the maps. Mr. Ayres said he will label these.

A motion was made by Committee member Post to adopt the HCM section and seconded by Committee member DeBranch. A roll call vote was made, and the motion passed.

c. Discussion on Groundwater Conditions Section

Mr. Van Lienden provided an overview of the Groundwater Conditions section.

Committee member Furstenfeld asked if we are losing storage with an increase in subsidence. Mr. Ayres said that is technically correct but is not relevant. Where subsidence occurs is where clay layers compress. The water in the clay helps it hold its shape, but when you dewater clay they start moving toward alignment and compress. So, a foot of subsidence means you have a foot of squished clay. He commented that wells do not screen where the clay layers are.

Chair Jaffe asked when should subsidence become worrisome. Mr. Ayres said that is a discussion within the threshold conversation that will take place at next month's meeting. Mr. Ayres said when subsidence impacts structures would be concerning, but he does not anticipate subsidence to impact groundwater storage in a significant way in Cuyama. Mr. Ayres stated if you do not have a lot of water infrastructure, you may not worry about subsidence.

Landowner Steve Gliessman asked if subsidence can affect storage differently in areas that are a mixture of sand and clay and Mr. Ayres replied that there is not a lot of space being lost in those areas.

Committee member Post asked if there is a relationship between subsidence and being on the subduction side of the San Andreas. Mr. Ayres said it is possible that tectonics play into fault creep and that fault creep is happening in the central basin.

Mr. Ayres showed the groundwater elevation contour maps and commented that water can take months to years to move through the gradients.

Committee member Post asked if it is possible to age the water in the aquifer. He mentioned that if the water was made post-glacially, and we are now extracting that water, that should allude to something. Mr. Ayres said he will look into this.

Chair Jaffe said her understanding on pumping deep water is that it affects ground water quality. Mr. Ayres said that is why salinity is tracked.

d. Technical Forum Update

Mr. Van Lienden provided an overview of the August 31, 2018 technical forum call. A summary of the issues discussed is provided in the SAC packet. He reported the date for the upcoming technical forum will need to be pushed back to October 26, 2018 to accommodate the sequence of the Cuyama Basin Water District Board meeting.

e. Stakeholder Engagement Update

GSP Outreach Catalyst Group's Mary Currie provided an update on stakeholder engagement activity. Ms. Currie reported on the September 5, 2018 workshop. She mentioned that there were 10 new stakeholders that attended the workshop and signed in.

Committee member Draucker informed the group that the workshop was held on the same day as three other events and the CBGSA should be mindful of other events that come up to ensure maximum participation from stakeholders.

Ms. Carlisle said a microphone is essential for the workshops to ensure everyone can hear and Mr. Beck said he agreed and the team is already working on a solution.

Ms. Currie encouraged the group to read the workshop summary for comments to assist in formulating future decisions.

8. Items for Upcoming Sessions

Chair Jaffe asked for feedback from the Committee on the study session that was implemented this meeting. Committee member Haslett suggested reviewing just one GSP section per meeting. W&C staff informed the group that the GSP schedule does not allow the SAC to review just one section at a time.

9. Committee Forum

Nothing to report.

10. Public comment for items not on the Agenda

Nothing to report.

11. Adjourn

Chair Jaffe adjourned the meeting at 7:05 p.m.

I, Jim Beck, Executive Director of the Cuyama Basin Groundwater Sustainability Agency, do hereby certify that the foregoing is a fair statement of the proceedings of the meeting held on Thursday, September 27, 2018, by the Cuyama Basing Groundwater Sustainability Agency Standing Advisory Committee.

Jim Beck

Dated: November 1, 2018



TO: Standing Advisory Committee

Agenda Item No. 5a

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

DATE: November 1, 2018

SUBJECT: Groundwater Sustainability Plan Update

<u>Issue</u>

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 consultant Woodard & Curran's GSP updates are provided as the following attachments:

Attachment 1 – GSP Update

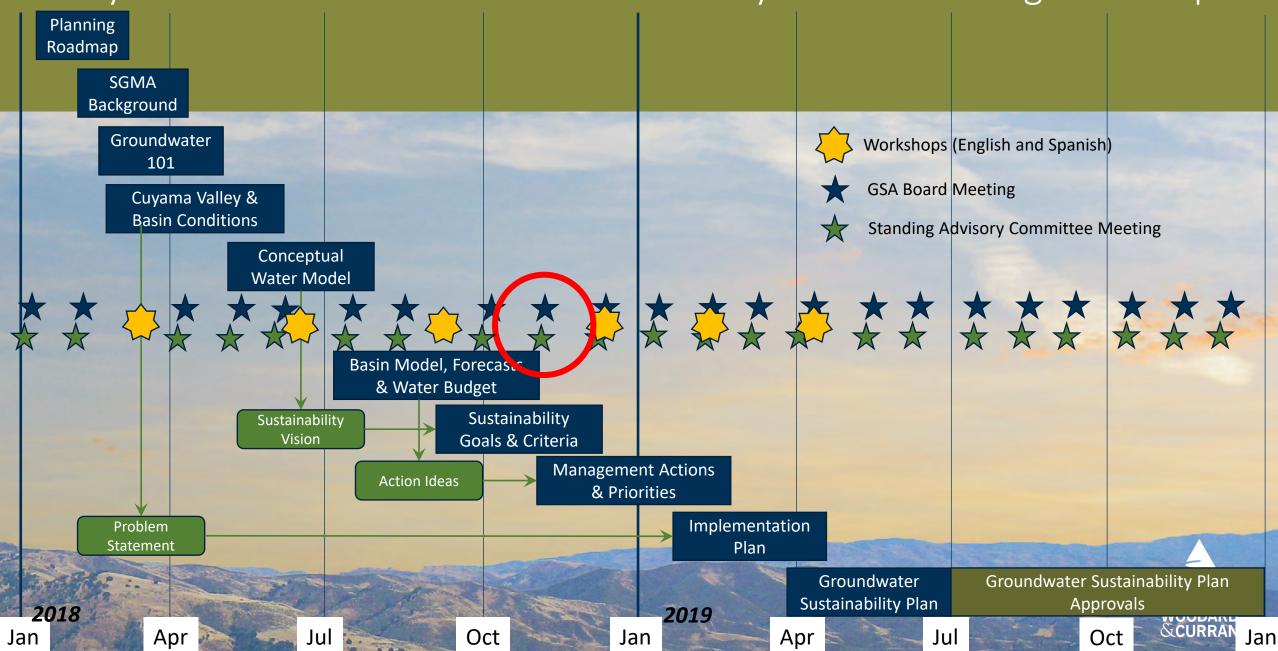
Attachment 2 – GSP Schedule and Outline

Attachment 3 – Sustainability Discussion

Attachment 4 – Management Areas Adoption



Cuyama Basin Groundwater Sustainability Plan – Planning Roadmap



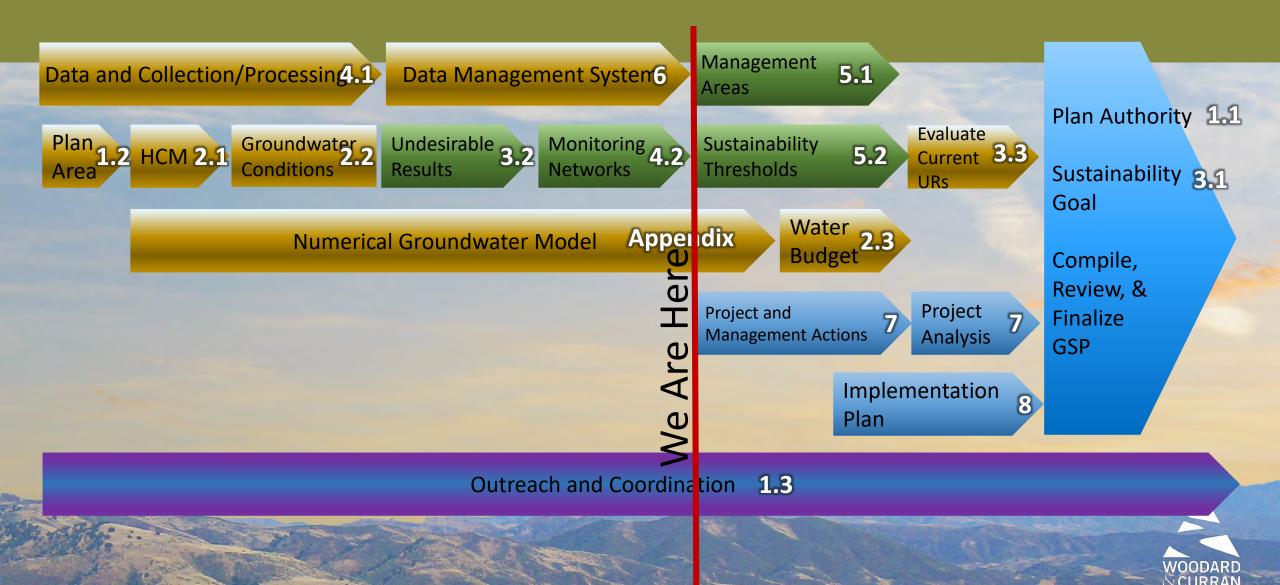
October GSP Accomplishments

- ✓ Distributed revised Hydrogeologic Conceptual Model section
- Developed proposed management areas for discussion
- Developed conceptual sustainability approaches for discussion
- ✓ Identified well locations for CA DWR Technical Support Services
- Refined historical calibration of GSP numerical model
- Developed Cuyama Basin GSP newsletter





GSP Development Process



GSP Sections

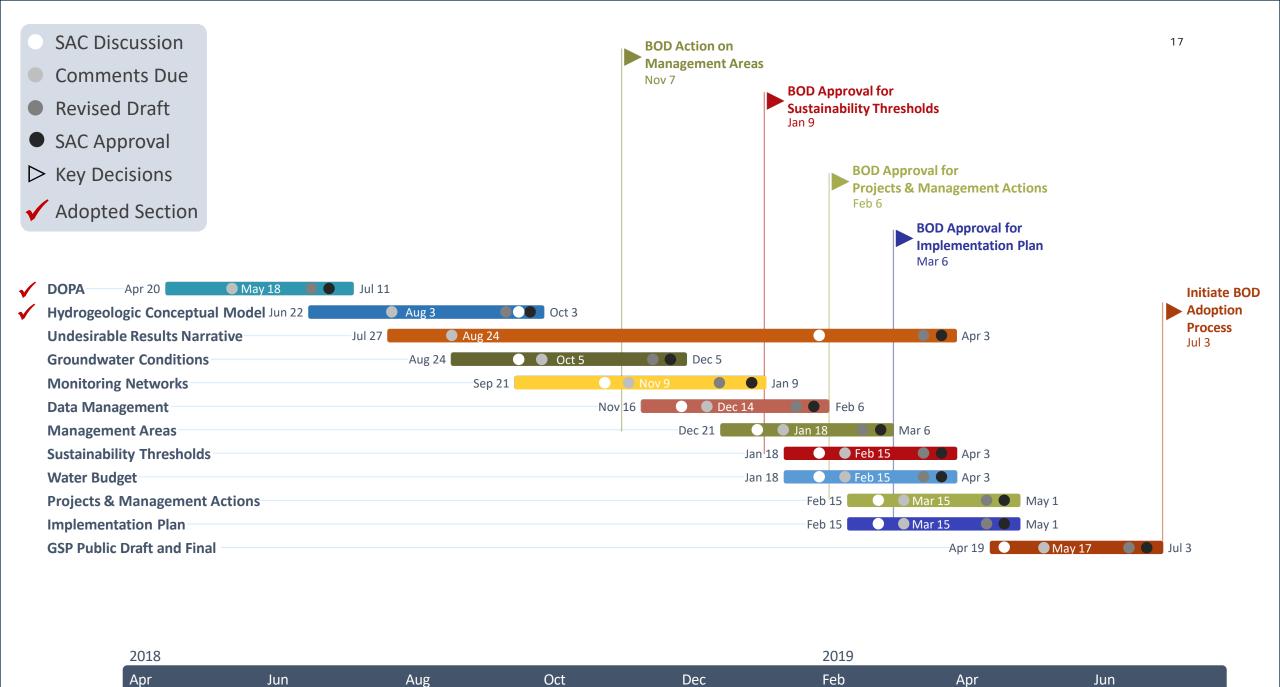
- 1. Introduction
 - 1.1 GSA Authority & Structure
 - 1.2 Plan Area
 - 1.3 Outreach Documentation
- 2. Basin Settings
 - 2.1. HCM
 - 2.2 GW Conditions
 - 2.3 Water Budget

