CUYAMA BASIN GROUNDWATER SUSTAINABILITY AGENCY

STANDING ADVISORY COMMITTEE MEETING

Committee Members

Brenton Kelly (Chair)	Jean Gaillard	Karen Adams
Brad DeBranch (Vice Chair)	Joe Haslett	John Caufield
Jake Furstenfeld	Roberta Jaffe	David Lewis

AGENDA

January 4, 2024

Agenda for a meeting of the Cuyama Basin Groundwater Sustainability Agency Standing Advisory Committee meeting to be held on Thursday, January 4, 2024, at 5:00 PM at the **Cuyama Valley Family Resource Center 4689 CA-166, New Cuyama, CA 93254**. Participate via computer at: https://rb.gy/c490p or by going to Microsoft Teams, downloading the free application, then entering Meeting ID: 290 937 651 464 Passcode: z8mi9V, or telephonically at (469) 480-3918, Phone Conference ID: 588 047 246#.

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.

Teleconference Locations:

4689 CA-166 New Cuyama, CA 93254	11601 Bolthouse Drive, Suite 200 Bakersfield, CA 93311	1850 Miranda Canyon New Cuyama Ca 93254	144 De La Costa Ave, Santa Cruz, CA

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 Wednesday prior to this meeting. 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 (Kelly) (1 min)
2. Roll Call (Kelly) (1 min)
3. Pledge of Allegiance (Kelly) (2 min)
4. Meeting Protocols (Blakslee) (2 min)

ACTION ITEMS

5. Election of Officers (Beck) (5 min)
6. Approval of October 26, 2023, Minutes (Kelly) (3 min)
7. Groundwater Sustainability Plan Amendment Components
   a) Update on GSP Components Schedule (Beck/Van Lienden) (5 min)
   b) Discuss and Take Appropriate Action on Sustainable Management Criteria and Undesirable Results Criteria for: [**Final** Discussion] (Beck/Van Lienden) (90 min)
      i. Groundwater Levels
      ii. Groundwater Storage
      iii. Subsidence
      iv. Water Quality

c) Discuss and Take Appropriate Action on GSP Draft Chapters: [**Final** Discussion] (Beck/Van Lienden) (30 min)

i. Chapter 1. Agency Information, Plan Area, Communication

ii. Chapter 4. Monitoring Networks

d) Discuss and Take Appropriate Action on Allocation Program Components (Continued Discussion) (Beck/Van Lienden) (60 min)

REPORT ITEMS

8. Technical Updates
   a. Update on Groundwater Sustainability Plan Activities (Van Lienden) (2 min)
   b. Update on Grant-Funded Projects (Van Lienden) (5 min)
   c. Update on October 2023 Groundwater Conditions Report (Van Lienden) (5 min)
9. Administrative Updates
   a. Report of the Executive Director (Beck) (1 min)
   b. Report of the General Counsel (Dominguez) (1 min)
   c. Board of Directors Agenda Review (Beck) (3 min)
10. Items for Upcoming Sessions (1 min)
11. Committee Forum (1 min)
12. 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.

13. Correspondence (1 min)
14. Adjourn (8:39 p.m.)

2024 Board Ad hocs

1	**GSP Amendment**	Albano Paulding Williams, Das Wooster Yurosek
2	**Basin-Wide Water Management Policy**	Anselm Bantilan Williams, Deborah Yurosek
3	**Central Management Area Policy**	Anselm Bantilan Vickery Williams, Deborah Wooster
4	**Grant-Funded Items**	Albano Vickery Williams, Das Williams, Deborah
5	**Unknown Extractors**	Anselm Vickery

Tech Forum Participants

Participants	**Entity**	**Representing**
Casey Walsh	---	---
Neil Currie	Cleath-Harris	Grapevine Capital
Matt Klinchuch	Cuyama Basin Water District	Cuyama Basin Water District
Jeff Shaw John Fio Karthik Ramesh	EKI	Cuyama Basin Water District
Matt Young Matt Scrudato	Santa Barbara County Water Agency	Santa Barbara County
Bianca Cabera Steve Johnson Jeff Helsley	Stetson Engineers	Sunrise Olive

Cuyama Basin Groundwater Sustainability Agency
Standing Advisory Committee Special Meeting

October 26, 2023

Draft Meetings Minutes

PRESENT:
Kelly, Brenton – Chair
DeBranch, Brad – Vice Chair
Furstenfeld, Jake
Gaillard, Jean
Haslett, Joe
Jaffe, Roberta

Beck, Jim – Executive Director
Blakslee, Taylor – Assistant Executive Director
Dominguez, Alex – Legal Counsel
Van Lienden, Brian – Woodard & Curran
Gardiner, Charles – Catalyst Group

ABSENT:
None

1. **Call to Order**
   Cuyama Basin Groundwater Sustainability Agency (CBGSA) Standing Advisory Committee (SAC) Chair Kelly called the meeting to order at 5:07 p.m. and Assistant Executive Director Taylor Blakslee provided direction on the meeting protocols in facilitating a remote meeting.

2. **Roll Call**
   Mr. Blakslee called roll of the Committee (shown above).

3. **Pledge of Allegiance**
   Chair Kelly led the pledge of allegiance.

4. **Review and Take Appropriate Action on SAC Membership Applications**
   Chair Kelly reported there are three applications for SAC membership which are provided in the SAC packet.

MOTION
Committee Member Furstenfeld made a motion to recommend approval of the three applications for the SAC Membership. The motion was seconded by Committee Member Furstenfeld, a roll call vote was made, and the motion passed.

AYES: DeBranch, Furstenfeld, Gaillard, Jaffe, Kelly
NOES: None
ABSTAIN: None
ABSENT: Haslett

Committee Member Haslett joined the meeting at 5:14 p.m.

ACTION ITEMS

5. Approval of Minutes
Chair Kelly opened the floor for comments on the August 31, 2023, CBGSA SAC meeting minutes.

MOTION
Vice Chair DeBranch made a motion to approve the August 31, 2023, CBGSA SAC meeting minutes. The motion was seconded by Committee Member Haslett, a roll call vote was made, and the motion passed.

AYES: DeBranch, Furstenfeld, Gaillard, Jaffe, Kelly
NOES: None
ABSTAIN: None
ABSENT: Haslett

6. Groundwater Sustainability Plan Amendment Components

a. Update on GSP Components Schedule
Woodard & Curran technical consultant Brian Van Lienden provided background information on the Groundwater Sustainability Plan (GSP) update and schedule which is provided in the SAC packet.

b. Overview of Public Workshop on October 12, 2023
Mr. Van Lienden reviewed the overview of the public workshop on October 12, 2023, which is provided in the SAC packet.

Committee Member Jaffe commented it was great to see an amazing turnout at the public workshop. She continued to say there can be more effort to send material out ahead of time for people to better prepare themselves and to have breakout sessions at the next public workshop.

Committee Member Furstenfeld commented it would help to create a pamphlet ahead of the next public workshop to distribute to the stakeholders.

Committee Member Haslett commented if a knowledgeable person was at a table, a group of people

can gather around for 10 minutes and rotate with a new group of people. He continued to say members of the community were expecting something of this nature when staff titled the meeting a workshop.

Chair Kelly commented at the next public workshop it would be good to create a more engaging meeting rather than staff presenting material and asking questions.

c. Update on September 2023 GSP Component Discussion

Mr. Van Lienden provided an overview of the feedback provided at the last Board meeting, public workshop, and at the technical forum which is provided in the SAC packet.

Mr. Beck explained this Board meeting is the first step of the process, which is to identify all the options that have been suggested and to make sure staff captures all the options from the SAC, Board, and stakeholder. He continued to explain the list will be narrowed down throughout this process.

Committee Member Jaffe requested the technical forum to be more transparent. She suggested an agenda should be made available in advance or minutes after the meeting. Mr. Beck replied that the Board will need to provide direction on the technical forum and originally the forum was developed to allow technical people to share their technical concerns without having any political influence or scrutiny from the public.

d. Discuss and Take Appropriate Action on Groundwater <u>Subsidence</u> Monitoring Network

Mr. Van Lienden provided an overview of the subsidence monitoring network which is provided in the SAC packet.

Committee Member Haslett commented the scale should be in feet and it is misleading because it is shown in inches. He agreed with the technical forum feedback to consider reviewing the high school station to ensure that data is accurate.

Chair Kelly agreed with Committee Member Haslett and the Technical Forum regarding the high school station.

Committee Member Gaillard made a motion to remove the high school station from the data. There was no second.

Chair Kelly asked what the scope looks like to investigate the high school station. Mr. Blakslee replied staff will need to develop a scope and cost for this activity. Woodard and Curran consultant Micah Eggleton commented that this station is owned by United States Geological Survey (USGS).

Mr. Beck explained Mr. Van Lienden can call USGS to see what quality assurance and quality control (QA/QC) is being done for the data being produced at the high school and the next time Mr. Van Lienden is in the area, he can visually inspect the station.

Committee Member Jaffe commented it is important to investigate the high school station due to its prime location and does not support getting rid of this station.

MOTION

Committee Member Haslett makes a motion for staff to continue with the same network and investigate the high school station for accuracy. The motion was seconded by Vice Chair DeBranch, a

roll call vote was made, and the motion passed.

AYES: DeBranch, Furstenfeld, Gaillard, Haslett, Jaffe, Kelly
NOES: None
ABSTAIN: None
ABSENT: None

e. Discuss and Take Appropriate Action on Groundwater Interconnected Surface Water (ISW) Monitoring Network

Mr. Van Lienden provided an overview of the ISW Monitoring Network which is included in the SAC packet.

Mr. Blakslee commented that if the California Department of Water Resources (DWR) releases comments on ISW this may impact the schedule.

Committee Member Jaffe asked if this would impede the collection of data from the installation of the piezometers. Mr. Beck responded this will not impact the schedule for construction to gather data. He continued to say ISW will not be complete by January due to staff waiting for DWR to release guidance on this topic. Mr. Van Lienden responded the piezometers will be completed by the end of October.

Chair Kelly asked when data will be available from this new monitoring network. Mr. Van Lienden replied Provost & Pritchard will be able to collect data at the next round of data collection.

The SAC provided consensus to wait for DWR guidance before making decisions.

f. Discuss and Take Appropriate Action on Groundwater Water Quality Monitoring Network

Mr. Van Lienden reviewed the Groundwater Water Quality Monitoring Network which is provided in the SAC packet.

Committee Member Jaffe asked if the data can be integrated into the current reports. Mr. Van Lienden replied the data that is being received and any data that is received will be part of the data management system (DMS).

Committee Member Jaffe asked how difficult it would be to take nitrate and arsenic readings. Mr. Van Lienden replied it is more work to take those tests since it requires a water quality sample to be taken and sent to a lab.

Committee Member Furstenfeld asked why the GSA is not taking arsenic and nitrate samples if it is important information. Mr. Van Lienden replied the GSA is gathering data from other entities. Committee Member Furstenfeld asked if it is impactful on the budget to take these samples and if that is the reason the GSA is not doing these tests. Mr. Beck responded the labor will cost more but the tests from the laboratory are significant.

Committee Member Haslett asked when the total dissolved solution (TDS) measurement is being performed, is a water sample taken to confirm the electric conductivity (EC) test is accurate. He continued to state this test does not have to be done every single time, but taking this test every other year or third year will provide enough data points to determine whether the EC test are accurate..

Mr. Beck replied staff has had duplicative samples where lab samples were taken and ask field staff

what their QA/QC is for taking measurements and for their equipment.

Stakeholder Lynn Carlisle asked if there is a way to make a list of wells that have not been accessible so stakeholders can help relay the information and inform them of the importance of these tests. Mr. Beck responded staff looks to legal on the ability to release personal information and is cautious on releasing this information. Mr. Dominguez replied it is important to be cognizant of the privacy of landowners, especially for those who have expressed a disinterest in allowing sampling to be done on their wells.

Stakeholder Lynn Carlisle asked if there is a report on TDS being developed. Mr. Van Lienden replied this is included in the current reporting and is included in the SAC packet.

Chair Kelly commented he supports using data from other entities but would like to see how it is being used and supported performing monitoring every other year.

Committee Member Furstenfeld commented monitoring needs to be more frequent than every 5 years.

Stakeholder Casey Walsh asked if there was any mention in DWR's letter regarding minimum thresholds for water quality. Mr. Van Lienden replied yes, and it will be covered in agenda item 6i.

MOTION
Committee Member Jaffe makes a motion to support modifications by staff for TDS network and continue monitoring of TDS. The motion was seconded by Committee Haslett, a roll call vote was made, and the motion passed.

AYES: DeBranch, Furstenfeld, Gaillard, Haslett, Jaffe, Kelly
NOES: None
ABSTAIN: None
ABSENT: None

MOTION
Vice Chair DeBranch made a motion to accept staff recommendation to Clarify that the results of ongoing arsenic and nitrates monitoring by other entities are used by the CBGSA and to perform monitoring once every 5 years to correspond with GSP updates. The motion was seconded by Committee Gaillard, a roll call vote was made, and the motion did not pass.

AYES: DeBranch, Gaillard
NOES: Furstenfeld, Haslett, Jaffe, Kelly
ABSTAIN: None
ABSENT: None

MOTION
Committee Member Haslett made a motion to clarify that the results of ongoing arsenic and nitrates monitoring by other entities are used by the CBGSA and to perform monitoring once every three years. The motion was seconded by Committee Furstenfeld, a roll call vote was made, and the motion passed.

AYES: Furstenfeld, Haslett, Jaffe, Kelly

NOES: DeBranch, Gaillard
ABSTAIN: None
ABSENT: None

g. Discuss and Take Appropriate Action on Sustainable Management Criteria and Undesirable Results Criteria for Groundwater Subsidence

Mr. Van Lienden provided an overview of the subsidence sustainable management criteria and undesirable results definitions which is provided in the SAC packet.

Committee Member Furstenfeld commented that more data needs to be gathered to make a more informed decision.

Committee Member Jaffe commented that the high school station needs to be checked.

Stakeholder Karen Adams commented it is important to measure subsidence.

Chair Kelly commented that only having a single site to measure subsidence would be problematic and having two would be better for more accurate information.

h. Discuss and Take Appropriate Action on Sustainable Management Criteria and Undesirable Results Criteria for Groundwater Interconnected Surface Water (ISW)

Mr. Van Lienden provided an overview of the interconnected surface water management criteria and undesirable results definitions which is provided in the SAC packet.

Chair Kelly asked if this would be included as part of the Annual Report. Mr. Van Lienden replied that it would be best to see the guidance document from DWR first to determine where this information should be put.

Mr. Van Lienden commented staff is continuing to use the same undesirable results definition until the DWR guidance document is released.

i. Discuss and Take Appropriate Action on Sustainable Management Criteria and Undesirable Results Criteria for Groundwater Water Quality

Mr. Van Lienden provided an overview of the groundwater quality sustainable management criteria and undesirable results definitions for groundwater water quality which is provided in the SAC packet.

Committee Member Jaffe commented it would be helpful to see actual examples of where the minimum thresholds and minimum objectives (MT/MO) currently are to provide a recommendation.

Committee Member Haslett supported the technical forum feedback.

Chair Kelly commented there are a significant amount of wells that had no data when the MT/MO was set and is in favor of changing the sustainability management criteria (SMCs) slightly.

Vice Chair DeBranch supported the technical forum feedback and commented it is important to not go above and beyond the responsibilities set by the Sustainability Groundwater Management Act (SGMA).

Chair Kelly also supported the technical forum feedback.

Stakeholder Casey Walsh commented if any other Groundwater Sustainability Agencies (GSA) have had this issue their efforts should be looked at.

Stakeholder Lynn Carlise commented it would be important to have general support for tracking levels of nitrates and arsenic and provide reports to the public.

j. Discuss and Take Appropriate Action on Glidepath Methodology

Mr. Van Lienden provided an overview of the glide path methodology which is provided in the SAC packet.

Committee Member Gaillard commented that in his living area there is an increase of TDS and the pumping reductions is not aggressive enough.

Committee Member Jaffe agreed with Committee Member Gaillard and commented it would be a tremendous mistake to adjust the glide path to have lesser reductions earlier in the period.

Vice Chair DeBranch commented he is not supportive of having a greater reduction earlier in the period since SGMA allows for sustainability to be reached by 2040.

Committee Member Haslett commented it would be difficult for farmers to make long-term plans if the glide path is adjusted to have a greater reduction earlier in the period. He continued to say reductions are only effective if there is also recharge occurring.

Committee Member Gaillard commented that the Central Management Area (CMA) has less rain in comparison to other areas in the basin and the pumping is affecting the CMA and the basin all the way to the foothills.

Vice Chair DeBranch commented that when the basin gets to the reductions in 2040 there will be areas in the basin that are still not in balance and will require other measures to be put in place to account for that imbalance.

Committee Member Haslett replied when it gets to that point the GSA will need to manage each well rather than managing areas.

Chair Kelly commented by allowing lesser reductions earlier in the period, it will mitigate any reductions that were set in the first allocations, and it has long terms effects to groundwater storage. He continued to say he supports having greater reductions earlier in the period.

Stakeholder Casey Walsh commented he is in support of having a greater reduction earlier in the period.

Stakeholder David Lewis commented that the little pumpers should not be punished when the majority of the pumping is being done by a couple of large pumpers.