Appendix: Numerical GW Model Documentation

- 3. Undesirable Results
 - 3.1 Sustainability Goal
 - 3.2 Narrative/Effects
 - 3 2 ID Current Occurrence

- 4. Monitoring Networks
 - 4.1 Data Collection/Processing
 - **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. GSP Implementation





Today

Cuyama Basin Groundwater Sustainability Agency

Update on USGS Tritium Study

November 1, 2018



USGS Tritium Study

- Deep groundwater that is not disturbed does not move much if at all.
- Deep groundwater entered the subsurface at older time periods
- Therefore: there should not be tritium in deep groundwater – unless it has been disturbed (mixed) by pumping activities, such as in CVFR
- "The presence of modern water throughout the depth profile (of CVFR) is most likely caused by local pumping. Pumping at depth can alter the natural flow paths and draw younger water from the edges of the basin under the shallower, non-pumped units or can draw younger water down to the pumped depths from above." (USGS)
- Additional verbal discussion and demonstration to be provided



Age Dating

Water samples from all of the well and CVFR sites were analyzed for tri other wells (CUY-01 through -08,-11 for tritium, and twenty wells (CUY-0 and -17 through 26) and one spring (5 for carbon-14 (table 9). Tritium and c provide information about the age (ting groundwater. Tritium is a short-lived of hydrogen; therefore, tritium conce detection level (0.3 picocuries per lite of water recharged since the early 19. (Plummer and others, 1993; Clark an

Samples from CVKR-3, CVKR-4 tritium concentrations near the detec indicating recent recharge. Samples CVBR-1, CVBR-2 and CVBR-4 con less than 0.3 pCi/L, indicating that the was recharged prior to the early 1950 in CVKR-3 and CVKR-4 was suppo NO,-N concentrations in samples fro Samples from all four wells at the CV relatively high concentrations of tritiwater from these wells contains water 1950s. Tritium concentrations at the with depth. The presence of modern depth profile is most likely caused by at depth can alter the natural flow pat water from the edges of the basin unpumped units or can draw younger v depths from above. Greater groundw depth intervals are consistent with th gradients at CVKR and CVBR; how temperature gradients at CVFR were to these sites, indicating lateral groun are relatively modest. However, the were consistent with recharge derived water at all depths. Because the CVF zone that is nearly 570 ft thick with : is most likely that recharge from the horizontal and vertical flow paths thr between the river and CVFR to reach

Tritium was detected in 14 of the 2 collected from other wells (table 9). I in these samples ranged from 0.43 to of tritium in most of the wells indicate

of tritium in most of the wells indicated that recent recharge contributes to the water resources in all zones in the Cuyami Valley groundwater basin.

Carbon-14 is a radioactive isotope of carbon with a half-life of about 5,700 years (Godwin, 1962). Carbon-14 activities are used to determine the age (time since recharge) of groundwater on time scales ranging from recent to more than 20,000 years before present (Izbicki and Michel, 2003). Carbon-14 ages presented in this report do not account for changes in carbon-14 activities resulting from chemical

Prepared in cooperation with the Santa Barbara County Water Agency

Geology, Water-Quality, Hydrology, and Geomechanics of the Cuyama Valley Groundwater Basin, California, 2008–12



Scientific Investigations Report 2013-5108

U.S. Department of the Interior U.S. Geological Survey





Schedule for Thresholds Discussion

- Tech Forum Oct 23
- SAC Nov 1
- Board Nov 7
- Tech Forum Nov 13
- SAC Nov 29
- Board Dec 3
- Public Workshop Dec 3
- Board Direction on Sustainability Thresholds Jan 9
- Release Thresholds GSP Section Jan 18

SAC - Jan 31

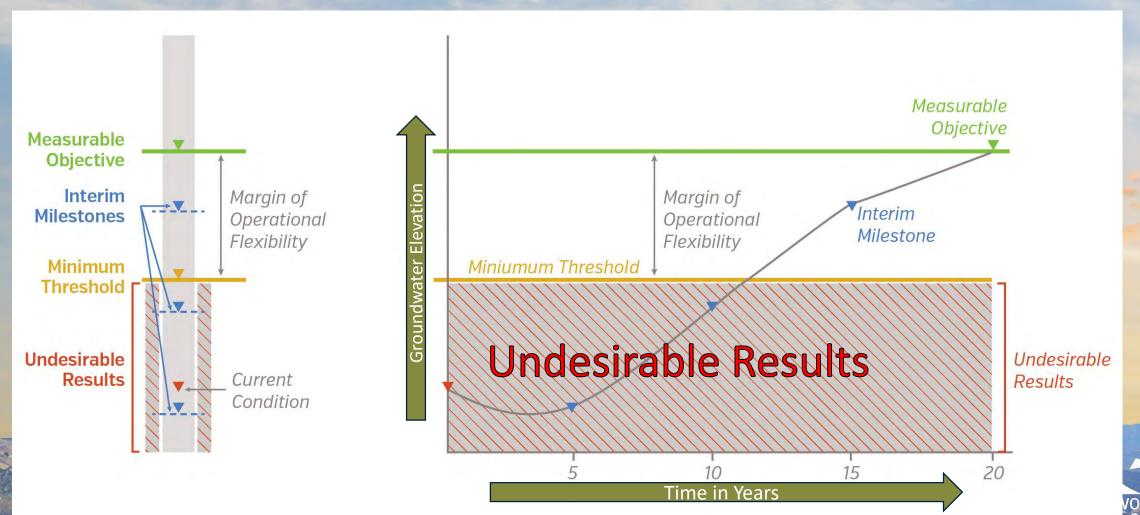
Input and Discussion

Initial Recommendations





Sustainability Thresholds Overview





Minimum Thresholds

- Indicate that above this threshold undesirable results are not occurring
 - The lowest the basin can go at this monitoring point without something significant and unreasonable happening to groundwater
- Are set on the monitoring network at each monitoring point
- Set by using a <u>rationale</u> to reach a <u>quantitative threshold</u>
- The rationale must explain why that minimum threshold prevents undesirable results
- 3 example rationales to be shown today



Measurable Objectives (MOs) Overview

- MOs use the same 'metrics' as Minimum Thresholds (MTs)
 - <u>'metrics'</u> are the thing being measured, like groundwater elevation, EC, subsidence in inches
 - Set by using a rationale to reach a quantitative threshold
- MOs are quantitative goals that are set to create a useful Margin of Operational Flexibility (MoOF).
- The MoOF is an amount of groundwater above the MT that should accommodate droughts, climate change, conjunctive use operations, or GSP implementation activities.
- The MoOF should be used to provide a buffer in groundwater levels so that the basin can be managed without reaching minimum thresholds during drought periods

Example Rationales for Minimum Thresholds:

Rationale 1 – Jan 1, 2015

Prevents undesirable results that occurred after January 1, 2015. Based on SGMA legislation – "The plan may, but is not required to, address undesirable results that occurred before, and have not been corrected by, January 1, 2015."

Rationale 2 - % of range of measurements

 Prevents undesirable results in areas with shallow groundwater conditions by estimating the depth at which undesirable results would occur based on the range of measurements at the monitoring well.

Rationale 3 – Nearby wells

Prevents undesirable results by comparing nearby well infrastructure to groundwater levels in the monitoring well, intended to prevent de-watering of nearby wells.



Example Rationales for Measurable Objectives

- Rationale 1 5 years of supply storage
 - Selected by identifying levels from 5 years before the minimum threshold
 - Used on monitoring wells with over 5 years of historic record
- Rationale 2 Historic average of levels
 - Selected by calculating the mean of measurements
 - Used on monitoring wells without 5 years of historic record



Measurable Objectives (MOs) & Minimum Thresholds (MTs) Overview

1. Rationale 1 - Jan 1, 2015

- MT= Jan 1, 2015 -- or closest measurement in 2015
- MO= 5-years previous measurement, or slope of linear trendline to extrapolate

2. Rationale 2 - % of range of measurements

- MT= Historical low, lowered by 20% of the range of measurements on the well
- MO= 5-years above historical low lowered by 20% of the range of measurements on the well (uses same extrapolation in Strategy 1 if needed)

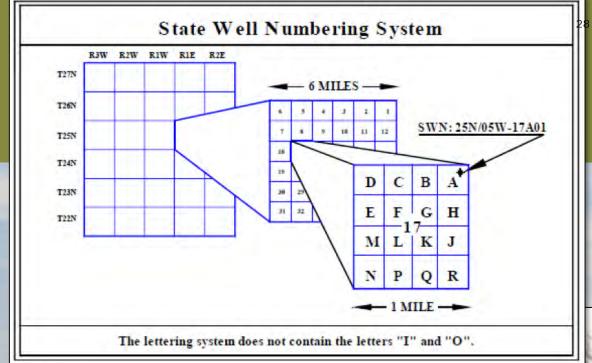
3. Rationale 3 - Nearby wells

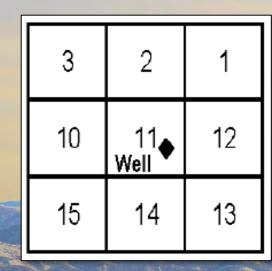
- MT= Shallowest well* in the 9 Township/Range Sections in and around the monitoring well (~9 sq. mi.), OR historical low of measurements on the monitoring well, whichever is deeper.
- MO= Average of all measurements at the well

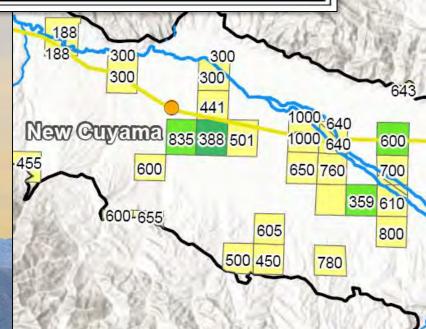


"Shallowest Well in Nine Square Miles"

- Well depth information from DWR's well completion report database
 - Located by State Well Number
 - Township, Range, and Section
- Identify all wells in the database within the nine sections around the monitoring well
- Select the shallowest
- Apply that depth at the monitoring well's location/elevation
- There are significant limitations in this methodology
 - Topography
 - Data availability





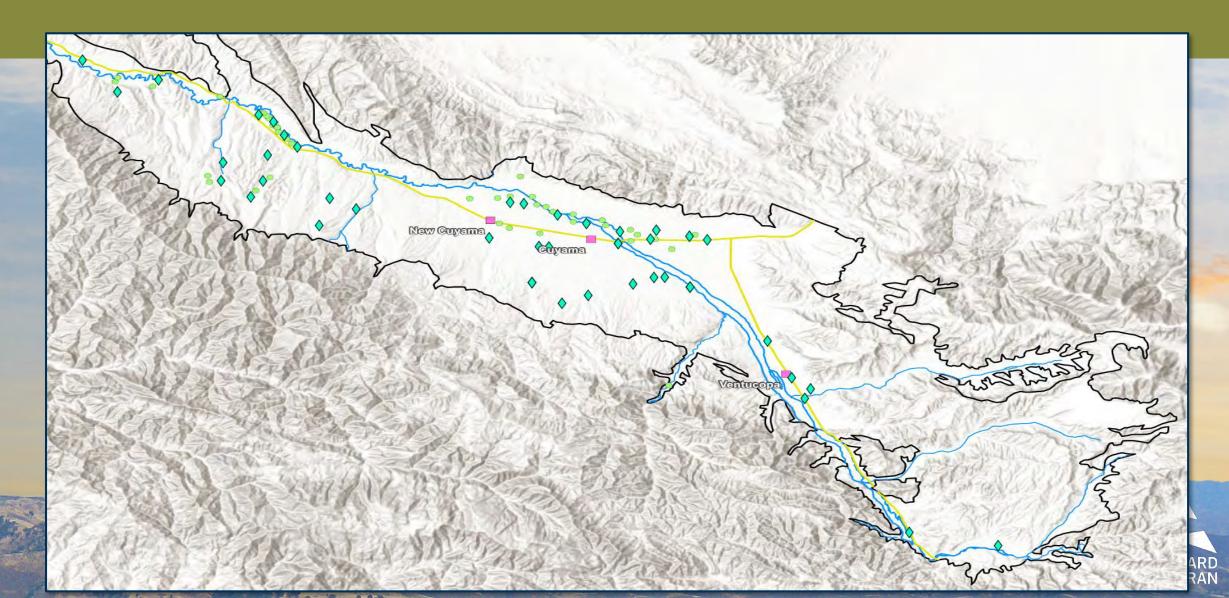


Where are Minimum Thresholds Applied?

- Minimum Thresholds are only applied to Representative Wells within the Monitoring Network.
 - Monitoring Network = 88 wells
 - Representative Wells = 49 wells
 - Selected to represent the long term regional trends in the basin
- These are discussed in the Monitoring Networks section of the GSP (released September 21, 2018)



Representative Wells



What if Thresholds are Not Met During GSP Implementation?

- GSP regulations and BMPs do not encourage management of discrete portions of the basin as they relate to individual monitoring wells
- For each individual monitoring well:
 - When a minimum threshold is unexpectedly reached, the GSA should investigate why, and evaluate whether the threshold is reasonable or not, given current conditions compared to conditions when the GSP was adopted.
 - Will be discussed in Management Actions Section of GSP
- As thresholds relate to the entire basin:
- This is when Regulators like SWRCB can get involved The Undesirable Result is considered to occur during GSP in XX% of representative monitoring wells (XX of 49) for minimum groundwater elevation thresholder.

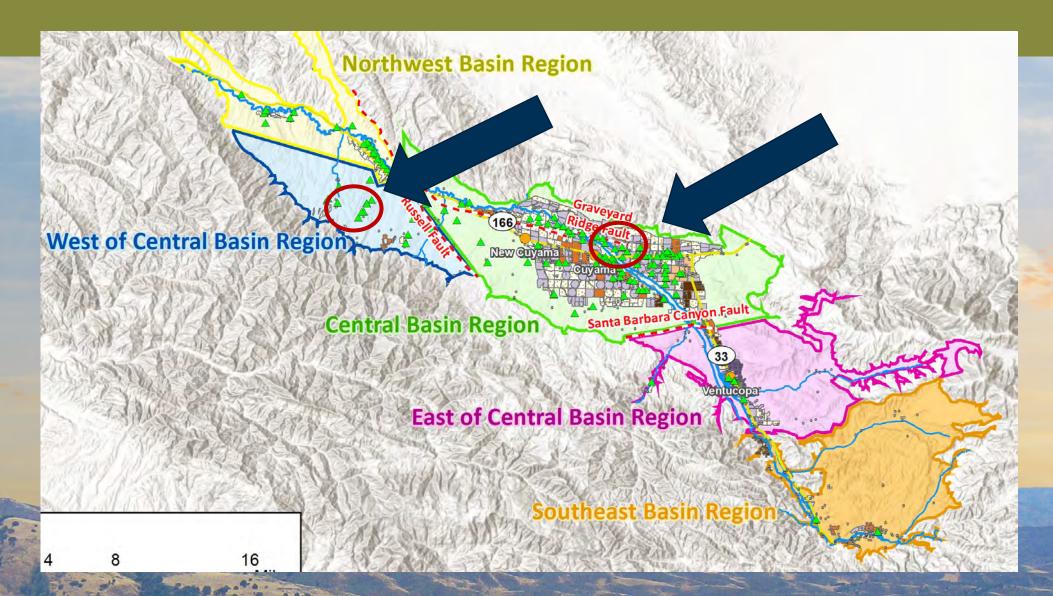


Measurable Objectives (MOs) & Minimum Thresholds (MTs) Overview

- Thresholds in the 2020 Cuyama GSP are a *Starting Point* to identify what is sustainable in the basin
- Initial strategies presented today are intended to introduce the concepts, and will be further refined.
- No single rationale or method works across the entire basin
- Limited periods of record in monitoring in some wells cause uncertainty in defining thresholds and will require updates as more data is collected over time
- Thresholds will be updated in GSP update in 2025



Location Guide





Strategy 1

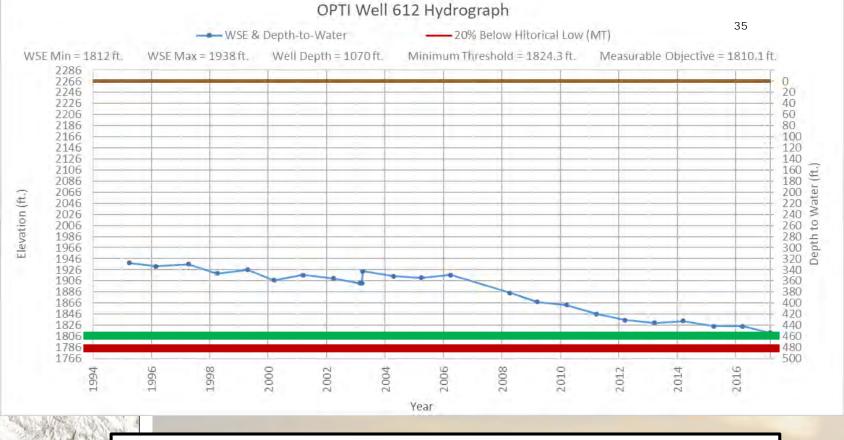


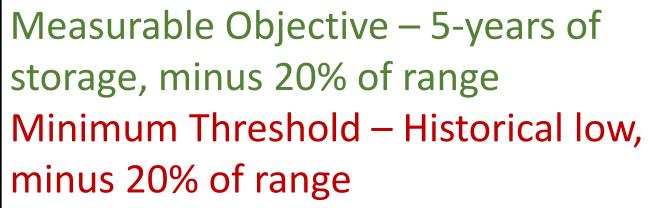


Minimum Threshold – Measurement Closest to (but after) January 1, 2015

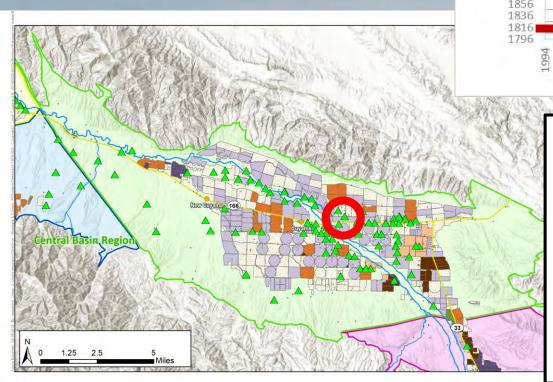
WOODARD &CURRAN

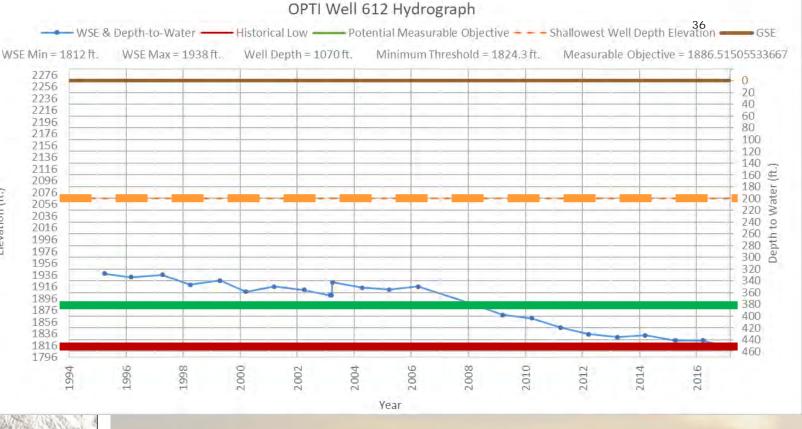
Strategy 2





Strategy 3

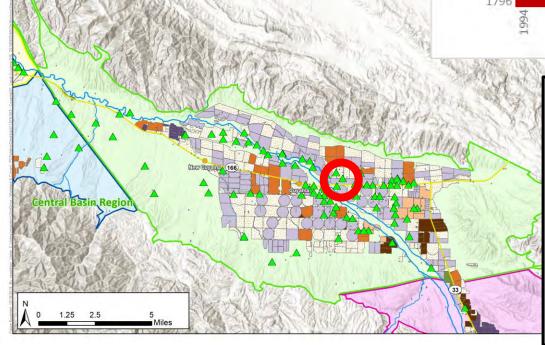




Measurable Objective – Average of all measurements
Minimum Threshold – Shallowest nearby well OR historical low, whichever is deeper