Stakeholder Adam Lovgren commented it would be good to have more transparency on how the model is calculating these numbers and what criteria is being used. Mr. Beck responded the model is difficult to explain since it has been years in the making and information is available online for those who want more information. Mr. Van Lienden added there will be a model update in the next nine months and information on this update will be provided once available.

k. Approval of 2024 Meeting Calendar
Mr. Blakslee reviewed the 2024 meeting calendar which is provided in the SAC packet.

The SAC provided consensus to approve the proposed 2024 meeting calendar.

REPORT ITEMS

7. Technical Updates

a. Update on Groundwater Sustainability Plan Activities
Mr. Van Lienden provided an update on the accomplishments for July and August 2023 which is provided in the SAC packet.

b. Update on Grant-Funded Projects
Mr. Van Lienden provided an update on the grant-funded projects which is provided in the SAC packet.

Chair Kelly asked when the flight for the River Channel data will be analyzed. Mr. Van Lienden responded that the data will be reviewed in a couple of weeks.

c. Update on 2023 Groundwater Quality Conditions Report
Mr. Van Lienden provided an update on the July 2023 groundwater conditions report which is provided in the SAC packet.

Committee Member Jaffe asked if there are any patterns regarding TDS. Mr. Van Lienden replied he does not see any patterns.

Committee Member Jaffee asked if there will be TDS data available for the western region. Mr. Van Lienden replied that data will be available.

8. Groundwater Sustainability Agency

a. Report of the Executive Committee Member
Nothing to report.

b. Report of the General Counsel
Nothing to report.

c. Board of Directors Agenda Review
Mr. Blakslee provided an overview of the November 1, 2023, CBGSA Board Meeting agenda which is provided in the SAC packet.

9. Items for Upcoming Sessions
Nothing to report.

10. Committee Forum
Nothing to report.

11. Public Comment for Items Not on the Agenda

Stakeholder Spencer Harris commented it is an opportune time to start developing a system for groundwater allocations and has developed a system that he would like to offer free of cost to the GSA, however it would require feedback during regularly scheduled meetings.

12. Correspondence

Nothing to report.

13. Adjourn

Chair Kelly adjourned the meeting at 8:52 p.m.

STANDING ADVISORY COMMITTEE OF THE
CUYAMA BASIN GROUNDWATER SUSTAINABILITY AGENCY

Chair Kelly: _____

ATTEST:

Vice Chair DeBranch: _____

TO: Standing Advisory Committee
Agenda Item No. 7a

FROM: Jim Beck / Brian Van Lienden

DATE: January 4, 2024

SUBJECT: Update on GSP Components Schedule

Recommended Motion
None – information only.

Discussion
On July 12, 2023, the Cuyama Basin Groundwater Sustainability Agency Board of Directors reviewed and approved a schedule for updating the Groundwater Sustainability Plan (GSP) ahead of the January 2025 deadline and that schedule is provided as Attachment 1 for reference.

Cuyama Basin Groundwater Sustainability Agency

7. Update on GSP Component Schedule

January 4, 2024

HALLMARK GROUP Woodard & Curran

GSP Update and Board Policy Discussions Schedule

	1	2	3	4	5	6	7	8	9	10
	2023					2024				2025
	July	Sep	Nov	Jan	Mar	May	Jul	Sep	Nov	Jan
Board Direction:	**Finalize:** Feedback on engagement strategy	Basin-wide pumping restrictions/Central Management Area (CMA) boundary **Finalize:** Groundwater (GW) **levels & storage** monitoring networks GW levels & storage sustainable management criteria (SMC) and undesirable results (UR) criteria options Allocation methodology	**Finalize: Subsidence, Interconnected surface water (ISW), and water quality (WQ)** monitoring networks GW subsidence ISW, and WQ SMC and UR options Glidepath methodology	**Finalize:** GW levels, storage, subsidence, ISW, WQ SMC and UR	Project and Management Action (PMA) options Sustainable yield (SY) methodology Issue 90-Day Notice	**Finalize:** • Basin-wide Pumping Restrictions/MA Boundary (updated model) • Allocation methodology • Glidepath methodology • PMA options • SY approach		Review Public draft	**Public Hearing to adopt Amended GSP	
GSP Chapter Review:				**Ch 1.** Agency Info/Plan Area **Ch 4.** Monitoring Network		**Ch 2.** Basin Setting **Ch 3.** URs **Ch 5.** SMCs	**Ch 6.** DMS **Ch 7.** PMAs	**Ch 8.** Plan Implementation Executive Summary		
Public Workshop		✓			✓			✓		

TO: Standing Advisory Committee
Agenda Item No. 7b

FROM: Jim Beck / Brian Van Lienden

DATE: January 4, 2024

SUBJECT: Discussion and Take Appropriate Action on Sustainable Management Criteria and Undesirable Results for 1) Groundwater Levels, 2) Groundwater Storage, 3) Subsidence, and 4) Water Quality [Final Discussion]

Recommended Motion
Standing Advisory Committee feedback requested.

Discussion
The final discussion on Sustainable Management Criteria and Undesirable Results for the items listed below is provided as Attachment 1. Following feedback from the Cuyama Basin Groundwater Sustainability Agency (CBGSA) Standing Advisory Committee (SAC) and Board on January 4th and 10th, respectively, on these topics will be used by staff to develop the draft chapters that will be presented to the SAC and Board in May 2024 (according to the schedule as presented under item 7a) for consideration of approval.

i. Groundwater Levels
ii. Groundwater Storage
iii. Subsidence
iv. Water Quality

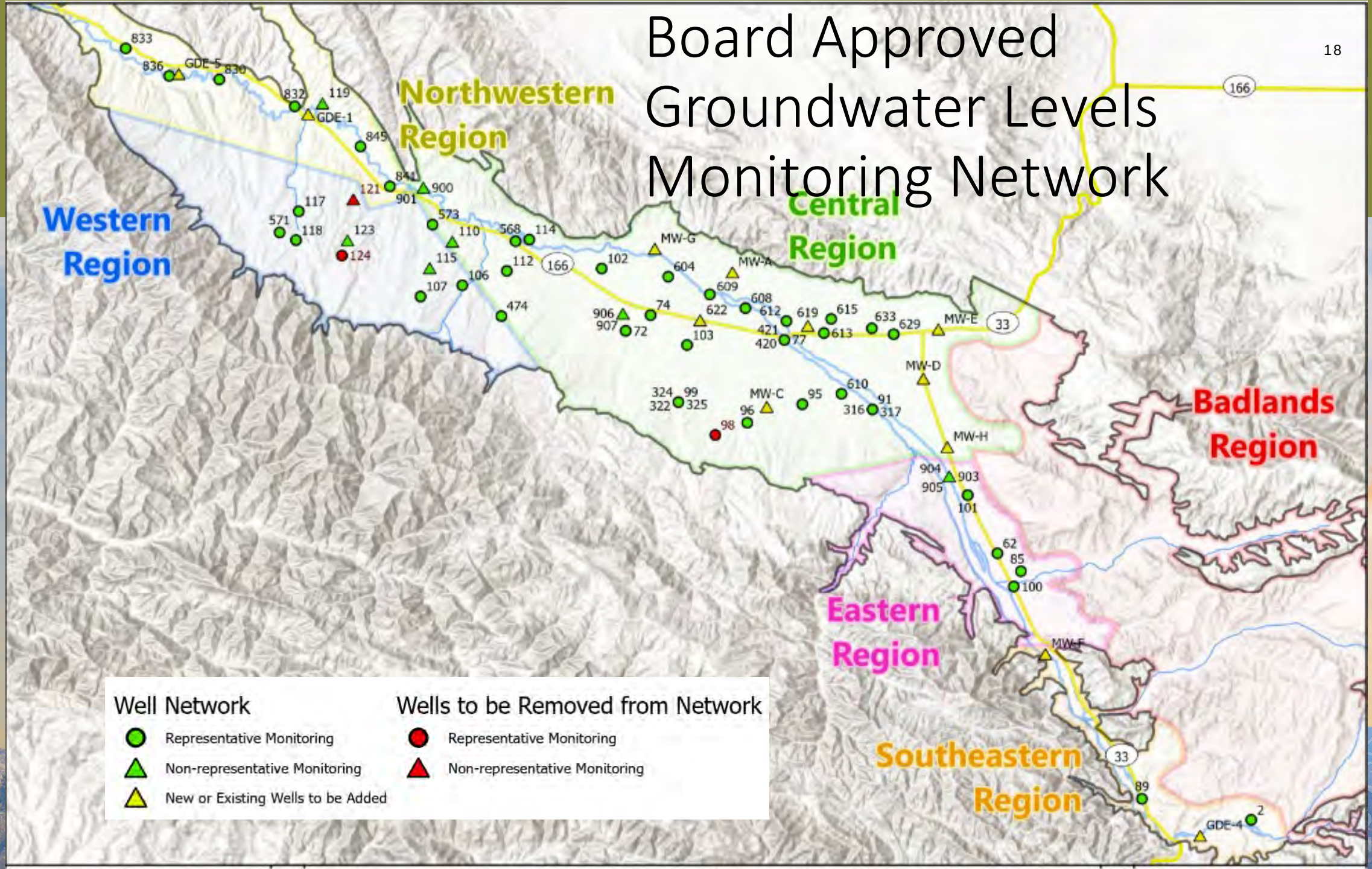
Cuyama Basin Groundwater Sustainability Agency

7ai. Discuss and Take Appropriate Action on Sustainable Management Criteria and Undesirable Result Statement for Groundwater Levels

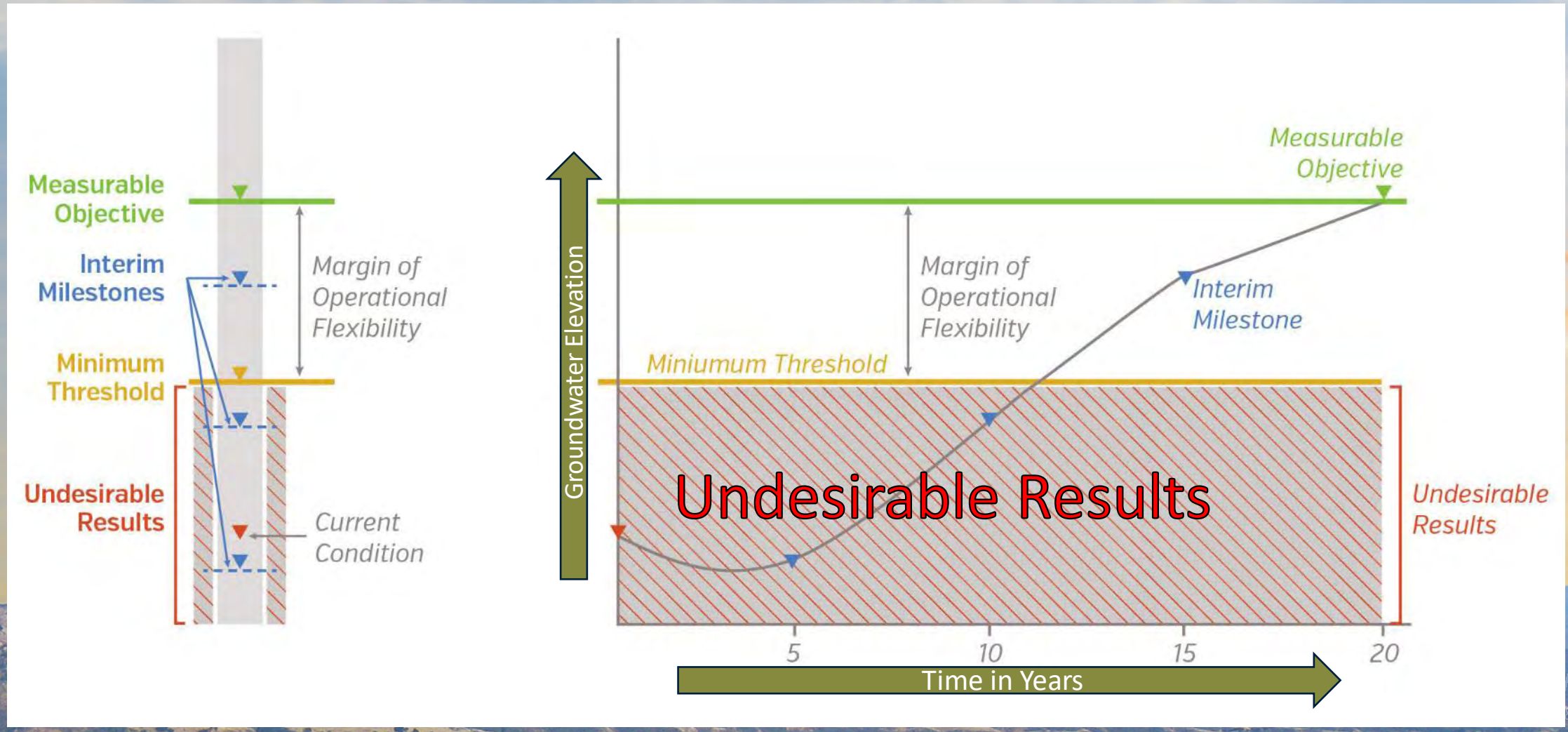
January 4, 2024

HALLMARK GROUP Woodard & Curran

Board Approved Groundwater Levels Monitoring Network



Review of Sustainability Thresholds

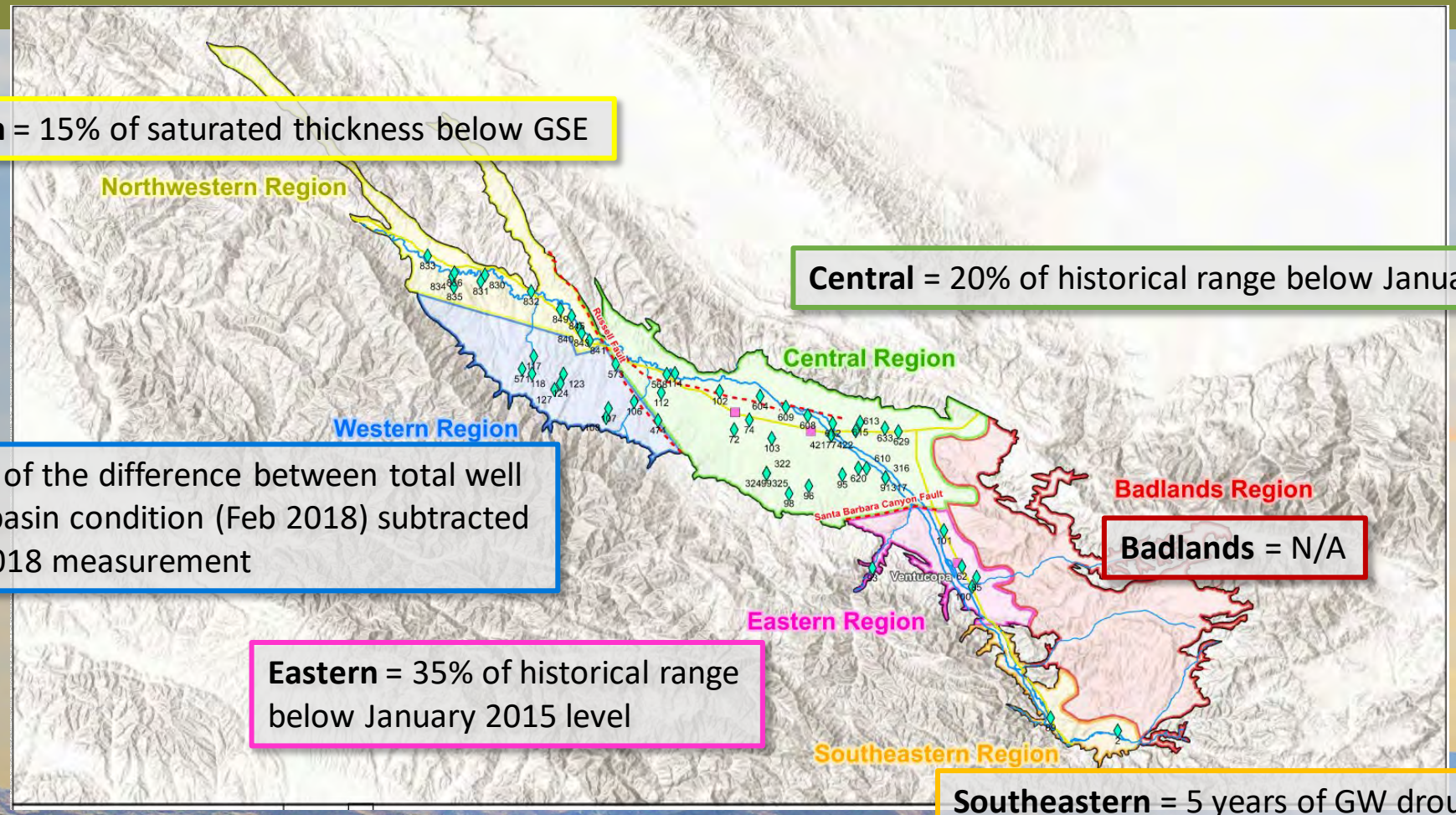


GSP Approach

- **GSP Section 3.2.1 Identification of Undesirable Results (p. 3-2)**: "This result is considered to occur during GSP implementation when 30 percent of representative monitoring wells (i.e., 18 of 60 wells) fall below their minimum groundwater elevation thresholds for two consecutive years."
- **GSP Section 5.2.1 Threshold Regions (p. 5-2)**: "Six threshold regions were defined to allow areas with similar conditions to be grouped together for calculation of MOs, MTs, and IMs."
- **GSP Section 5.2.2 Minimum Thresholds, Measurable Objectives, and Interim Milestones (p. 5-6)**: "This section describes how MTs, MOs, and IMs were established by threshold region, and explains the rationale behind each selected methodology."