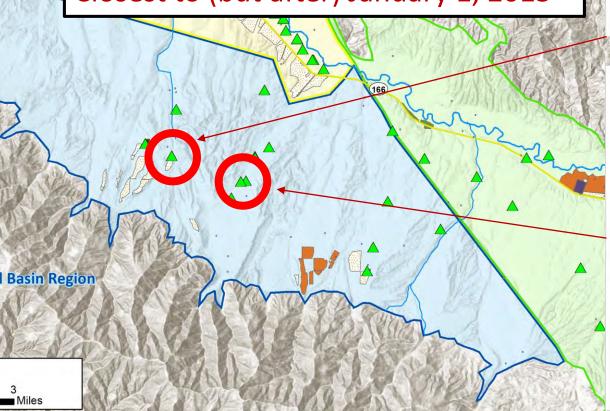
OPTI Well 612 Hydrograph



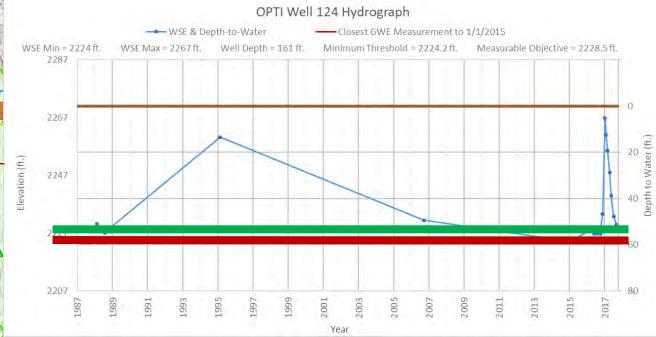
Measurable Objective –
Measurement Closest to (but after)
January 1, 2015
Minimum Threshold – 5 years of
storage below Jan 1, 2015

Measurable Objective – 5-years of Storage

Minimum Threshold – Measurement Closest to (but after) January 1, 2015







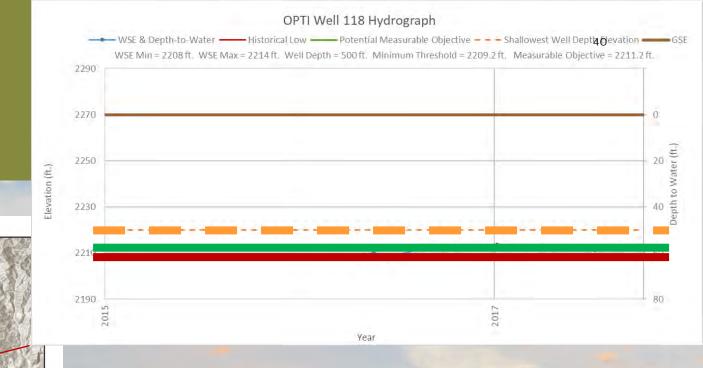
Basin Region

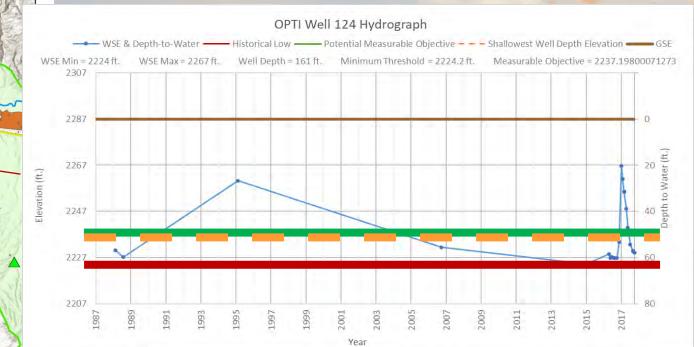
Measurable Objective – 5-years of storage, minus 20% of range Minimum Threshold – Historical low, minus 20% of range



Basin Region

Measurable Objective – Average of all measurements
Minimum Threshold – Shallowest nearby well OR historical low, whichever is deeper

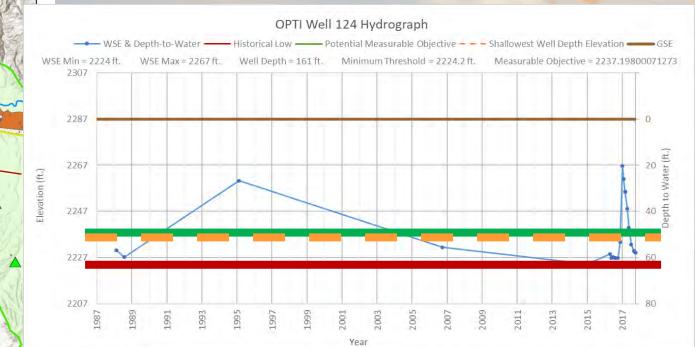




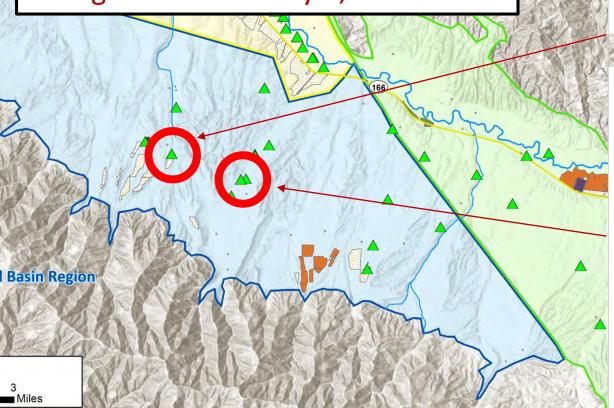
Basin Region

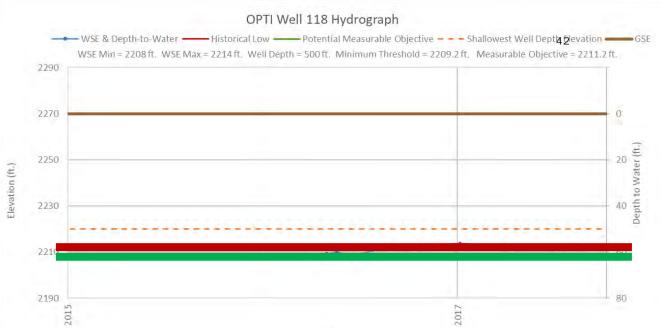
Measurable Objective – Average of all measurements
Minimum Threshold – Shallowest nearby well OR historical low, whichever is deeper

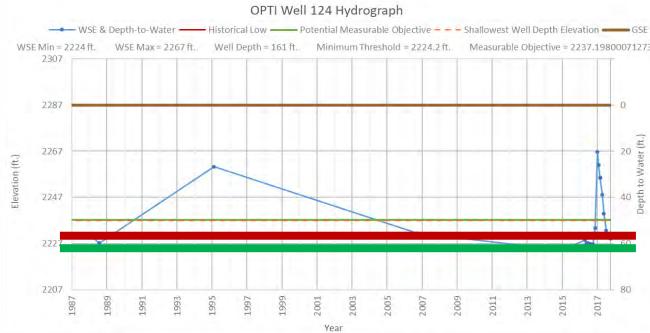




Measurable Objective – January 1, 2015 (not measured) Minimum Threshold – 5 years of storage above January 1, 2015







Thresholds and Next Steps

- Review and Consideration by Tech Forum, SAC, and Board
- Receive comments
- Select recommended rationales
- Prepare sustainability thresholds GSP section
- Public Workshops: December 3rd, 2018.





Process for Management Areas Discussion

- Tech Forum Sep 21
- SAC Sep 27
- Board Oct 3

- Tech Forum Oct 23
- SAC Nov 1
- Board Nov 7

Input and Discussion

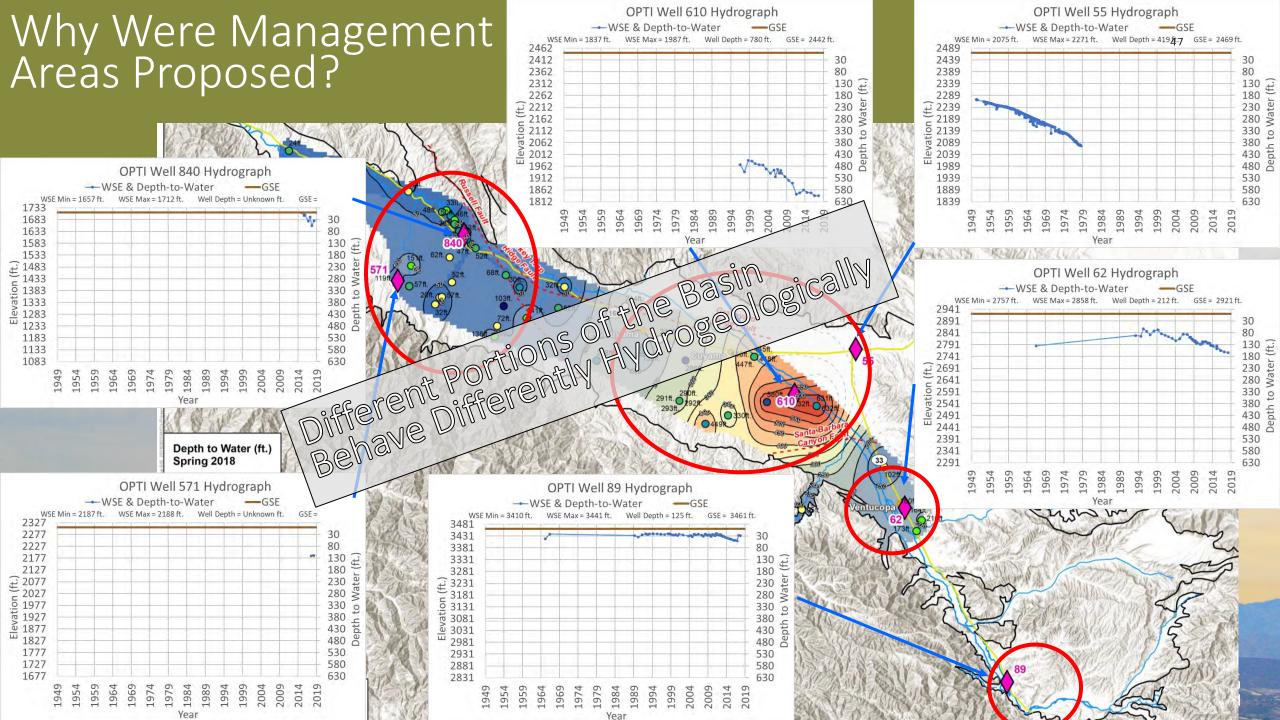
Recommendation and Board Approval



Why Were Management Areas Proposed?

- To allow different rationales for setting Minimum
 Thresholds, Measurable Objectives, and Interim Milestones
 - Which are needed to meet GSP regulations, because:
- There are distinct hydrogeologic conditions in different portions of the basin





DWR Definition of a "Management Area"

- "... may be defined by natural or jurisdictional boundaries, and may be based on differences in water use sector, water source type, geology, or aquifer characteristics."
- "Management Areas may have different minimum thresholds and measurable objectives than the basin at large and may be monitored to a different level."
- "Other portions of the GSP (e.g., hydrogeologic conceptual model, water budget, notice and communication) must be consistent of the entire GSP area."



Potential Management Area Uses

Provided by Regulation

- Differentiate rationale for Minimum Thresholds and Measurable Objectives
- Establish different concentration or types of monitoring

At GSA Board's Discretion

- At GSA's discretion, Management Areas *could* be used to:
 - Delegate authorities to other jurisdictions
 - Perform projects and management actions discretely by Management Area
 - Allocations
 - Costs



Can use <u>any term</u> to describe where we apply threshold rationales

- Need a way to document how we established threshold rationales in which portions of the basin
- Allowable under regulations
- Terminology reflects use of area with different threshold rationale
- Has no management action implications
- Is not related to project and management actions in any way



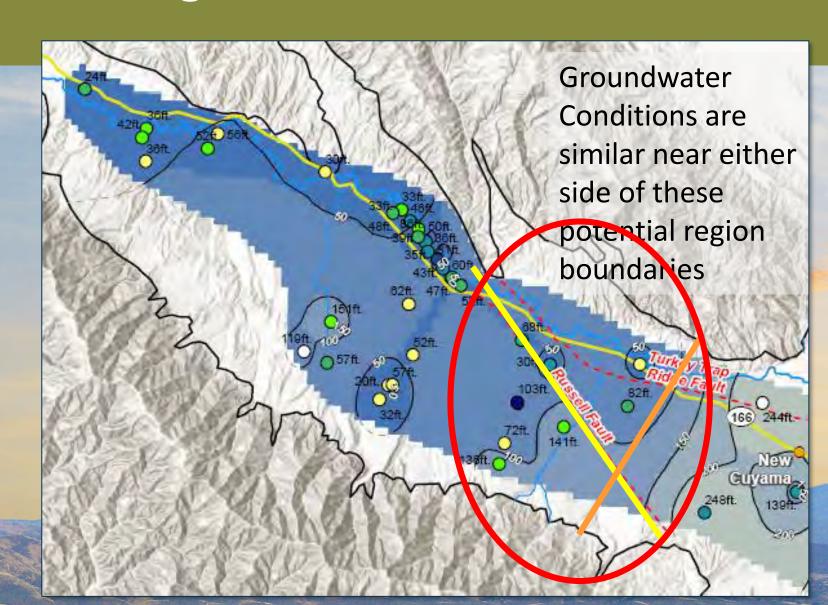
Potential Threshold Regions

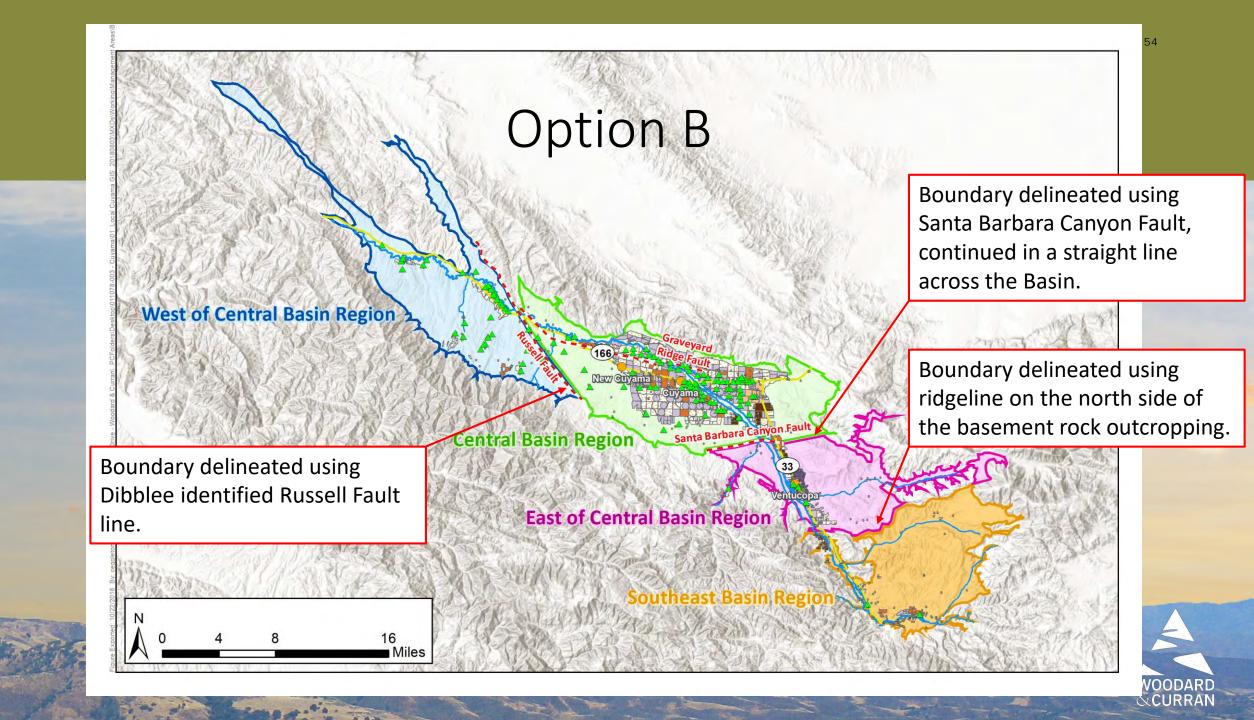
- Four boundary types used:
 - Fault traces (from Dibblee Geologic Mapping)
 - Ridgeline/watershed boundary
 - Groundwater Contour Approximation
 - Straight line
 - Buffer around areas without land use or wells
- Regions were selected to capture areas where groundwater
 conditions or land uses are different and need different rationale
 to establish minimum thresholds and measurable objectives

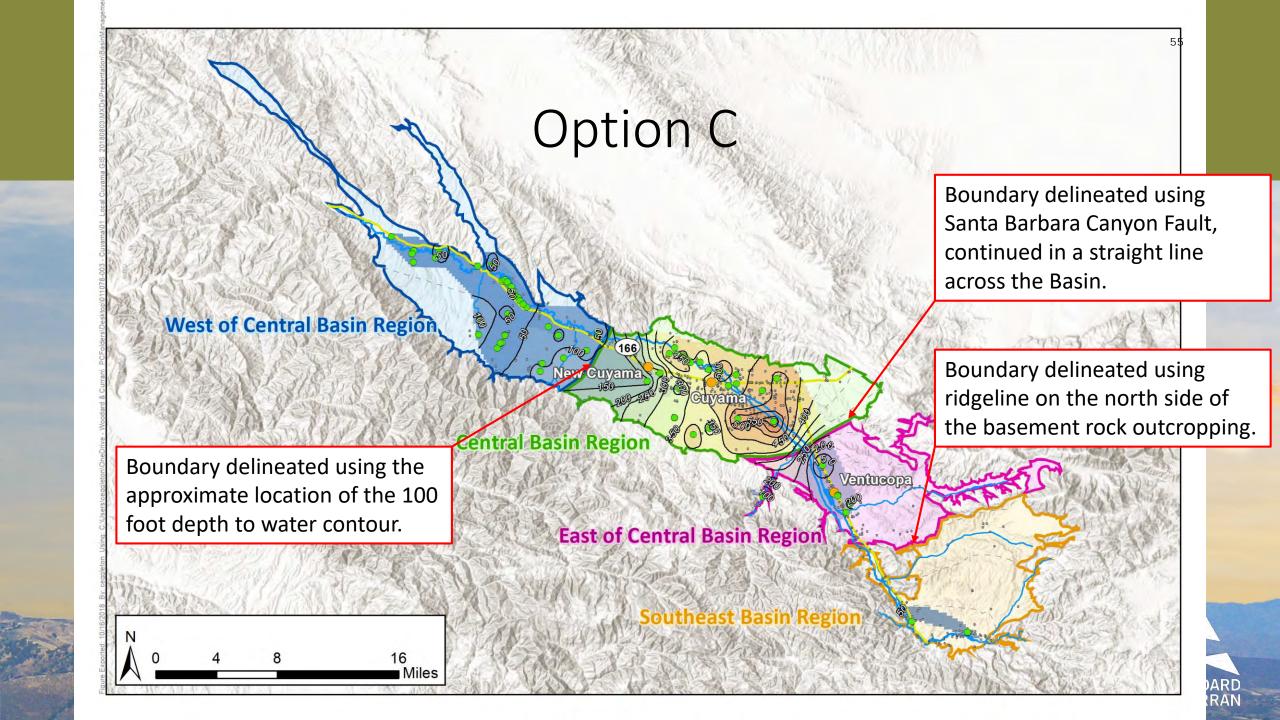


Potential Threshold Regions

- Driven by groundwater conditions
- Because groundwater conditions change gradually over distance, thresholds set at monitoring wells near each other are likely to be similar, even when they are in different threshold regions
- (More on this in Threshold Rationales)











TO: Standing Advisory Committee

Agenda Item No. 5b

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

DATE: November 1, 2018

SUBJECT: Discussion on Monitoring Networks Chapter

<u>Issue</u>

Discussion on the Monitoring Networks chapter.

Recommended Motion

None – information only.

Discussion

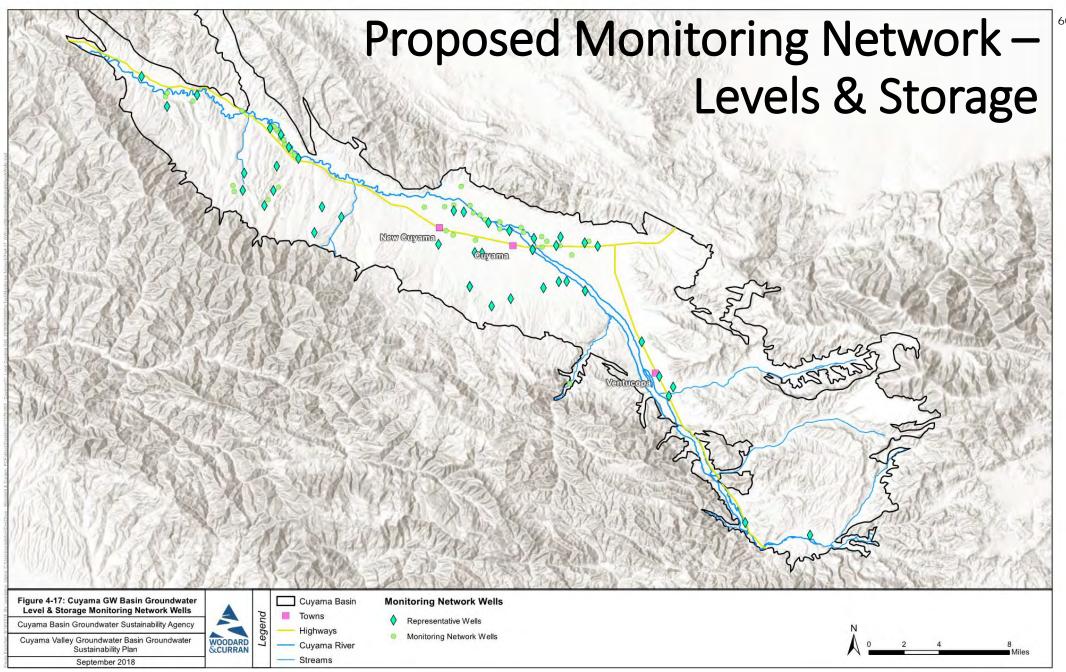
An update on the Monitoring Networks chapter is provided as Attachment 1.