GSP Threshold Region MT Strategies

Northwestern = 15% of saturated thickness below GSE



Central = 20% of historical range below January 2015 level

Western = 15% of the difference between total well depth and full basin condition (Feb 2018) subtracted from the Feb 2018 measurement

Badlands = N/A

Eastern = 35% of historical range below January 2015 level

Southeastern = 5 years of GW drought storage from MO

MO = January 2015

Drought storage = decline between 2013 and 2018

New Evaluation Tool: Well Protection Depth

What is it and How is it Used?

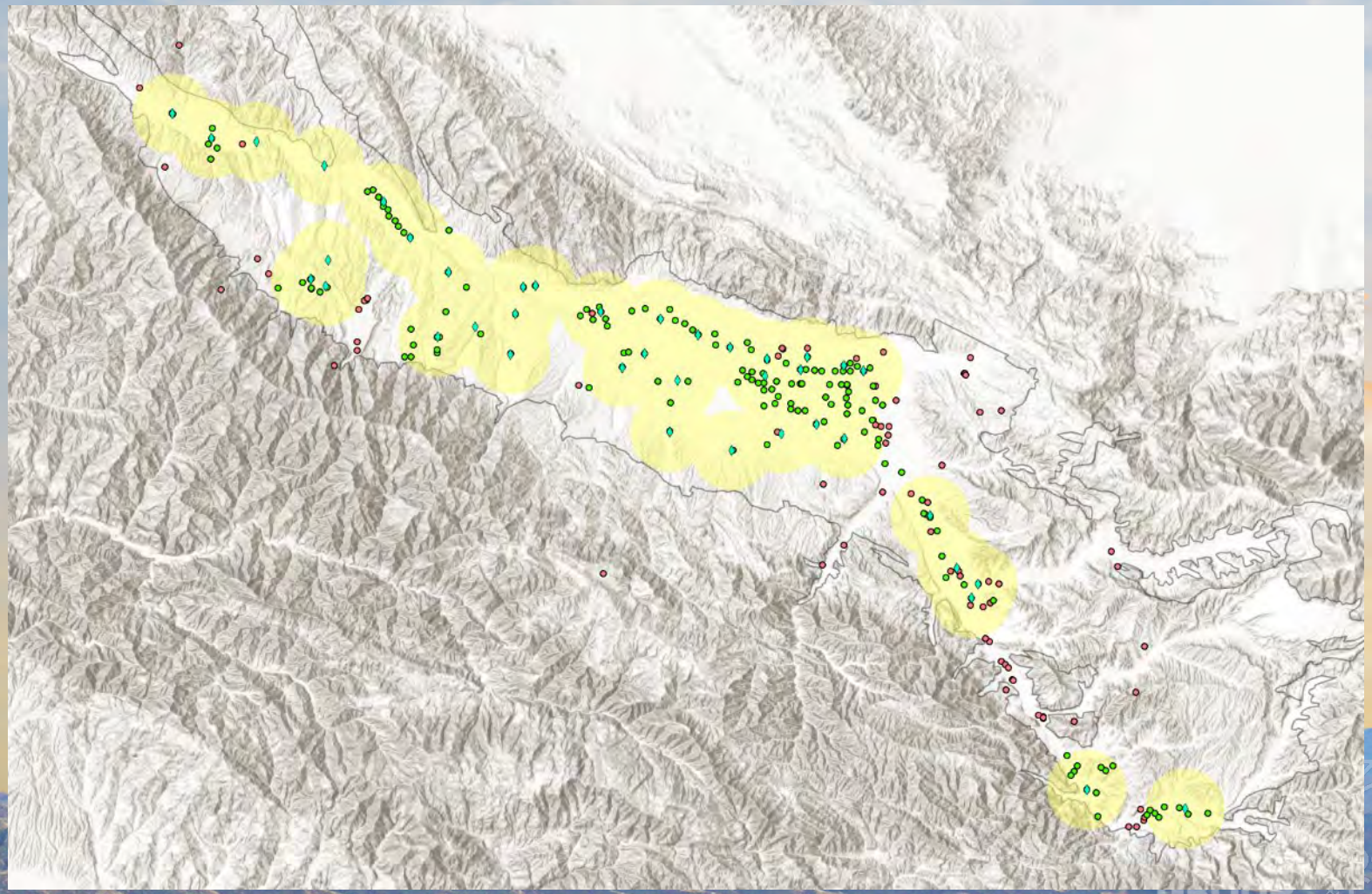
- The well protection depth is a numerical value representing the approximate depth at which – if exceeded – beneficial use could be impacted
- This is calculated for each production or domestic well based on pump depth, screen interval or well depth (as available)
- Utilizes data associated with each well, and where data is limited, generalized assumptions are used as a proxy
- Well protection depths were used to estimate if a well is at risk of going dry with each set of proposed minimum thresholds
  - Wells that are too far removed from the representative well network are screened out for this purpose
  - Wells were also screened that were determined to be dry in 2015 based on available data

Tech Forum Feedback – 12-12-23

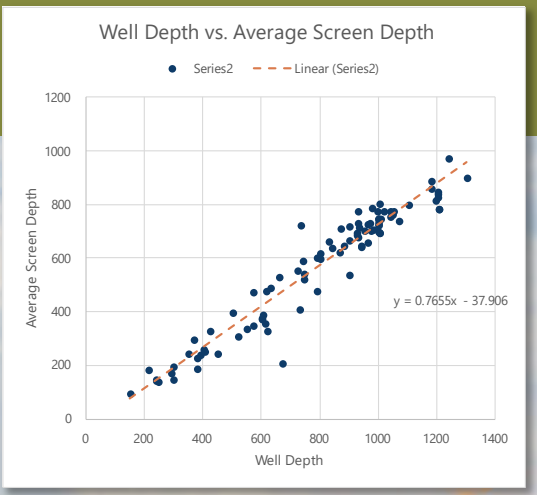
Topic	Well Protection Depth Calculation
Comment	Update buffer to include 10’ above pump depth
Comment by	• Jeff Shaw, Cuyama Basin Water District • Matt Young, Santa Barbara County
Notes	CBGSA staff incorporated suggestion

Well Protection Depth (WPD) Selection Process

- Representative Well
- Active well included
- Active well not included
  (too far from RMW or dry in 2015)
- 1.5 mi buffer around RMWs



Protection Depth Calculation – Production Wells



Pump Depth Known?

Yes → *WPD =* Pump Depth + 10 ft

No → Screen Interval Known?

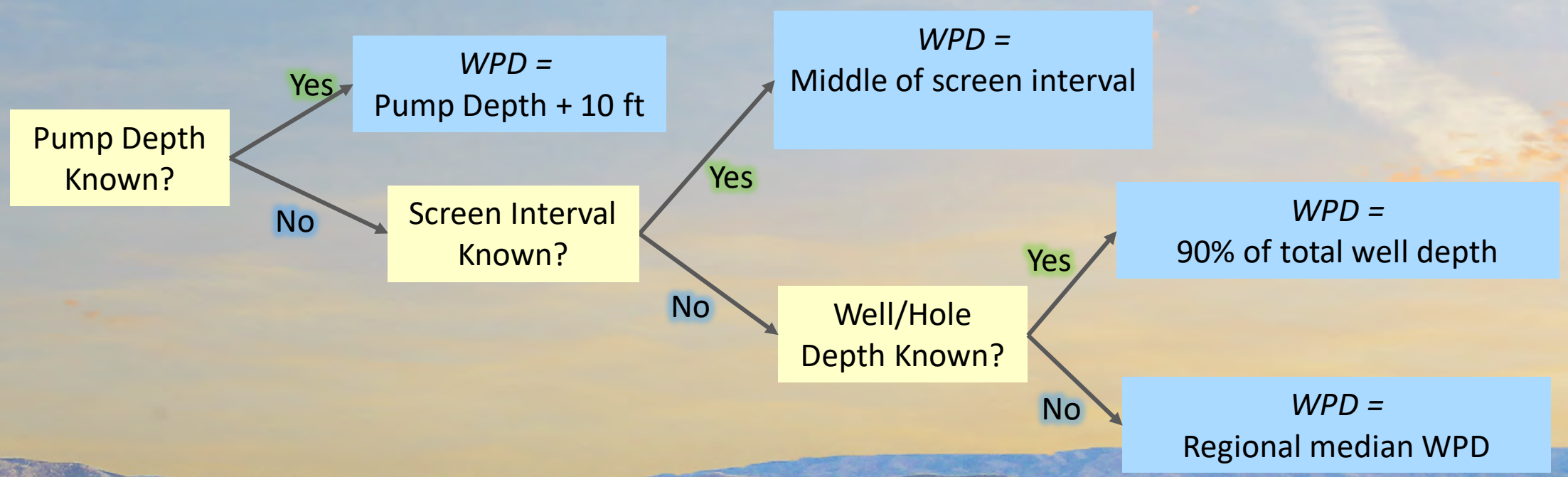
Yes → *WPD =* Middle of screen interval

No → Well/Hole Depth Known?

Yes → *WPD =* Trendline calculation of known well depths vs. middle screen interval

No → *WPD =* Regional median WPD

Protection Depth Calculation – Domestic Wells



Options for Groundwater Levels Sustainability Criteria – Minimum Thresholds

1. Keep existing MTs
2. Set MTs based on well protection depth for active pumping wells and protective depths for wells near GDE locations*
3. Set MTs based on projected 2040 groundwater levels from modeling projection of pumping allocation glidepath
4. Hybrid option – Set MT at shallowest level between well protection depth and [deeper of the deepest measurement in the last 10 years or glidepath projection]

*Eight wells near GDEs were individually assessed to ensure that either the WPD or the GDE protective groundwater elevation (whichever was more protective) was used. These eight wells are 2, 114, 568, 573, 830, 832, 833, and 836.

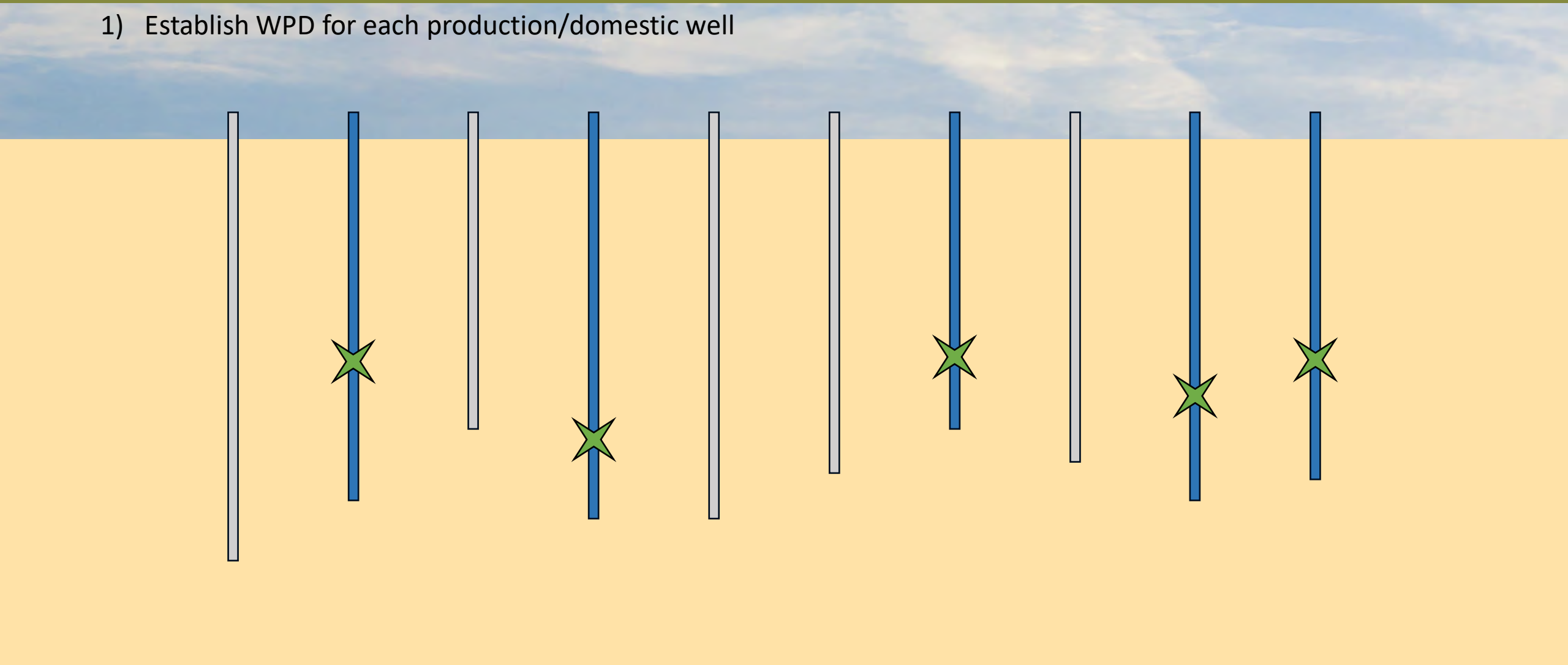
Option 2: From Well Protection Depth to Threshold

Representative Monitoring Well

Production/Domestic Well

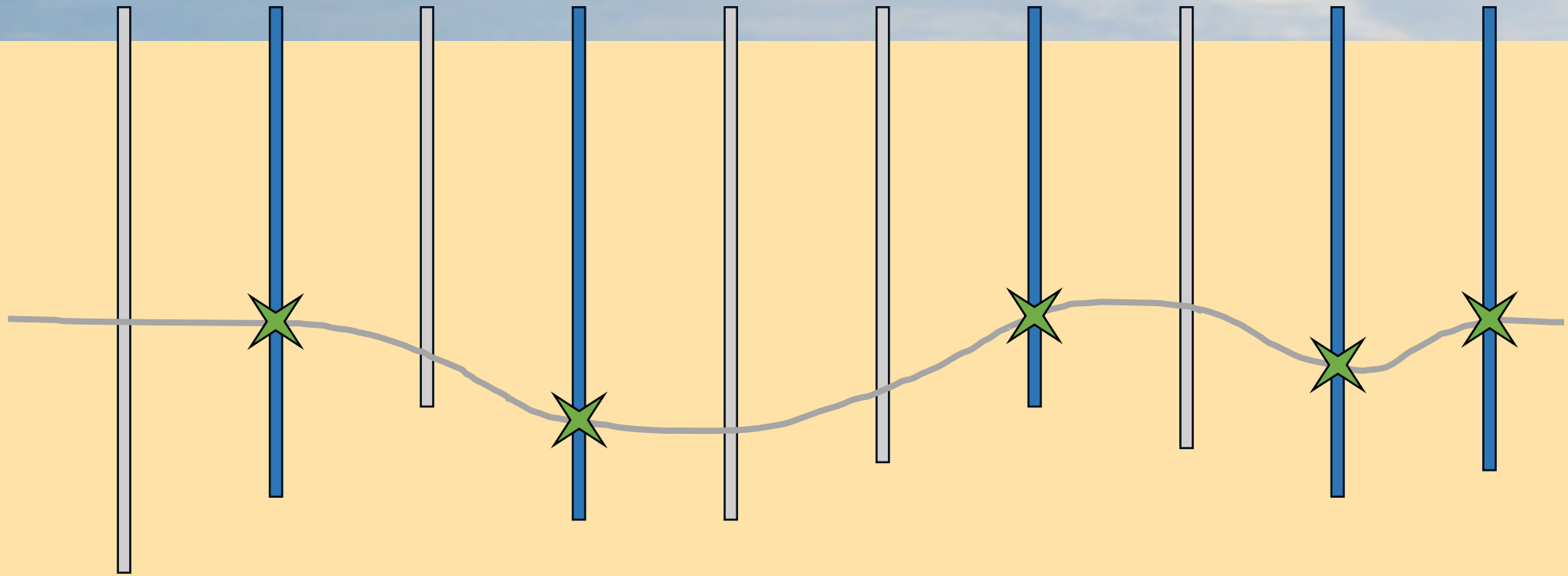
Well Protection Depth

1) Establish WPD for each production/domestic well



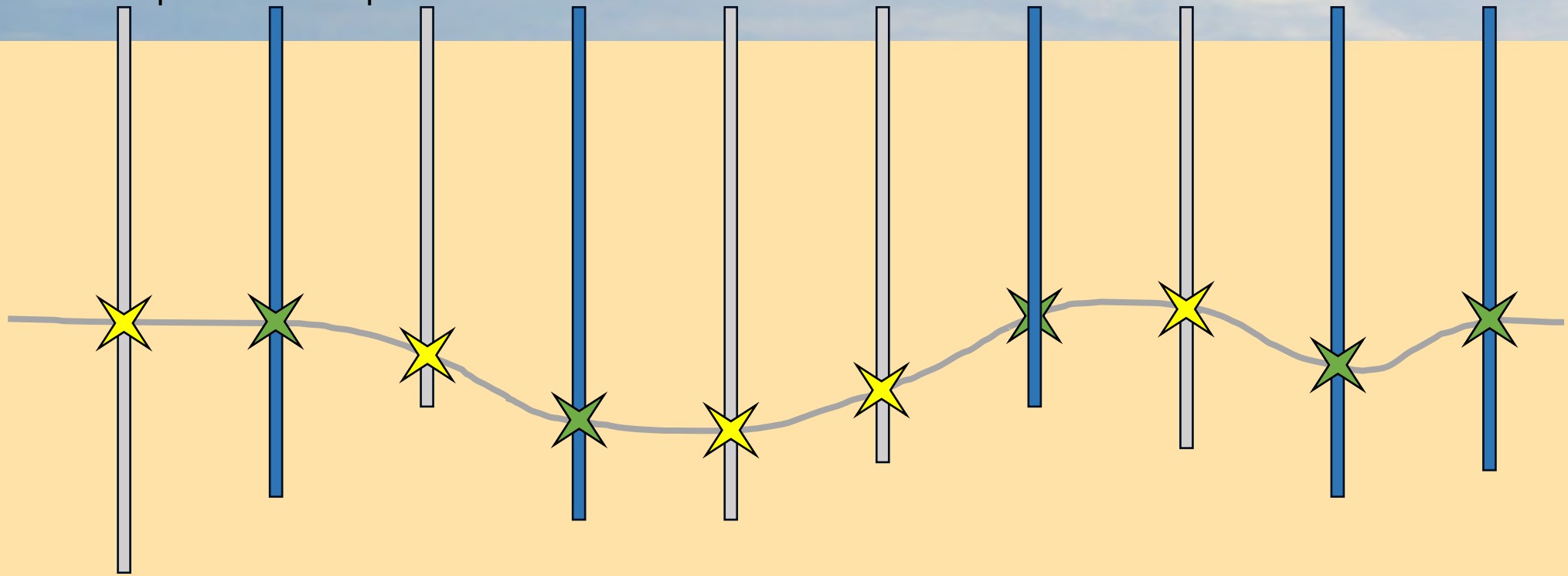
Option 2: From Well Protection Depth to Threshold