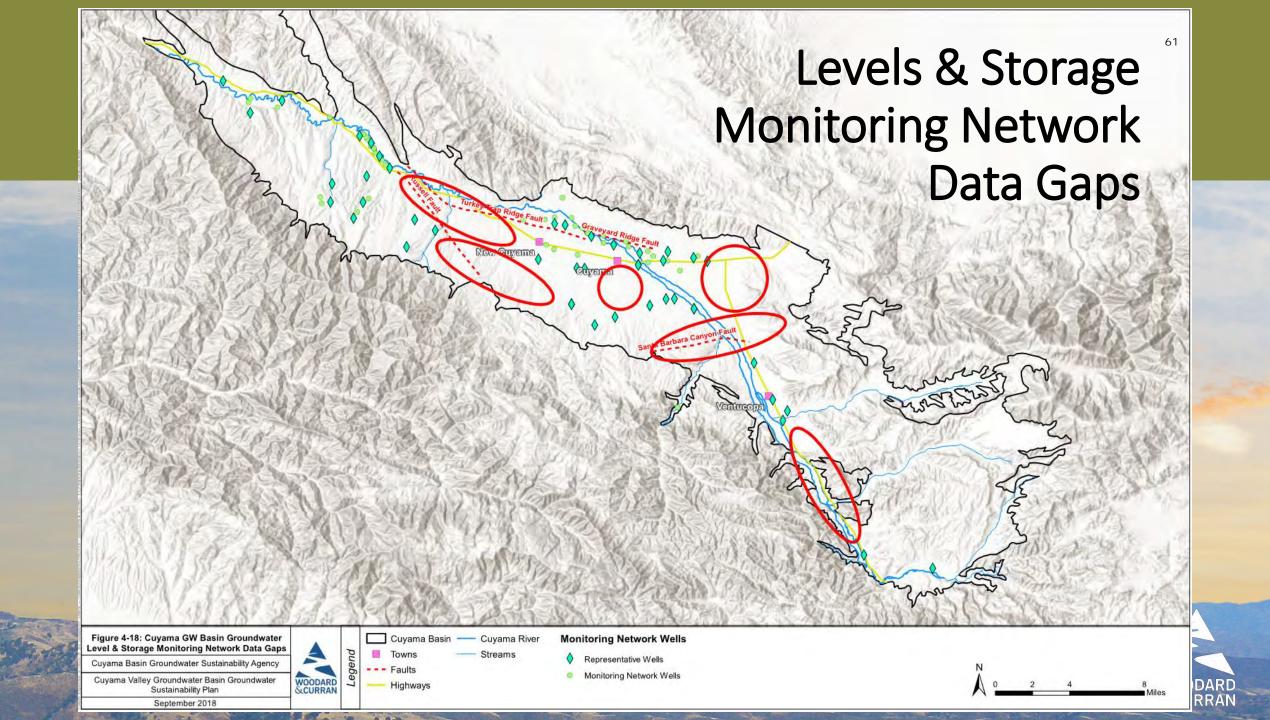
Monitoring Networks Draft GSP Section

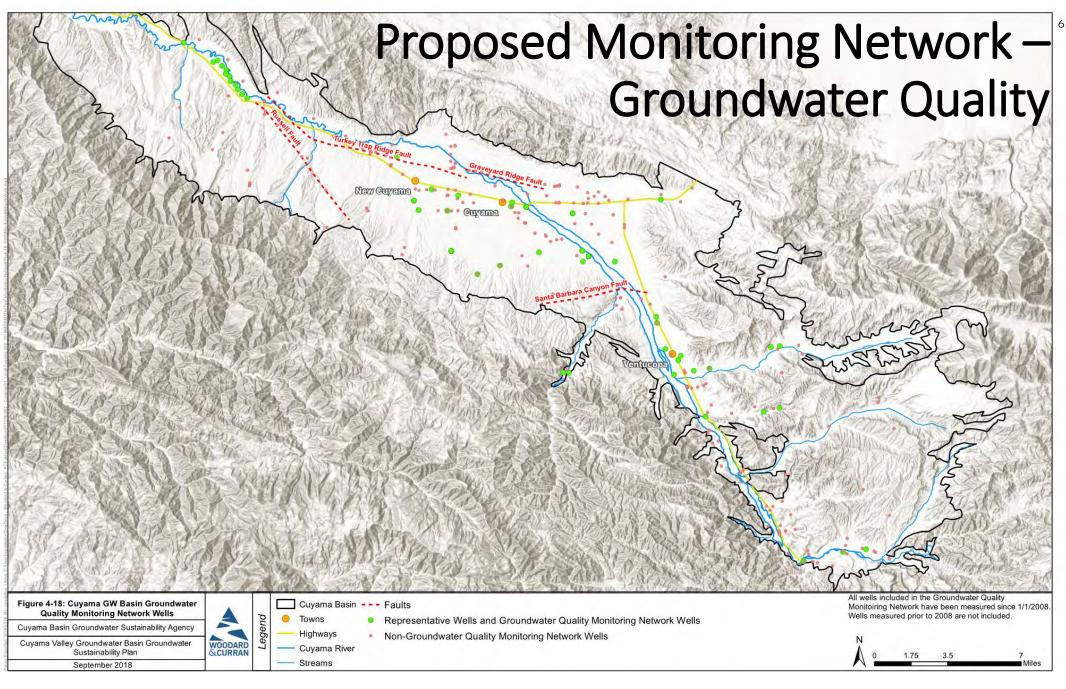
- Draft GSP Section provided to SAC and Board for review as part of Board Packet on September 21st
- This section describes the Cuyama Valley Groundwater Basin (Basin) Monitoring Networks for the five sustainability indicators that apply to the Basin.
- Monitoring Networks section includes:
 - Existing monitoring used
 - Groundwater level and storage monitoring network
 - Degraded water quality monitoring network
 - Land subsidence monitoring network
 - Depletions of interconnected surface water monitoring network
 - Comments are due on November 9th