1) Establish WPD for each production/domestic well
2) Create a raster of the WPD

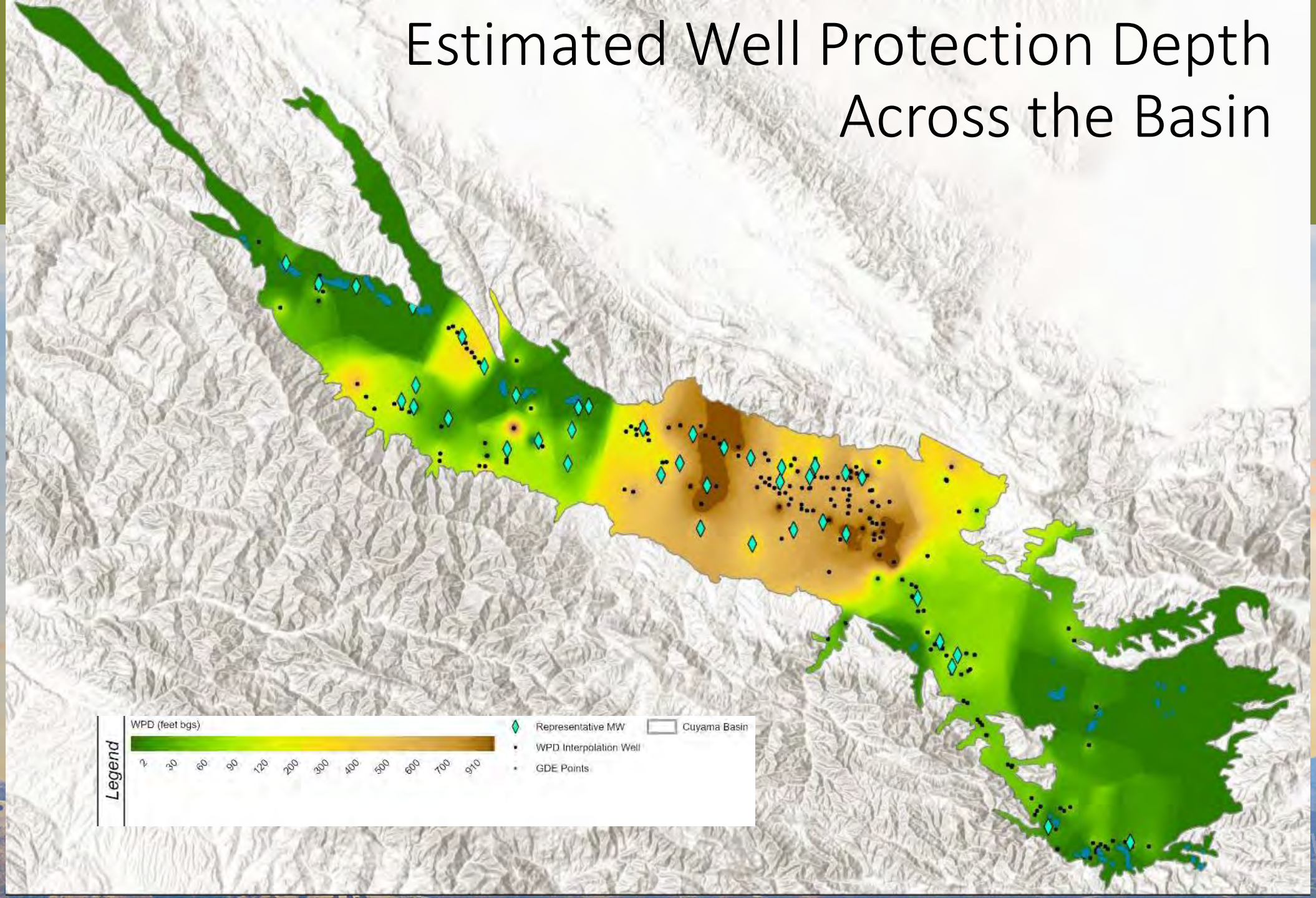


Option 2: From Well Protection Depth to Threshold

1) Establish WPD for each production/domestic well
2) Create a raster of the WPD
3) Extract depth at each representative well = threshold



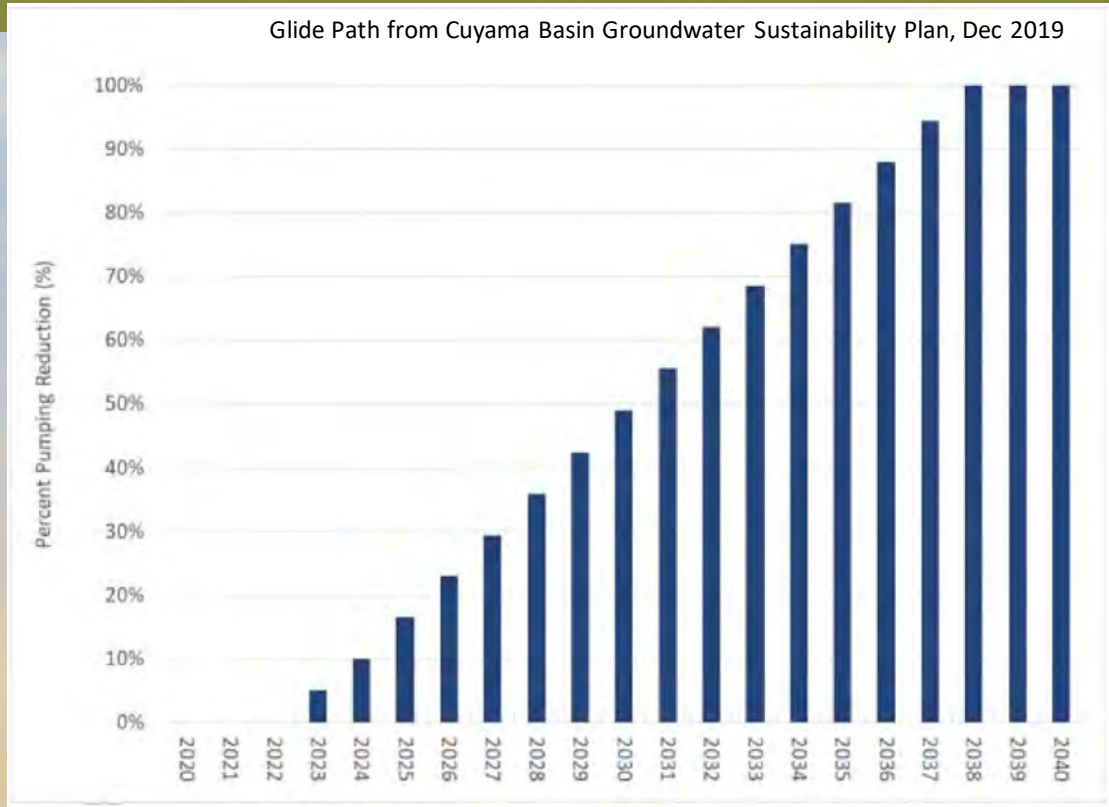
Estimated Well Protection Depth Across the Basin



Option 3: CBWRM Analysis of Estimated Groundwater Conditions with GSP Pumping Reductions

- Groundwater pumping was reduced for irrigated acreage in the central management area plus farming units following the "glide path" specified in the GSP
  - The reduction is gradual, beginning in 2023, reaching the final reduction in 2038
  - The reduction was applied to all crop types
- Model estimated groundwater levels in 2040 were used to set proposed minimum thresholds under Option 3

Glide Path from Cuyama Basin Groundwater Sustainability Plan, Dec 2019



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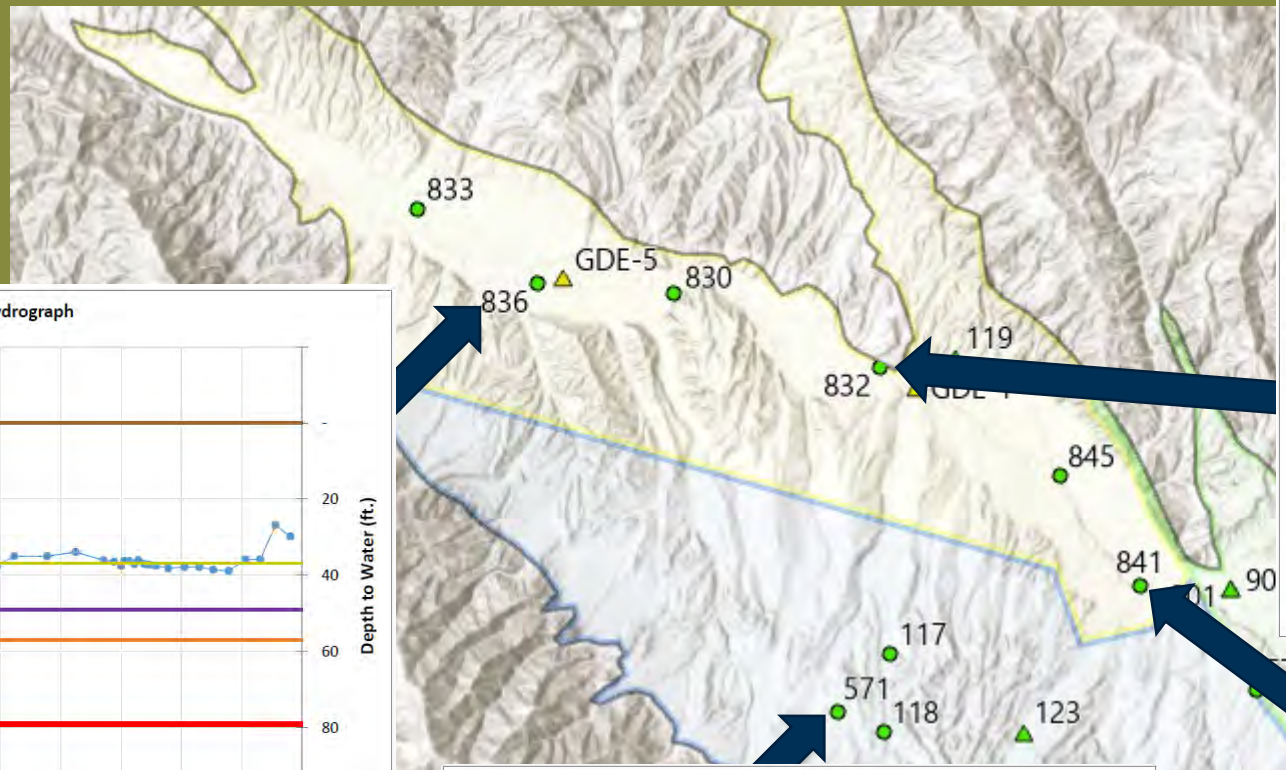
Option 4: Hybrid Option

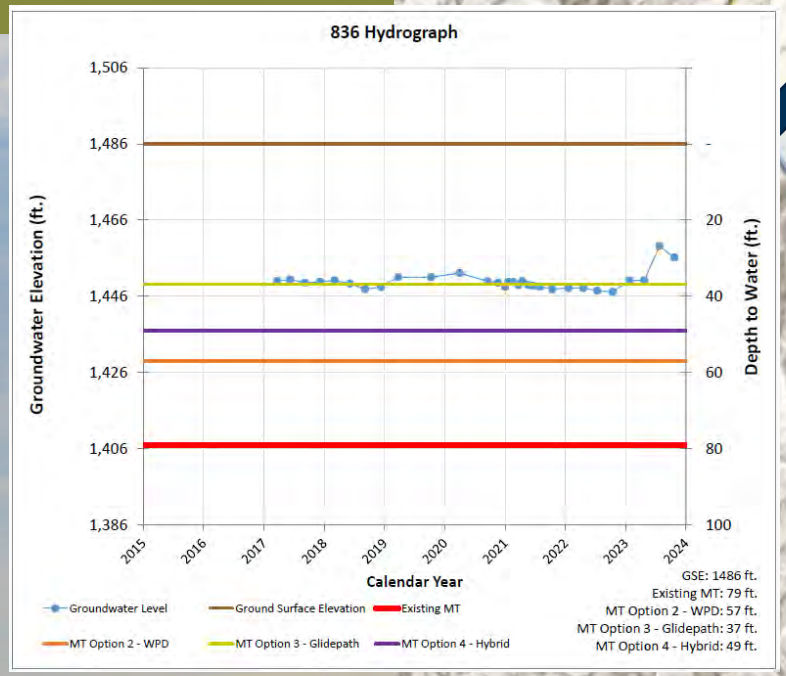
- Under the Hybrid Option, set the Minimum Threshold at each well equal to the shallower of:
  - The Well Protection Depth or
  - The deeper of:
    - The deepest measurement in the past 10 years plus a buffer*
    - The projected depth to water in 2040 with the glidepath
- Wells that previously used a “saturated thickness” methodology would continue to use that methodology

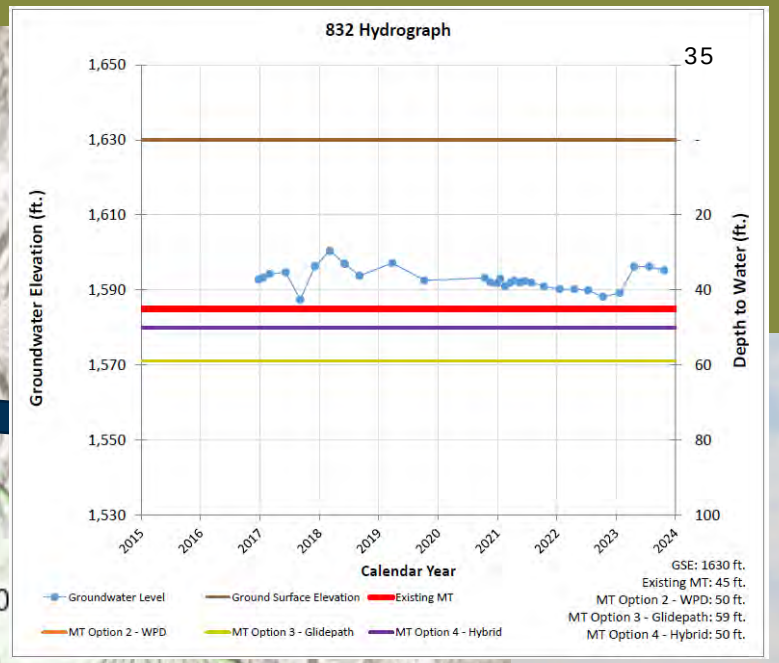
*The buffer equals 10 feet or 5% of the DTW of the most recent measurement, whichever is greater

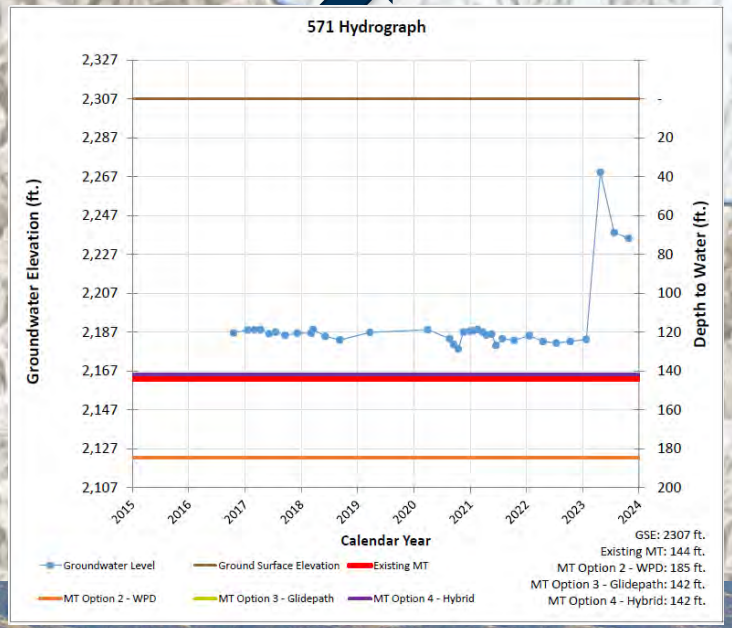
Tech Forum Feedback – 12-12-23

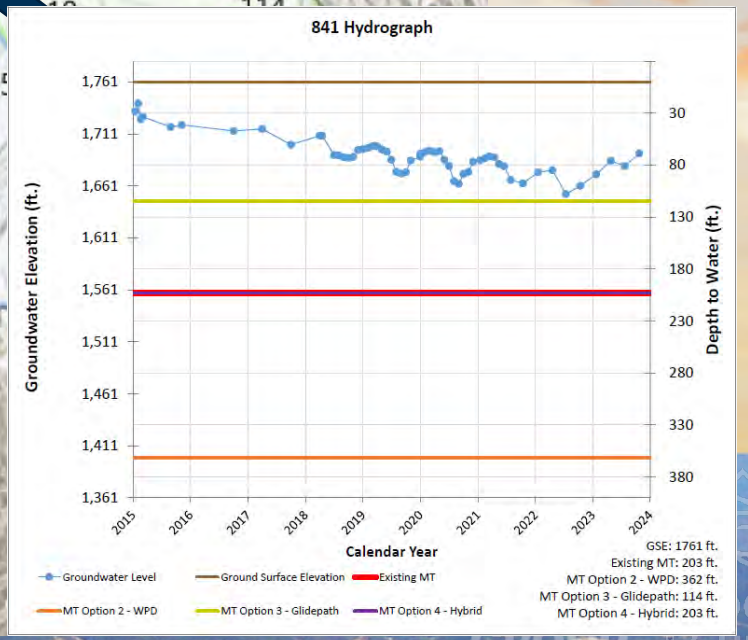
Topic	SMC Option No. 4
Comment	Concerned with using the model to calculate option 4 since the model is underperforming in the more complex portions of the basin (i.e. western area, Ventucopa area, etc.)
Comment by	Neil Currie, Grapevine Capital
Notes	NA





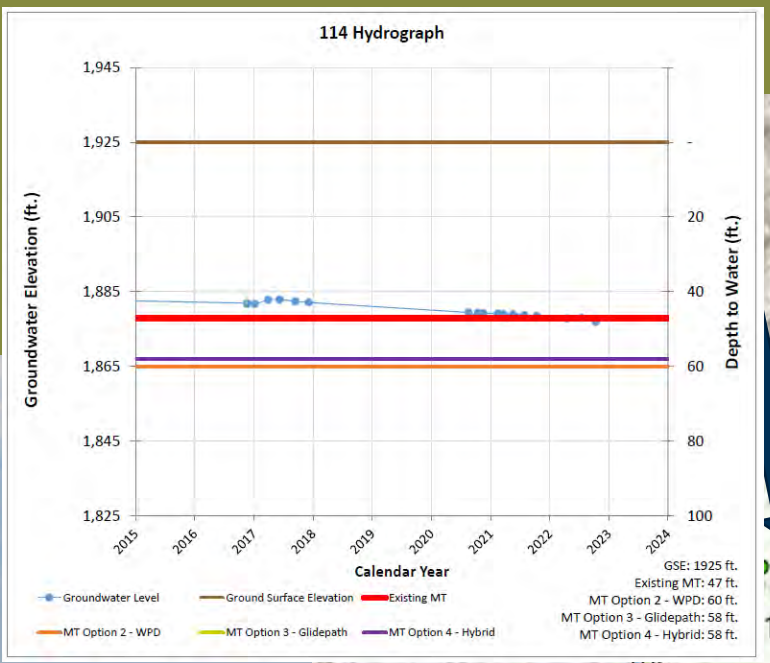


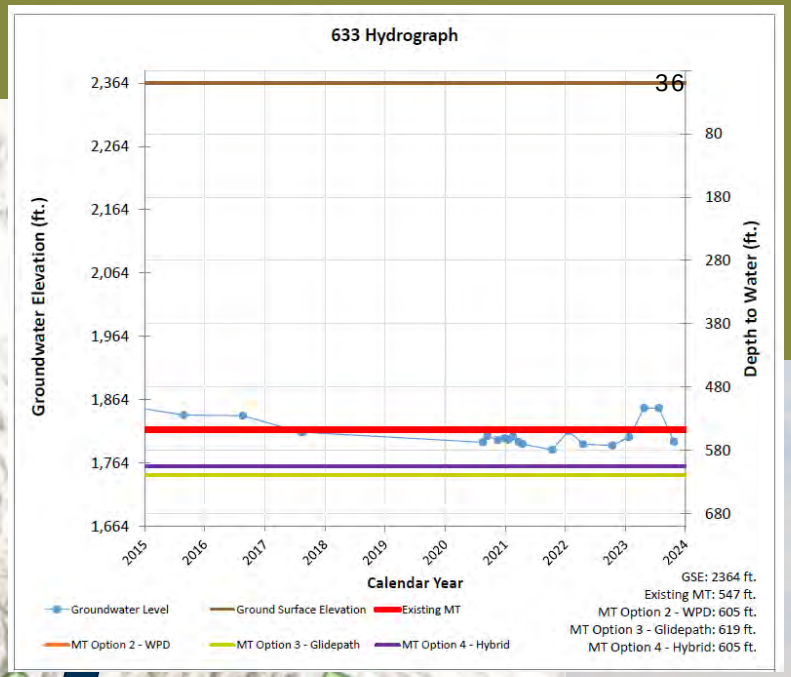


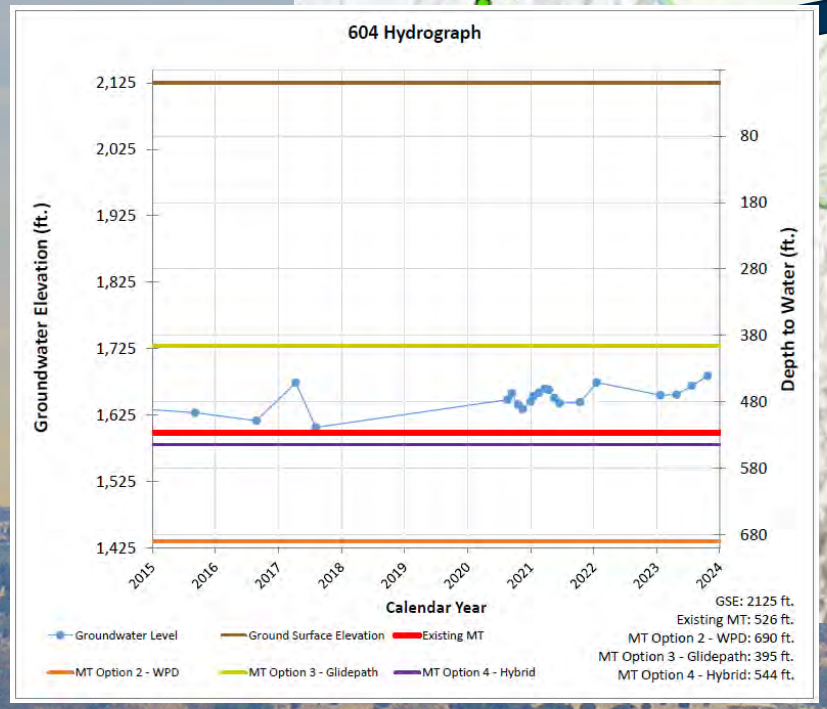


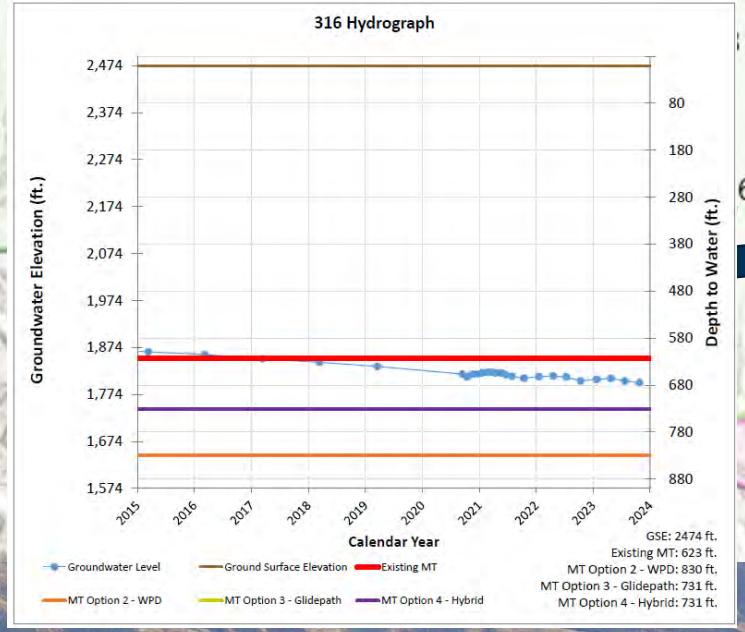
Well Network

- Representative Monitoring
- Non-representative Monitoring
- New or Existing Wells to be Added



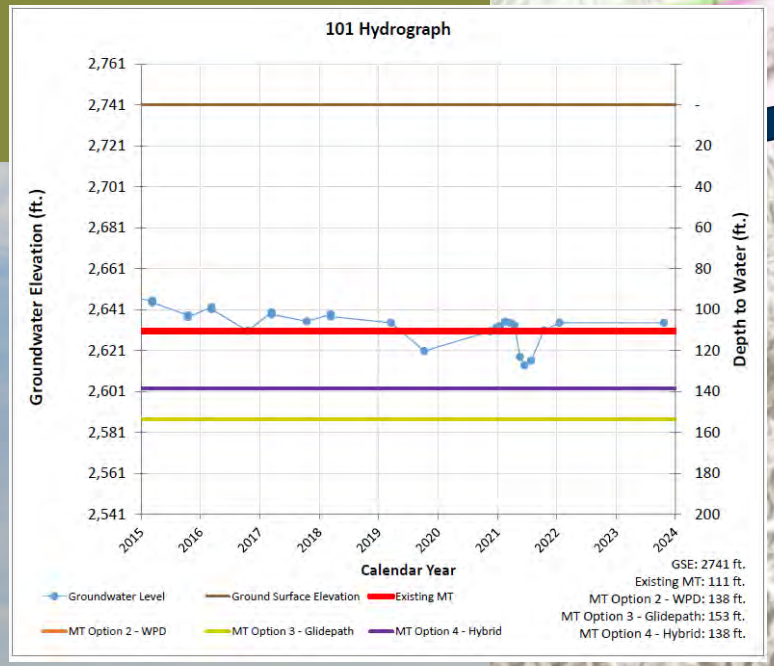


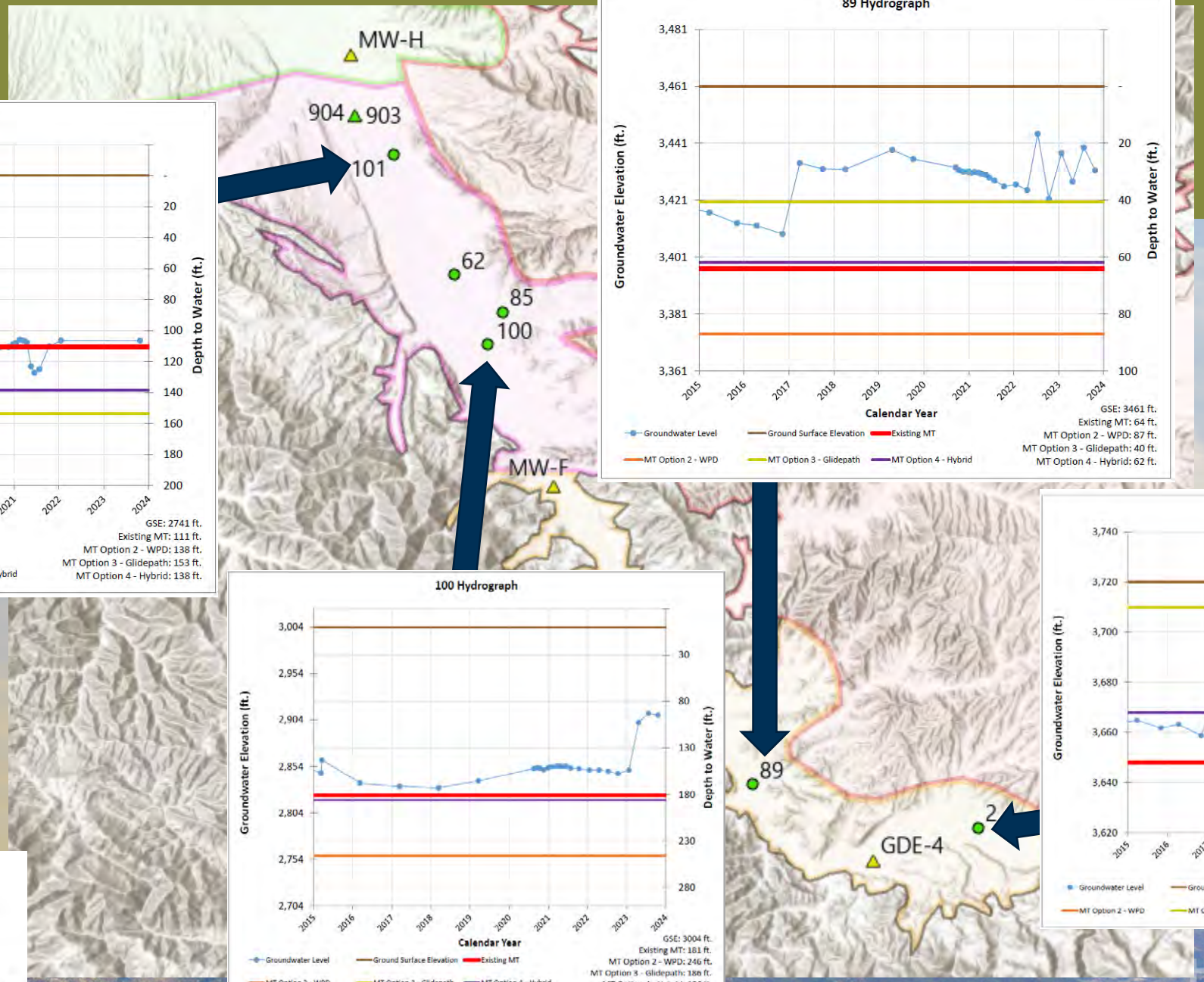


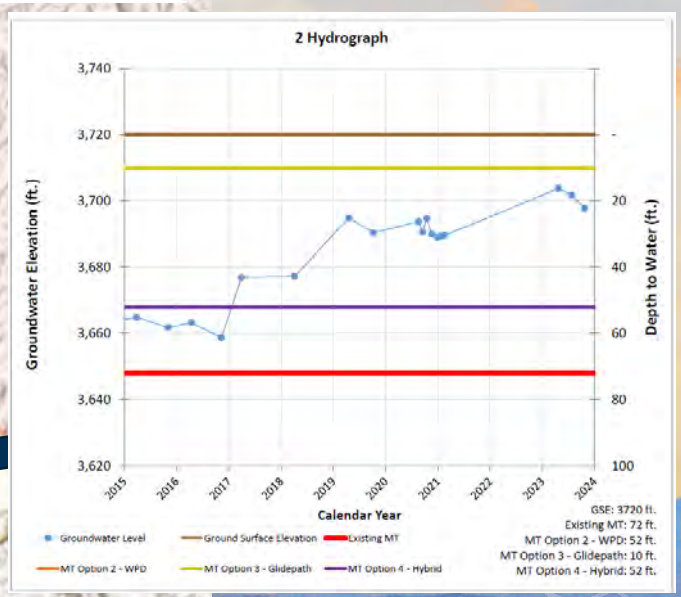


Well Network

- Representative Monitoring
- Non-representative Monitoring
- New or Existing Wells to be Added







Well Network

- Representative Monitoring
- Non-representative Monitoring
- New or Existing Wells to be Added

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Change in Minimum Thresholds Under Each Option Compared to Current Minimum Thresholds (in Depth to Water (feet))

RMW Opti	Deepest DTW Between 2013-2923	Current MT	MT Option 2 WPD	WPD Difference	MT Option 3 Glide path	Glide path Difference	MT Option 4 Hybrid	Hybrid Difference
2	61	72	52	20	10	62	52	20
62	164	182	212	-30	212	-30	212	-30
72	355	169	598	-429	257	-88	373	-204
74	273	256	599	-343	322	-66	322	-66
77	513	450	524	-74	494	-44	514	-64
85	216	233	210	23	233	0	200	33
89	52	64	87	-23	40	24	62	2
91	680	625	900	-275	730	-105	730	-105
95	612	573	607	-34	705	-132	597	-24
96	340	333	400	-67	369	-36	369	-36
99	361	311	541	-230	271	40	379	-68
100	173	181	256	-75	186	-5	186	-5
101	127	111	148	-37	153	-42	138	-27
102	448	235	492	-257	367	-132	470	-235
103	337	290	743	-453	379	-89	379	-89
106	144	154	228	-74	164	-10	164	-10
107	112	91	167	-76	121	-30	122	-31
112	86	87	282	-195	102	-15	102	-15
114	48	47	60	-13	58	-11	58	-11
117	153	160	211	-51	161	-1	163	-3
118	62	124	50	74	78	46	40	84
316	675	623	830	-207	731	-108	731	-108
317	673	623	700	-77	700	-77	700	-77