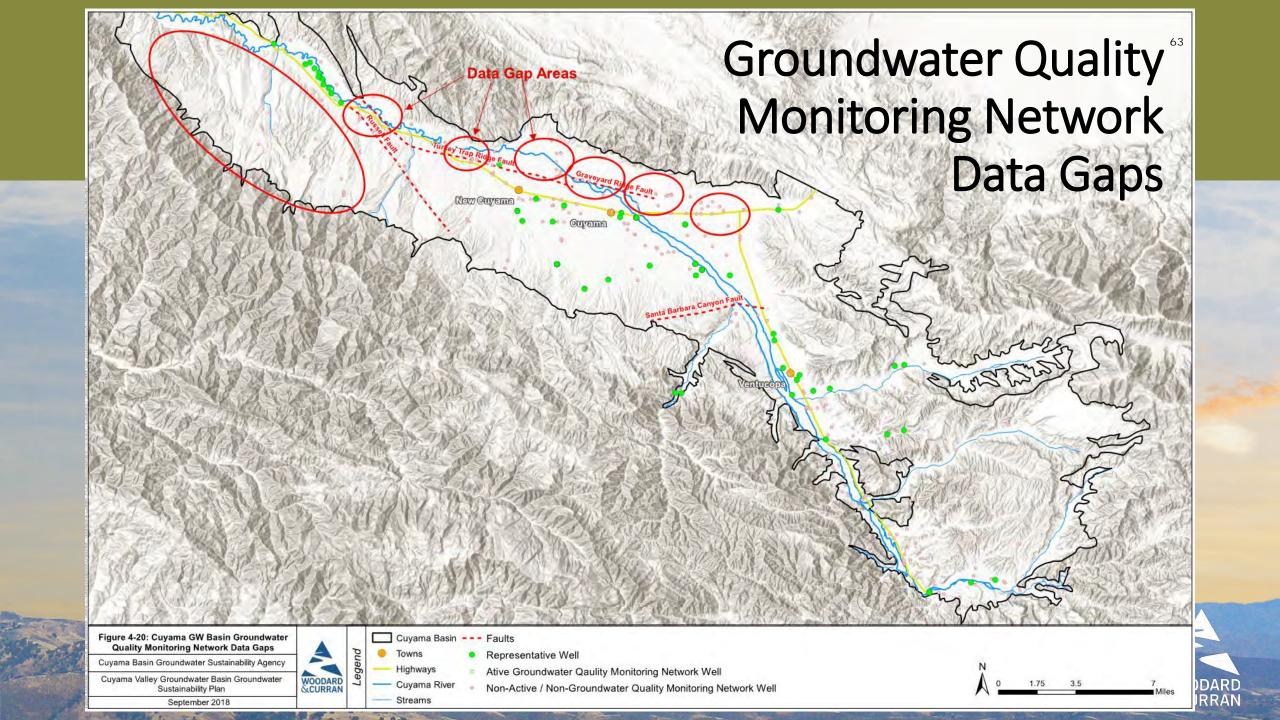


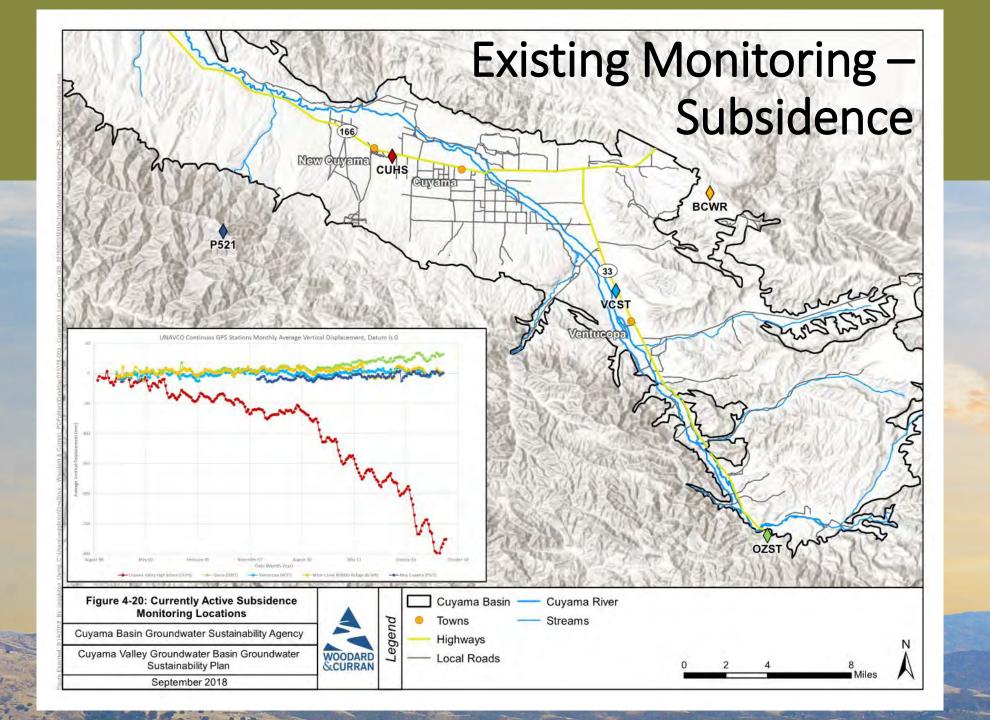




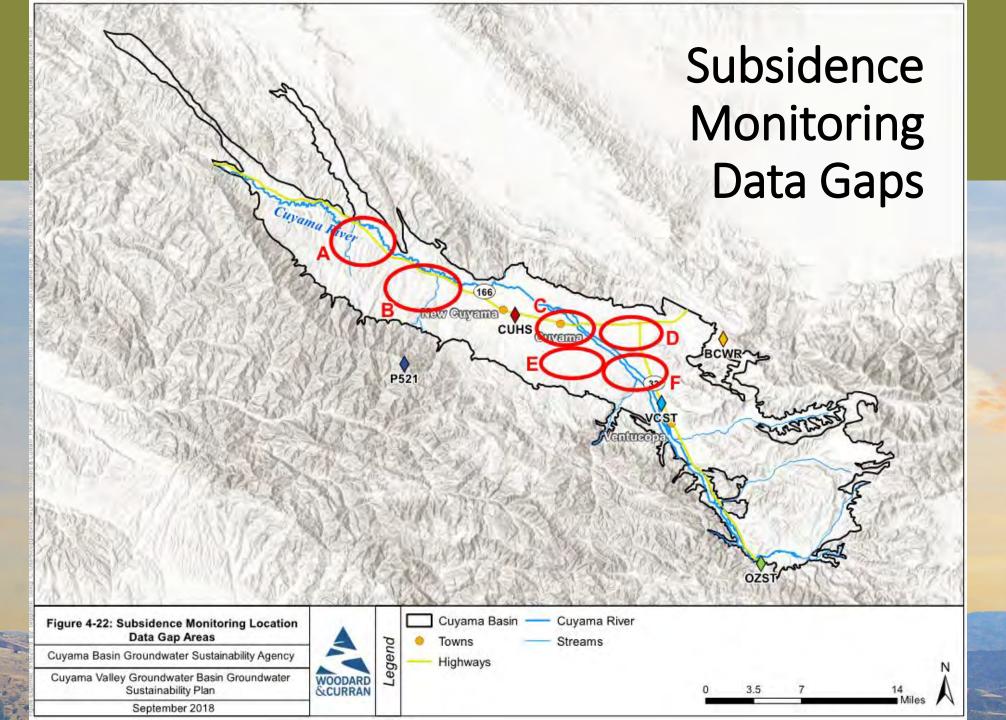














Discussion on Monitoring Networks

- Are there aspects of monitoring networks in the Basin that are not incorporated into the Monitoring Networks section?
- Do any of the components of the Monitoring Networks section need further clarification?
 - Existing monitoring used
 - Groundwater level and storage monitoring network
 - Degraded water quality monitoring network
 - Land subsidence monitoring network
 - Depletions of interconnected surface water monitoring network





TO: Standing Advisory Committee

Agenda Item No. 5c

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

DATE: November 1, 2018

SUBJECT: DWR Technical Support Services Update

<u>Issue</u>

Update on the DWR Technical Support Services.

Recommended Motion

None – information only.

Discussion

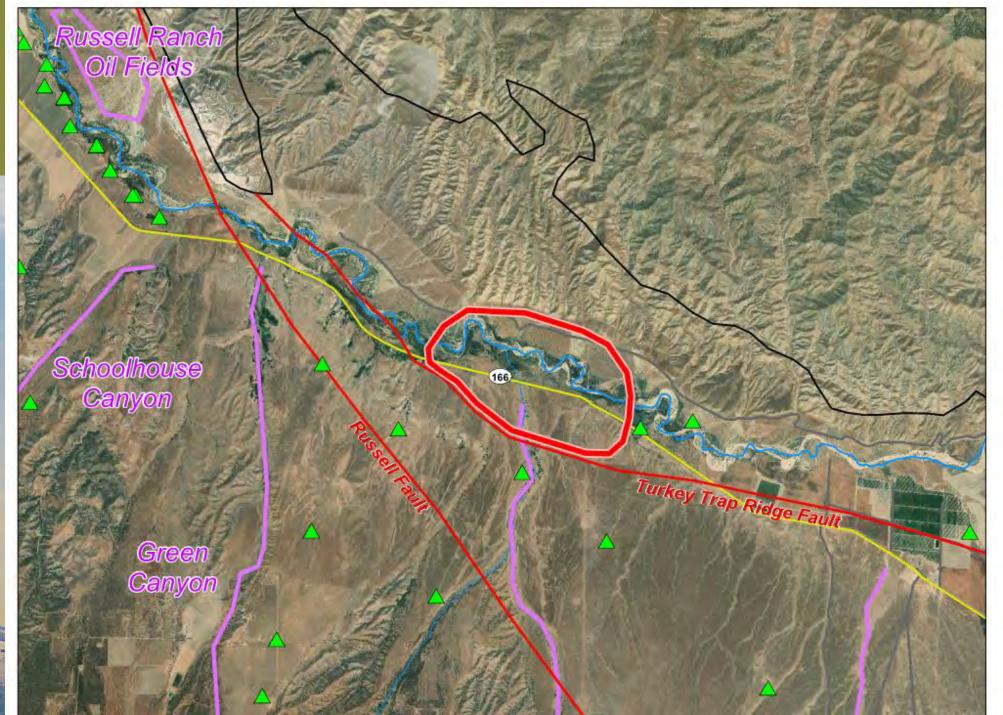
An update on the DWR Technical Support Services is provided as Attachment 1.



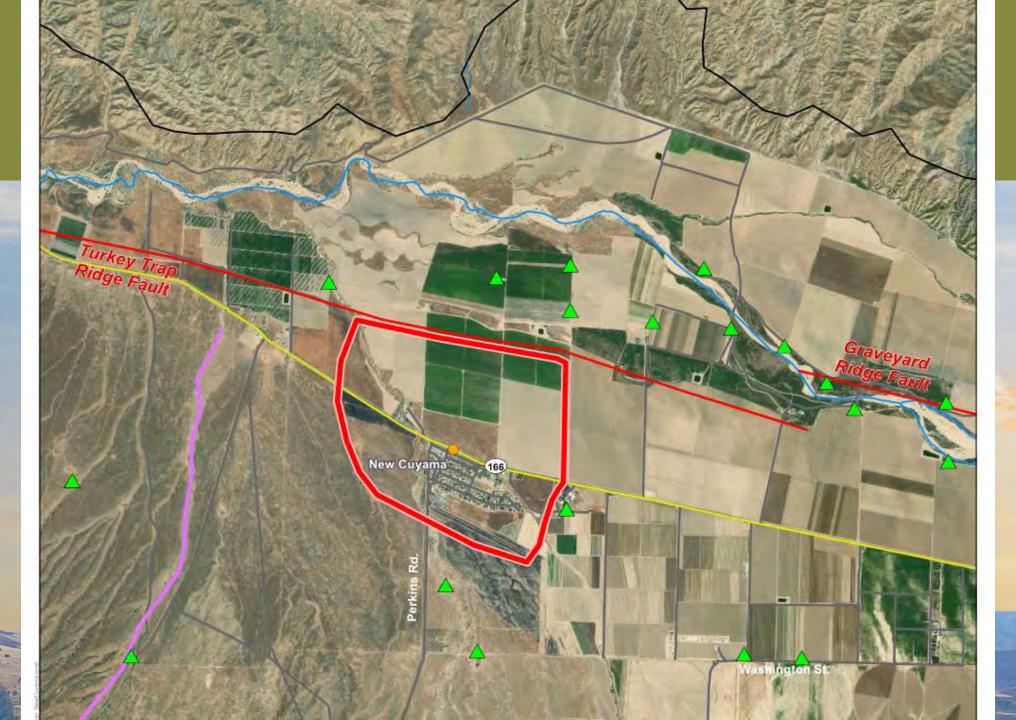
DWR Technical Support Services Update

- CBGSA Ad-hoc committee call on October 18
 - Discussed updated location maps for monitoring wells
 - Identified potential property locations for follow up
- Currently in contact with county representatives and local landowners to discuss access and complete permit forms

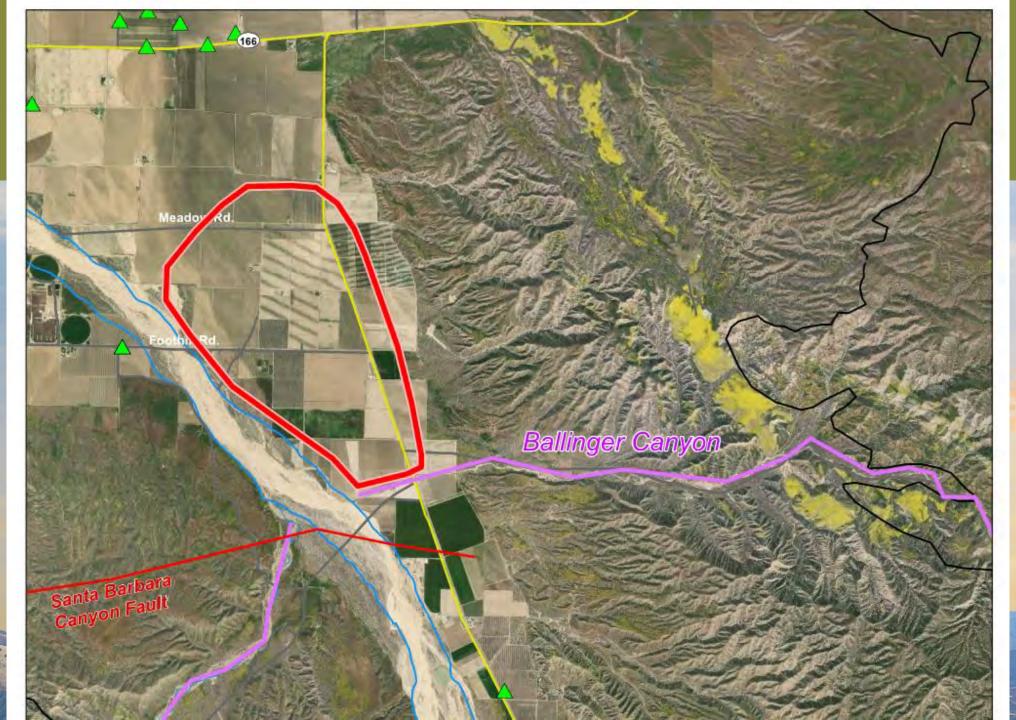
















TO: Standing Advisory Committee

Agenda Item No. 5d

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

DATE: November 1, 2018

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 September 21, 2018 technical forum meeting is provided as Attachment 1, and the next forum is scheduled for November 13, 2018.



MEETING MEMORANDUM

PROJECT: Cuyama Basin Groundwater Sustainability Plan Development

MEETING DATE: 9/21/2018

MEETING: Technical Forum Conference Call

ATTENDEES: Matt Young (Santa Barbara County Water Agency)

Matt Scrudato (Santa Barbara County Water Agency)

Matt Klinchuch (Cuyama Basin Water District)
Dennis Gibbs (Santa Barbara Pistachio Company)

Neil Currie (Cleath-Harris Geologists)

John Fio (EKI) Jeff Shaw (EKI) Anona Dutton (EKI)

Brian Van Lienden (Woodard & Curran) Sercan Ceyhan (Woodard & Curran) Ali Taghavi (Woodard & Curran) Micah Eggleton (Woodard & Curran) John Ayres (Woodard & Curran) Byron Clark (Davids Engineering) Bryan Thoreson (Davids Engineering)

1. AGENDA

- Monitoring Networks
- Update on Numerical Model Development
- Management Areas
- DWR Technical Services Program Update
- Next steps

2. DISCUSSION ITEMS

The following table summarizes comments raised during the conference call and the response and plan for resolution (if appropriate) identified for each item.