RMW Opti	Deepest DTW Between 2013-2923	Current MT	MT Option 2 WPD	WPD Difference	MT Option 3 Glidepath	Glidepath Difference	MT Option 4 Hybrid	Hybrid Difference
322	369	307	541	-234	343	-36	387	-80
324	348	311	541	-230	365	-54	365	-54
325	315	300	380	-80	328	-28	331	-31
420	561	450	524	-74	555	-105	514	-64
421	510	446	524	-78	554	-108	514	-68
474	187	188	213	-25	195	-7	197	-9
568	76	37	47	-10	65	-28	47	-10
571	129	144	195	-51	142	2	142	2
573	72	118	161	-43	93	25	93	25
604	518	526	700	-174	395	131	544	-18
608	462	436	601	-165	504	-68	504	-68
609	475	458	660	-202	364	94	499	-41
610	641	621	567	54	629	-8	557	64
612	487	463	541	-78	513	-50	513	-50
613	550	503	598	-95	577	-74	578	-75
615	532	500	600	-100	588	-88	588	-88
629	578	559	739	-180	613	-54	613	-54
633	579	547	615	-68	619	-72	605	-58
830	63	59	63	-4	77	-18	63	-4
832	43	45	50	-5	59	-14	50	-5
833	52	96	48	48	46	50	48	48
836	39	79	57	22	37	42	49	30
841	108	203	372	-169	114	89	203	0
845	78	203	247	-44	109	94	203	0

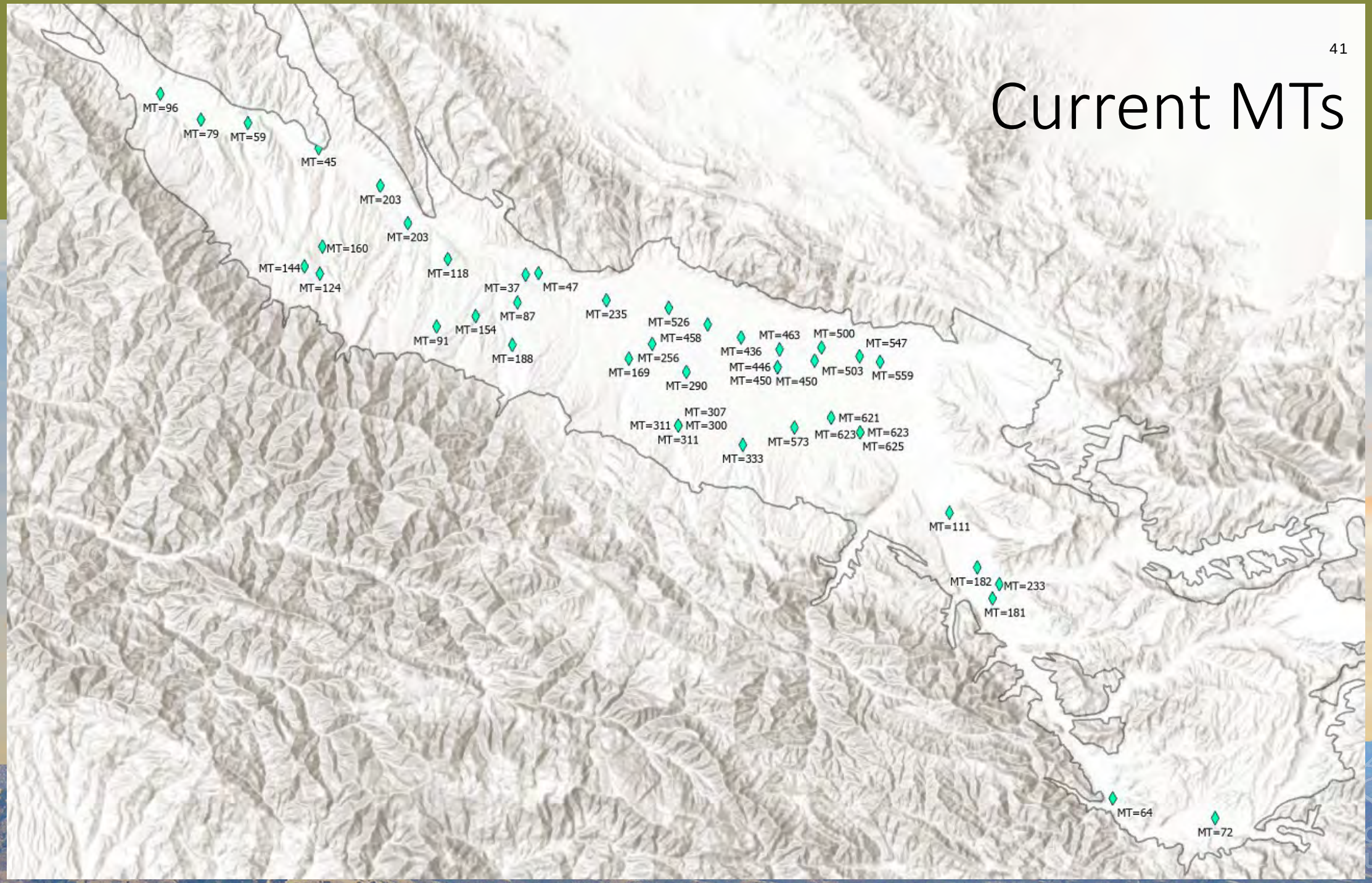
Summary of Differences Between Minimum Threshold Options

	1. Existing MT	2. WPD MT	3. Glidepath MT	4. Hybrid
Number of RMWs where MT goes up (i.e. deeper)	N/A	44	34	36
Number of RMWs where MT does not change	N/A	0	1	2
Number of RMWs where MT goes down (i.e. shallower)	N/A	3	12	9
Average MT delta (ft) (negative = deeper)	N/A	-97	-24	-36
Median MT delta (ft) (negative = deeper)	N/A	-65	-28	-30
Number of domestic wells at risk of exceeding WPD	5	0	8	0
Number of productions wells at risk of exceeding WPD	7	0	30	0
Number of wells that would currently exceed MT	16	3	5	3

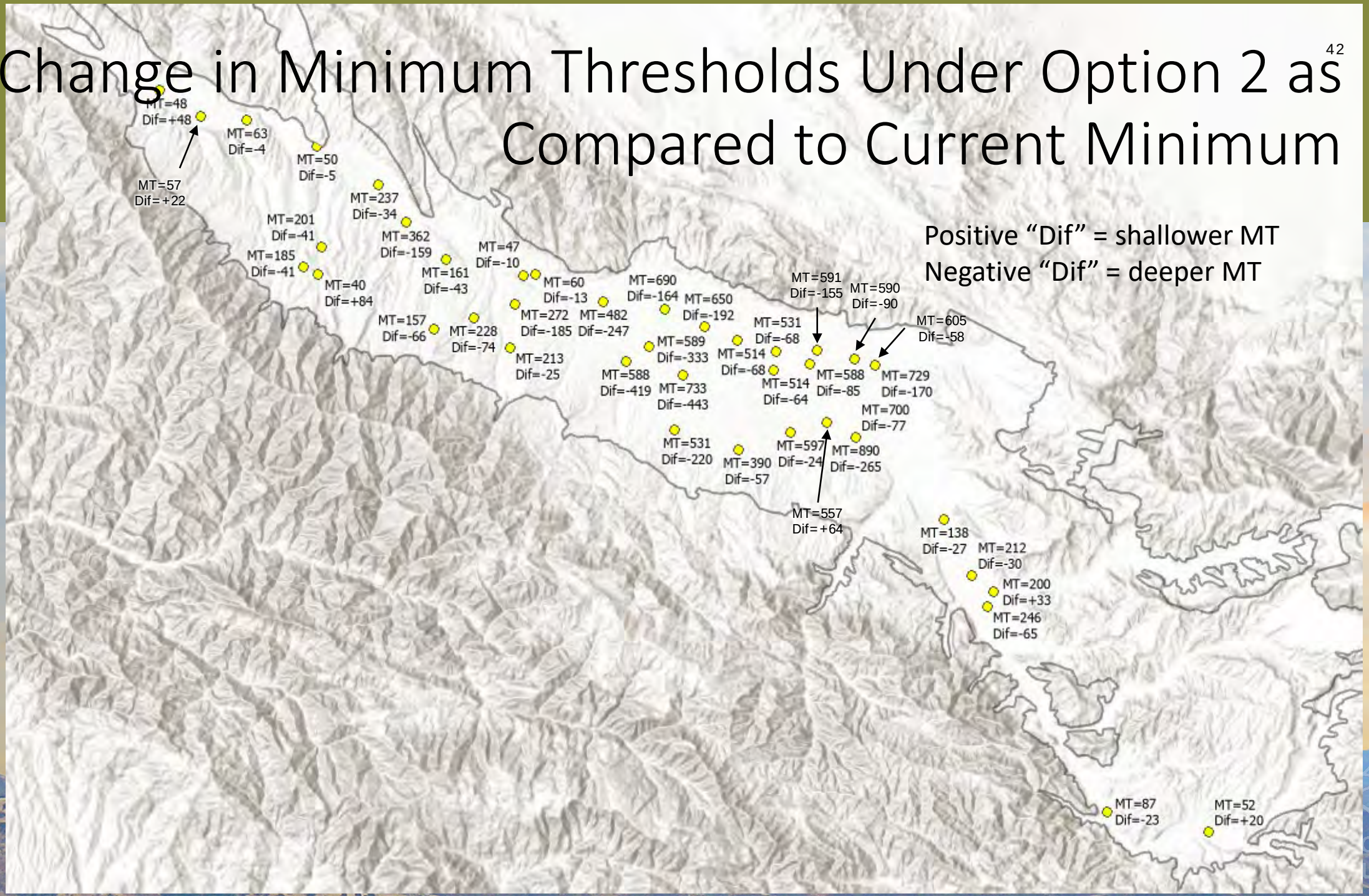
Tech Forum Feedback – 12-12-23

Topic	Summary of differences between the minimum threshold options
Comment	Need to consider impacts of SMC options on each threshold region to determine appropriateness due to technical differences in geology of the basin
Comment by	Neil Currie, Grapevine Capital
Notes	NA

Current MTs


MT=96
MT=79
MT=59
MT=45
MT=203
MT=203
MT=160
MT=144
MT=124
MT=118
MT=37
MT=47
MT=87
MT=154
MT=91
MT=188
MT=235
MT=526
MT=458
MT=256
MT=169
MT=290
MT=436
MT=463
MT=500
MT=547
MT=446
MT=450
MT=450
MT=503
MT=559
MT=307
MT=311
MT=300
MT=311
MT=333
MT=573
MT=621
MT=623
MT=623
MT=625
MT=111
MT=182
MT=233
MT=181
MT=64
MT=72

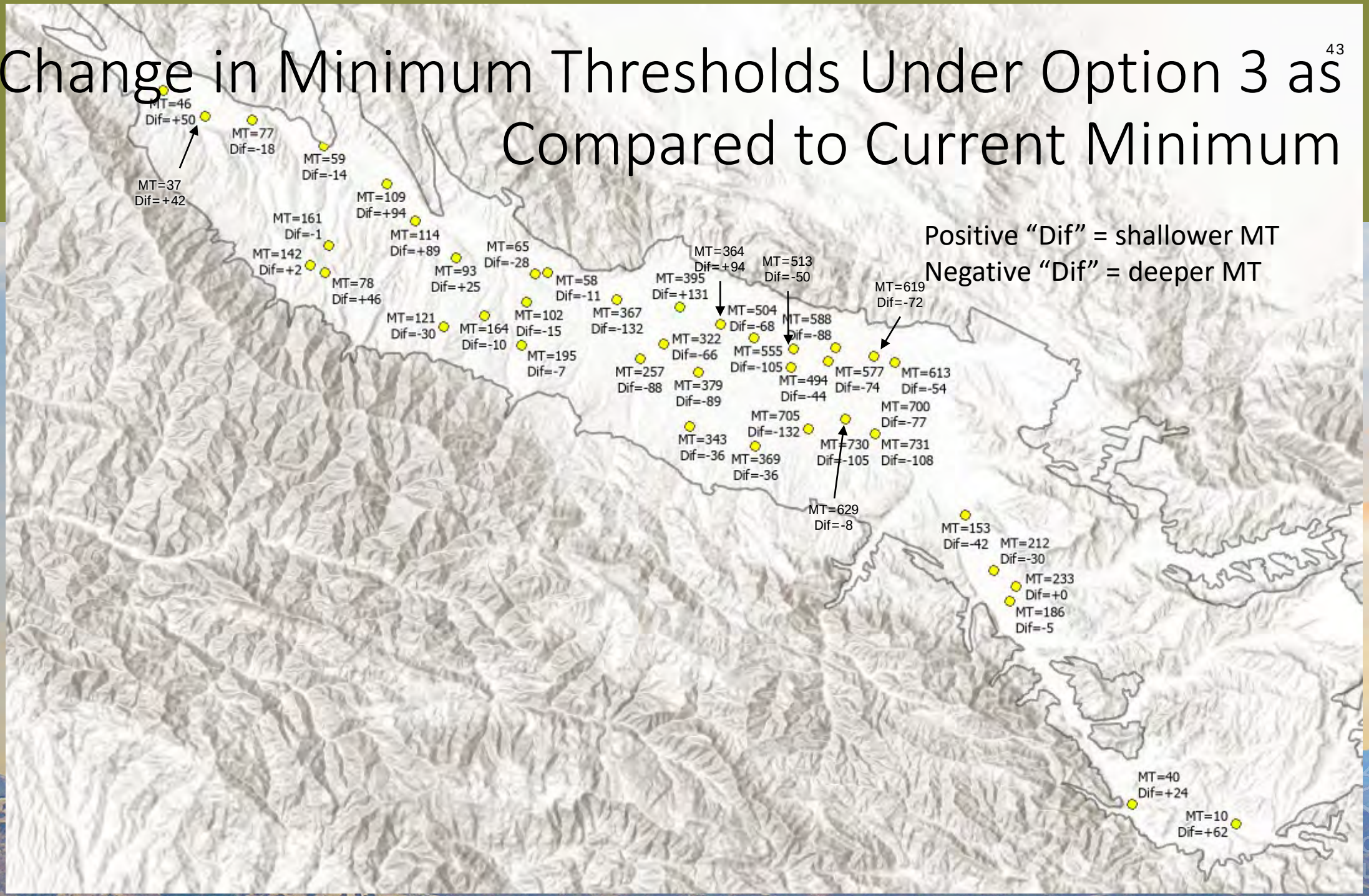
Change in Minimum Thresholds Under Option 2 as Compared to Current Minimum



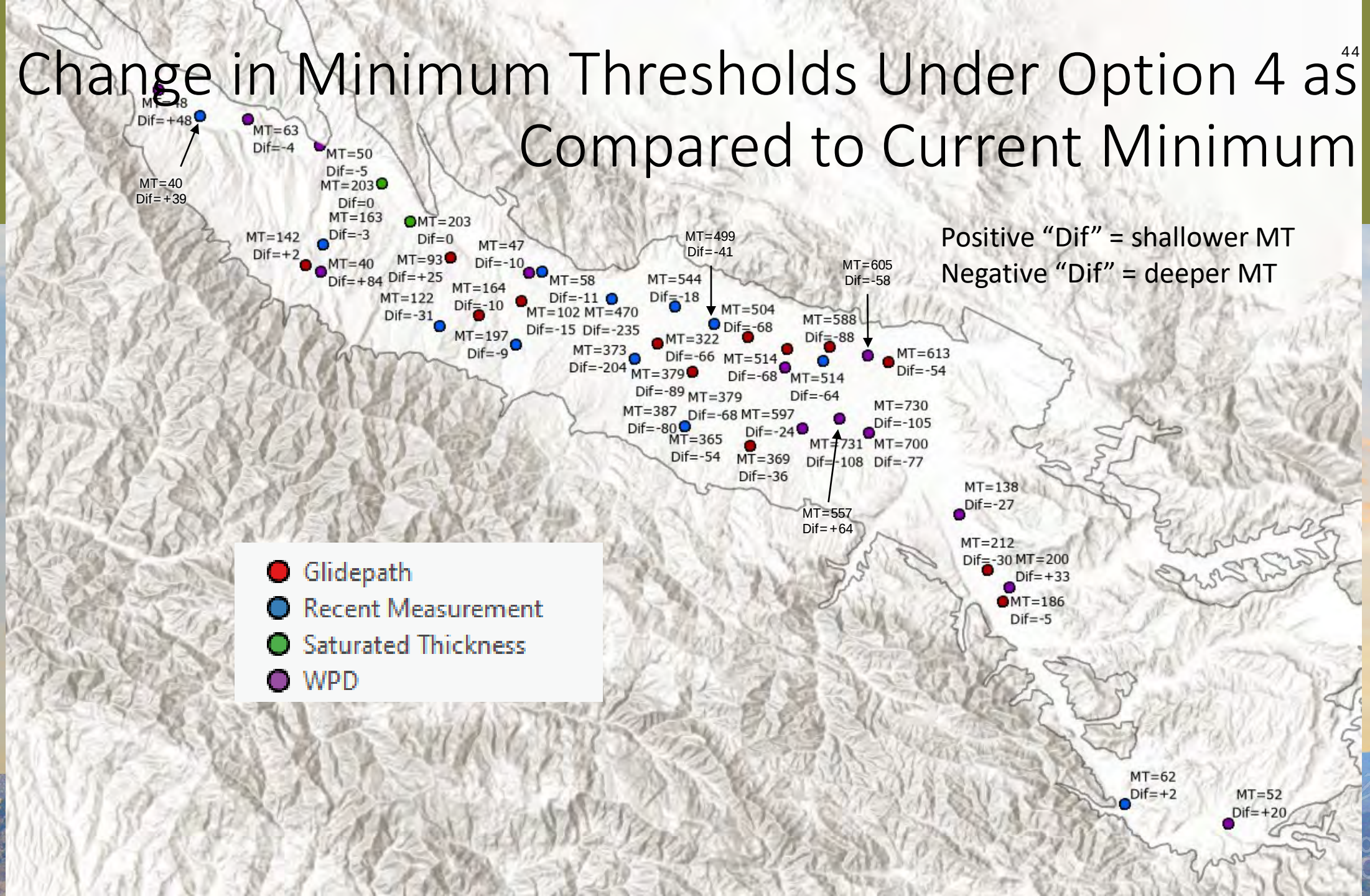
Positive “Dif” = shallower MT

Negative “Dif” = deeper MT

Change in Minimum Thresholds Under Option 3 as Compared to Current Minimum



Change in Minimum Thresholds Under Option 4 as Compared to Current Minimum



Positive “Dif” = shallower MT

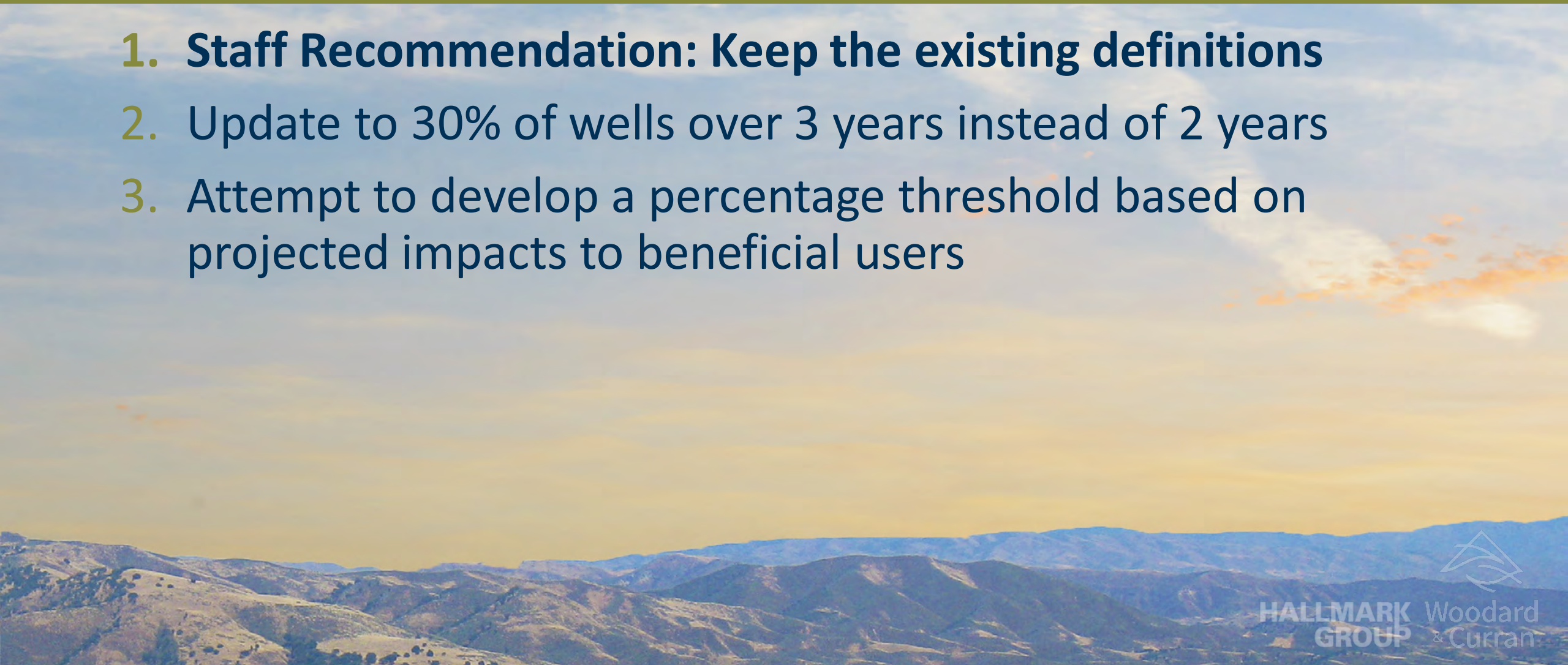
Negative “Dif” = deeper MT

Options for Groundwater Levels Sustainability Criteria – Measurable Objectives

1. Keep same Measurable Objectives (MOs)
2. Retain existing Margin of Operational Flexibility (MOoF) – with MO level adjusted for new MT
3. **Staff Recommendation**: Same as Option #2, except that the MOoF must be at least 10 feet

Options for Groundwater Levels Undesirable Results Definitions

1. **Staff Recommendation: Keep the existing definitions**
2. Update to 30% of wells over 3 years instead of 2 years
3. Attempt to develop a percentage threshold based on projected impacts to beneficial users



Cuyama Basin Groundwater Sustainability Agency

7bii. Discuss and Take Appropriate Action on Sustainable Management Criteria and Undesirable Result Statement for Groundwater Storage

January 4, 2024

HALLMARK GROUP Woodard & Curran

GSP Approach and Potential Options

- **GSP Section 3.2.2 Identification of Undesirable Results (p. 3-3)**: "This result is considered to occur during GSP implementation when 30 percent of representative monitoring wells (i.e., 18 of 60 wells) fall below their minimum groundwater elevation thresholds for two consecutive years."
- **GSP Section 5.3.2 Reduction of Groundwater Storage (p. 5-15)**: "Reduction of groundwater storage in the Basin uses groundwater levels as a proxy for determining sustainability, as permitted by Title 23 of the California Code of Regulations in Section 354.26 (d), Chapter 1.5.2.5. Additionally, there are currently no state, federal, or local standards that regulate groundwater storage. As described above, any benefits to groundwater storage are expected to coincide with groundwater level management."
- **Potential Options:**
  1. **Staff Recommendation:** Continue to use groundwater levels as a proxy for groundwater storage
  2. Define sustainability criteria in terms of annual change in groundwater storage as estimated by the groundwater model

Cuyama Basin Groundwater Sustainability Agency

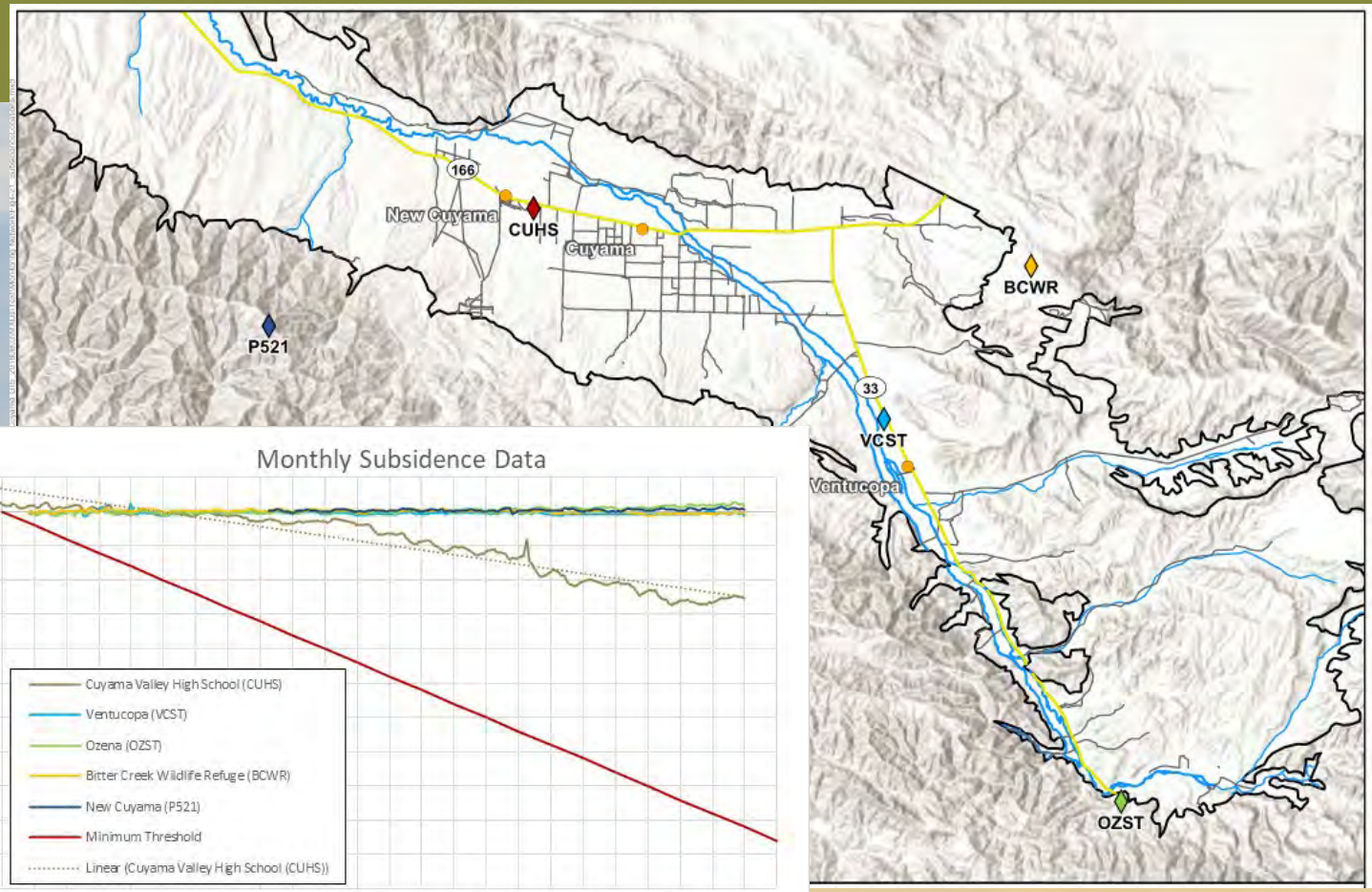
7biii. Discuss and Take Appropriate Action on Sustainable Management Criteria and Undesirable Result Statement for Subsidence

January 4, 2024

HALLMARK GROUP Woodard & Curran

GSP Subsidence Monitoring Network

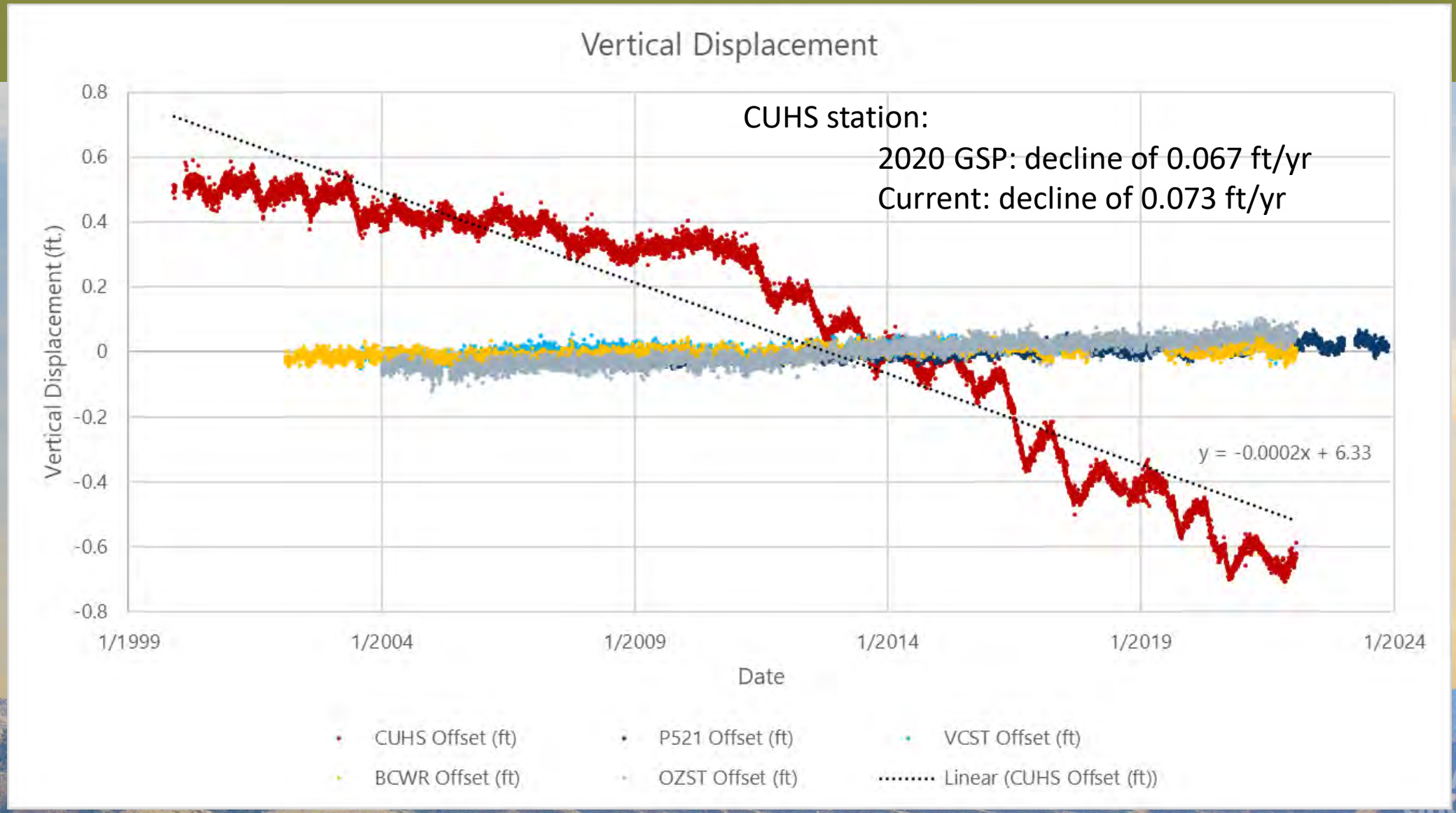
- **GSP Section 4.9 (p. 4-60)** describes the development of the subsidence monitoring network
  - Five existing stations are included; the two within the basin are representative
  - none are managed by the CBGSA



GSP Approach for Undesirable Results Identification and Sustainable Management Criteria

- **GSP Section 3.3.5 Identification of Undesirable Results (p. 3-7)**: "(This result) is considered to occur during GSP implementation when 30 percent of representative monitoring wells (i.e., 1 of 2 wells) exceed minimum threshold for subsidence for two consecutive years."
- **GSP Section 5.6.3 Subsidence (p. 5-23)**:
  - "Because current subsidence rates (approximately 0.8 inches per year) are not significant and unreasonable, the MT rate for subsidence was set at 2 inches per year to allow for flexibility as the Basin works toward sustainability in 2040."
  - "The MO for subsidence is set for zero lowering of ground surface elevations."