Item No.	Comment	Commen ter	Response/Plan for Resolution
1	How does the monitoring well network for groundwater levels prioritize screen interval information vs measurement frequency?		Higher measurement frequency is given higher priority over having screen interval information in monitoring well prioritization



2	How was prioritization performed for water quality monitoring wells?	Jeff Shaw	There's not a lot of water quality data available, so prioritization is focused on the number of water quality measurements at each well
3	Can we apply a tiering scheme to water quality, similar to levels?	Jeff Shaw	That's something that could be considered in the future, but we're finding in general that the quality of water quality data is low, which is why we need a plan to fill that data gap.
4	SBCWA provided us with an email with additional Western basin water quality data	Matt Scrudato	This will be considered as model refinement continues.
5	How are we separating out the effects of water vs oil for subsidence?	Neil Currie	The GSP propose that the GSA explore adding more subsidence data sensors, which will provide additional data to make this assessment.
6	How much of the available water level data was provided by private landowners and what is the quality of that data?	Dennis Gibbs	Data was provided by Grapevine, Bolthouse, and Grimmway. Their data was from pressure transducers or from their monitoring program. This data filled in data gaps for areas where we wouldn't have data otherwise. In the Groundwater Conditions section we compared historical level data between private and DWR/USGS and found that they were consistent with each other.
7	Are there any active monitoring sites in Ventura County?	Dennis Gibbs	There are 2 along the river at the South end of the Basin. The W&C team coordinated directly with Ventura County to obtain the available data.
8	Why does the top tier in the level prioritization require a monthly frequency? Wouldn't quarterly be sufficient?	Dennis Gibbs	DWR guidance materials clearly indicate that the Cuyama Basin needs to do monthly monitoring based on its quantity of groundwater use and recharge. We recommend that the entire monitoring network be monthly for the first few years and then quarterly after that.
9	A significant portion of the wells in the monitoring network are private landowners. Do they have consistent protocols for how they collect data?	Jeff Shaw	They are not consistent in how they do monitoring currently. The GSP will set up consistent protocols for future monitoring.
10	Water is currently moving east and west across the middle of the Basin	Dennis Gibbs	This is being represented in the IWFM model.
11	W&C requested assistance from the CBWD regarding production well locations. What is the status of that effort?	Brian Van Lienden	Matt Klinchuch has reached out to landowners and has acquired some data. Additional data should be provided by the end of next week, although he may not get a response from some landowners.



12	Can you share the IDC and PEST outputs from the model development?	John Fio and Jeff Shaw	While preliminary versions of these modules are complete, they continue to be refined as the IWFM model is calibrated. This data can be provided once the model calibration is complete.
13	How did you determine how much acreage is idle during the period of record?	Jeff Shaw	Idle land uses were included in the land use data provided by Bolthouse and Grimmway, and in the land use estimates developed by LandlQ. These were refined using Landsat satellite imagery to detect the actual presence of green vegetation each year.
14	What does a 2% difference in irrigated area translate to in terms of change in water demand?	Anona Dutton	For the CBWD ag area – 2% of ~57 TAF/year total demand equates to about 1,100-1,200 AF/year.
15	Are fallowed fields included in the remote sensing model?	Jeff Shaw	Yes
16	Would improving efficiency in lower efficiency areas improve the Basin water budget?	Jeff Shaw	Given the very low river flows in this Basin, it is assumed that the water that's not consumed is returned to the groundwater. Therefore, an improvement in efficiency won't have an appreciable effect on the overall water budget.
17	Looking at data density for the proposed southeast management area, there's not a lot of information to help understand conditions in that part of the Basin	Jeff Shaw	This is a critical data gaps area. But in some of these areas, there's not a lot of need for data monitoring.
18	The recommended management areas look really good. In east of Ventucopa area, there's a finger that should be in Southeast Basin Area.	Dennis Gibbs	The delineations of the management areas will be reviewed and refined.
19	Do we need to have a calibrated model before setting management areas?	Jeff Shaw	We need to set the sustainability thresholds very soon. While modeling results are useful, we need to move forward, and we can adjust down the road. Modeling results probably won't change the management area delineations drastically.

Technical Forum Update

November 1, 2018



October 23rd Technical Forum Discussion

- GSP Development Process and GSP Outline Update
- Update on Management Areas
- Sustainability Thresholds Overview
- Numerical ModelDevelopment Update
- Next Steps

Next Meeting – November
 13th



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





TO: Standing Advisory Committee

Agenda Item No. 5e

FROM: Mary Currie, Catalyst Group

DATE: November 1, 2018

SUBJECT: Stakeholder Engagement Update

<u>Issue</u>

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

Recommended Motion

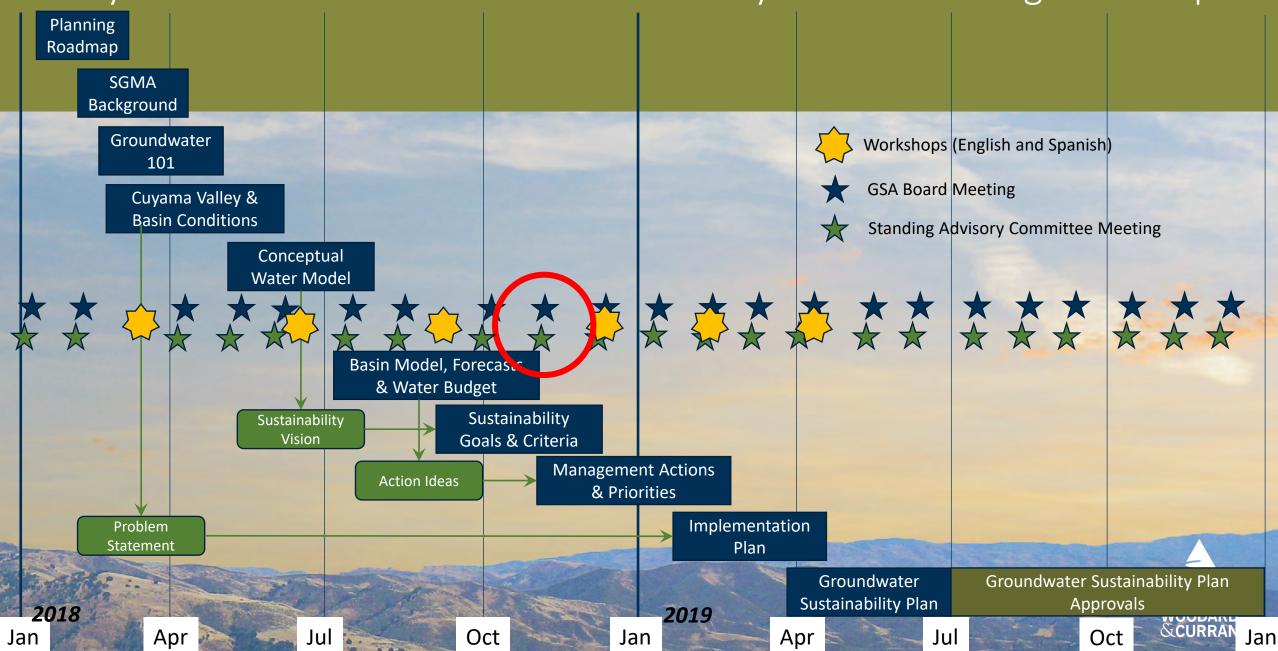
None – information only.

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 Plan – Planning Roadmap



Update on Outreach Activities

- Newsletter Edition #3
 - In New Cuyama P.O. Boxes by November 1
 - Emailed to GSP contact list November 1
 - Posted on the GSA website
- Next Community Workshops Monday, December 3, 6:30 p.m. to 8:30 p.m.
 - New Cuyama High School Cafeteria English Language
 - Adjacent Classroom Spanish Language
 - Topics will include:
 - Water Model Update
 - Water Budget
 - Sustainability Goals and Thresholds
- Postcard Announcing Workshops out in Early November
- Next Newsletter January 2019





TO: Standing Advisory Committee

Agenda Item No. 6b

FROM: Jim Beck, Executive Director

DATE: November 1, 2018

SUBJECT: Board of Directors Agenda Review

<u>Issue</u>

Review of the November 7, 2018 Cuyama Basin Groundwater Sustainability Agency Board of Directors agenda.

Recommended Motion

None – information only.

Discussion

The November 7, 2018 Cuyama Basin Groundwater Sustainability Agency Board of Directors agenda is provided as Attachment 1 for review.



CUYAMA BASIN GROUNDWATER SUSTAINABILITY AGENCY BOARD OF DIRECTORS

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

AGENDA

November 7, 2018

Agenda for a meeting of the Cuyama Basin Groundwater Sustainability Agency Board of Directors to be held on Wednesday, November 7, 2018 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 Kern County Administration Building 1115 Truxtun Avenue, 5th Floor Bakersfield, CA 93312

Carpinteria Children's Project 5201 8th Street Carpinteria, CA 93013

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 (Yurosek) (1 min)
- 2. Roll Call (Blakslee) (1 min)
- 3. Pledge of Allegiance (Yurosek) (1 min)
- Approval of Minutes (Yurosek) (3 min)

Motion

a. October 3, 2018

Memo 5. Report of the Standing Advisory Committee (Jaffe) (3 min)

Memo 6. Technical Forum Update (Melton) (3 min)

	7.	Groundwater Sustainability Plan	
Memo		a. Groundwater Sustainability Plan Update (Melton) (5 min)	
		i. GSP Schedule and Outline (Melton) (5 min)	
		ii. Sustainability Discussion (Melton) (30 min)	
		iii. Monitoring Networks Update (Melton) (5 min)	
M/M		b. Management Areas Adoption (Melton) (45 min)	
Memo		c. DWR Technical Support Services Update (Melton) (10 min)	
M/M		i. Monitoring Well Locations Approval (Melton) (2 min)	
Memo		d. Stakeholder Engagement Update (Gardiner) (5 min)	
	8.	Groundwater Sustainability Agency	
Verbal		a. Report of the Executive Director (Beck) (3 min)	
Memo		b. Progress & Next Steps (Beck) (3 min)	
Verbal		c. Report of the General Counsel (Hughes) (2 min)	
	9.	Financial Report	
Memo		a. Financial Management Overview (Blakslee) (3 min)	
Memo		b. Financial Report (Blakslee) (3 min)	
M/M		c. Payment of Bills (Blakslee) (3 min)	
	10.	Reports of the Ad Hoc Committees (3 min)	
	11.	Directors' Forum (3 min)	
	12.	Public comment for items not on the Agenda (5 min)	
		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	

Adjourn (6:27 pm)

13.

fill out a comment card and submit it to the Board Chair prior to the meeting.