Trendlines based on most recent data



Investigation of Subsidence Station CUHS

- At the September meeting, the Board asked Woodard & Curran to review the CUHS station to confirm that it is appropriate for subsidence monitoring
- Steps taken to review:
  - Performed field visit (see example photo at right)
  - Discussion with Ryan Turner (USGS) on station operation and quality control methods
- Based on the review, it is concluded that the station is producing appropriate data for use by the CBGSA

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Options for Sustainability Criteria and Identification of Undesirable Results

- Minimum Thresholds
  1. **Staff Recommendation:** Keep existing MT = 0.167 ft/yr (2 in/yr)
  2. Adjust for new trend line = 0.18 ft/yr (2.2 in/yr)
  3. Lower flexibility option = 0.1 ft/yr (1.2 in/yr)
- Measurable Objectives
  1. **Staff Recommendation**: Keep existing MO = 0 ft/yr
- Identification of Undesirable Results
  1. **Staff Recommendation**: Keep existing definition

- Keep in mind:
  - DWR accepted GSPs Subsidence MTs and discussion
  - No major infrastructure in the Basin (no known beneficial uses/users impacted)
  - Goal is to make sure subsidence rates do not exceed historical rates

Cuyama Basin Groundwater Sustainability Agency

7biv. Discuss and Take Appropriate Action on Sustainable Management Criteria and Undesirable Result Statement for Water Quality

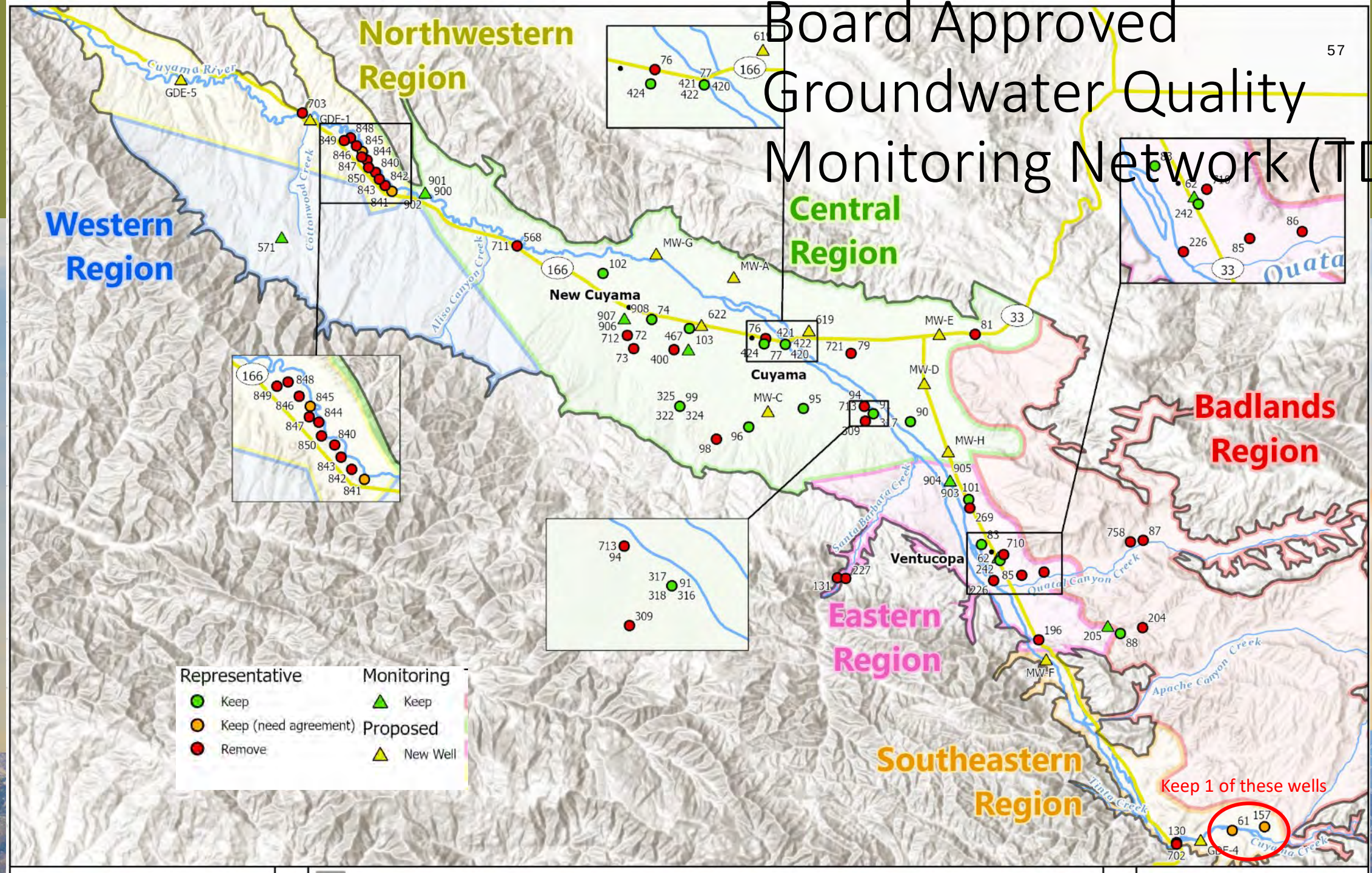
January 4, 2024

HALLMARK GROUP Woodard & Curran

GSP Approach and DWR Recommended Corrective Action

- **GSP Section 3.3.4 Identification of Undesirable Results (p. 3-7)**: "This result is considered to occur during GSP implementation when 30 percent of representative monitoring wells (i.e., 20 of 64 wells) fall below their minimum groundwater elevation thresholds for two consecutive years."
- **GSP Section 5.5.3 Minimum Thresholds, Measurable Objectives, and Interim Milestones (p. 5-6)**:
  - Sustainability criteria were established for TDS at representative wells:
    - MTs were set to be the 20 percent of the total range of each representative monitoring site above the 90th percentile of measurements for each site
    - MOs were set at the lower of 1,500 mg/L or the most recent measurement as of 2018
  - No sustainability criteria were established for arsenic or nitrates
- **DWR Recommended Corrective Actions:**
  - **Action 3:** "Provide an update regarding the project to construct a new replacement production well near the community of New Cuyama … If this project is not effective or not implemented by the periodic evaluation, the GSA should develop sustainable management criteria for arsenic."
  - **Action 4: "**Department staff recommend the GSA develop sustainable management criteria for nitrate."

Board Approved Groundwater Quality Monitoring Network (TDS)



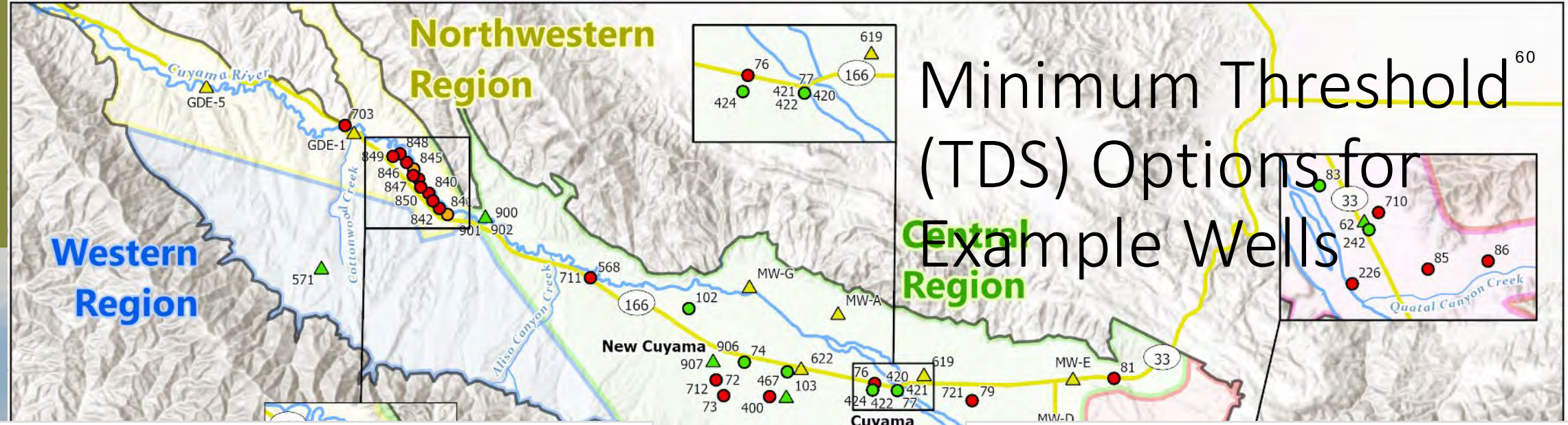
Example Computation for Current Groundwater Quality Thresholds (TDS)

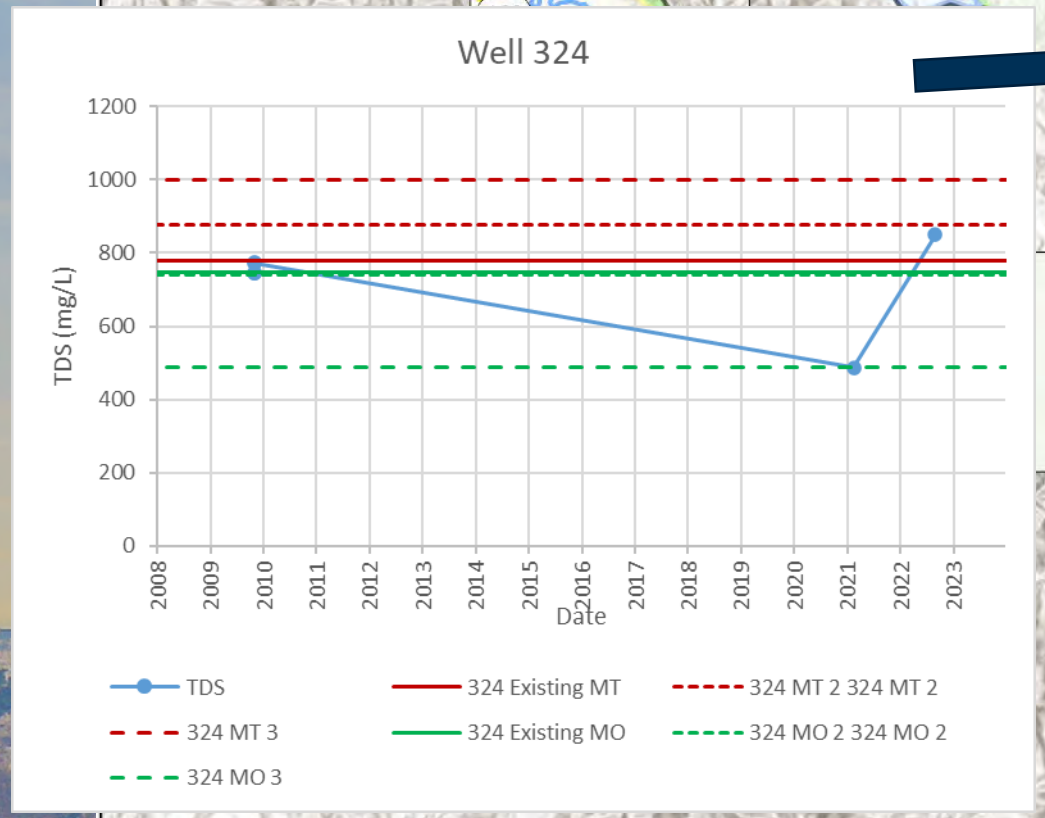
- **MT:** 20% of total range of representative well above the 90th percentile of measurements for that well.
  - Example (from original GSP): Opti Well 72
    - Min = 955 mg/L
    - Max = 1,020 mg/L.
    - Range = 1,020 – 955 = 65 mg/L
    - 20% of 65 = 13 mg/L
    - 90th percentile of Opti Well 72 = 1,010 mg/L
    - 1,010 + 13 = **1,023 mg/L**
- **MO:**
  - Where recent 2018 measurements are greater than 1,500 mg/L = Temporary MCL 1,500 mg/L
  - Where recent 2018 measurements are less than 1,500 mg/L = Most recent 2018 measurement
- This approach incorporates:
  - Historical trends and data
  - A small buffer for varying conditions
  - Acknowledges limited data availability

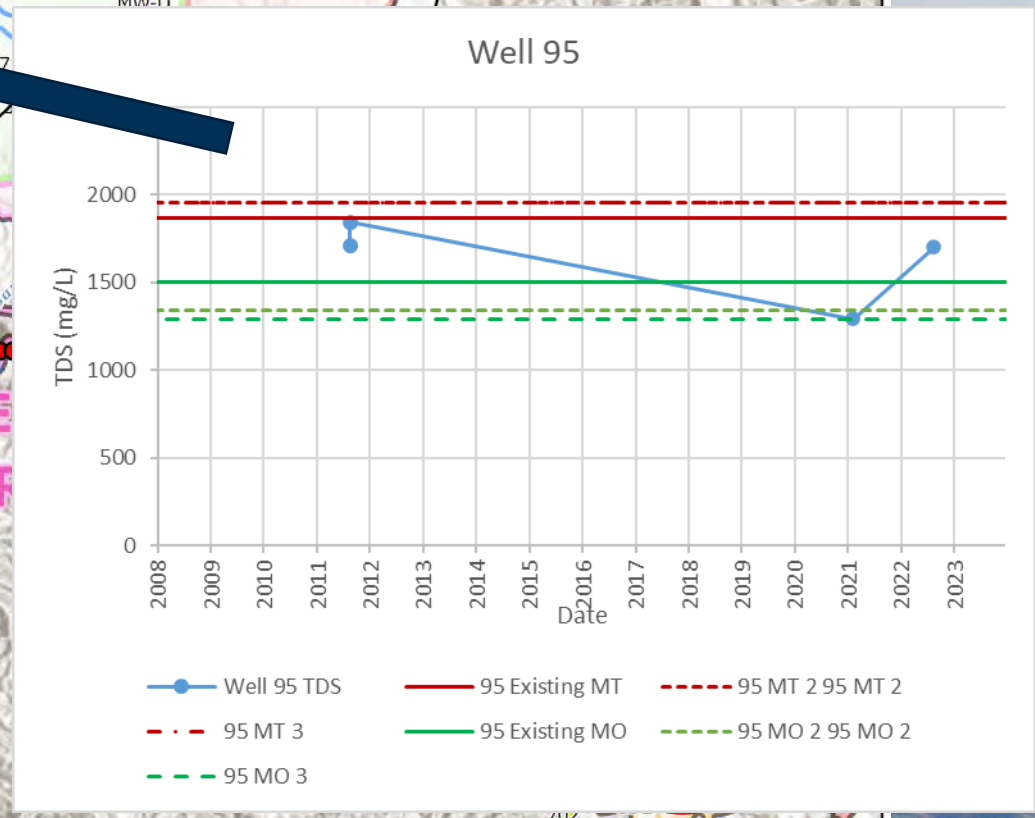
Options for Groundwater Quality Sustainability Criteria – TDS

- Minimum Thresholds:
  1. Keep existing Minimum Thresholds
  2. Update MTs using same calculation but incorporating more recent monitoring measurement data
     - Primarily GSA collected data from 2021-2023
  3. **Staff Recommendation:** Same as Option 2 but if a well's calculated MT is lower than 1000 mg/L, set MT = 1000 mg/L
- Measurable Objectives
  1. Keep existing Measurable Objectives
  2. **Staff Recommendation:** Update MOs using same calculation but incorporating more recent monitoring measurement data
     - Primarily GSA collected data from 2021-2023
  3. Use each well's historical low TDS measurement

Minimum Threshold (TDS) Options for Example Wells







Water Quality (TDS) Minimum Threshold Options (mg/L)

Opti ID	Existing MT	MT Option 2	Difference	MT Option 3	Difference
61	615	615	0	1000	385
72	1023	1106	83	1106	83
74	1833	1872	39	1872	39
77	1592	1682	90	1682	90
79	2320	2318	-2	2318	-2
83	1726	1816	90	1816	90
88	302	333	31	1000	698
90	1593	1596	3	1596	3
91	1487	1558	71	1558	71
95	1866	1950	84	1950	84
96	1632	1676	44	1676	44
99	1562	1658	96	1658	96
101	1693	1735	42	1735	42
102	2351	2551	200	2551	200
157	2360	2468	108	2468	108
242	1518	1656	138	1656	138
316	1468	1524	56	1524	56
317	1337	1444	107	1444	107
322	1386	1504	118	1504	118
324	777	876	99	1000	223
325	1569	1687	118	1687	118
420	1490	1560	70	1560	70
421	1616	1761	145	1761	145
424	1588	1658	70	1658	70
467	1764	1846	82	1846	82
568	1191	1118	-73	1118	-73
841	561	561	0	1000	439
845	1250	1250	0	1250	0

Water Quality (TDS) Measurable Objective Options (mg/L)

Opti ID	Existing MO	MO Option 2	Difference	MO Option 3	Difference
61	585	585	0	468	-117
72	996	900	-96	559	-437
74	1500	1310	-190	1260	-240
77	1500	1120	-380	1070	-430
79	1500	1500	0	1790	290
83	1500	1120	-380	1120	-380
88	302	320	18	300	-2
90	1500	1400	-100	1400	-100
91	1410	1020	-390	1020	-390
95	1500	1340	-160	1290	-210
96	1500	1100	-400	1100	-400
99	1490	1140	-350	1010	-480
101	1500	1210	-290	1210	-290
102	1500	1500	0	905	-595
157	1500	1360	-140	1360	-140
242	1470	780	-690	780	-690
316	1380	1060	-320	1060	-320
317	1260	692	-568	692	-568
322	1350	1140	-210	1120	-230
324	746	740	-6	488	-258
325	1470	1070	-400	746	-724
420	1430	1080	-350	1080	-350
421	1500	1280	-220	797	-703
424	1500	1260	-240	1260	-240
467	1500	1070	-430	1070	-430
568	871	860	-11	860	-11
841	561	561	0	561	0
845	1250	1250	0	1250	0

Options for Groundwater Quality (TDS) Undesirable Results Definitions

- For TDS:
  1. **Staff Recommendation**: Keep the existing definitions
  2. Update to 30% of wells over 3 years instead of 2 years

Options for Groundwater Quality Sustainability Criteria – Nitrates and Arsenic

- **DWR Recommended Corrective Actions:**
  - **Action 3:** "Provide an update regarding the project to construct a new replacement production well near the community of New Cuyama … If this project is not effective or not implemented by the periodic evaluation, the GSA should develop sustainable management criteria for arsenic."
  - **Action 4: "**Department staff recommend the GSA develop sustainable management criteria for nitrate."
- **Board direction needed:**
  - Should staff develop minimum thresholds, measurable objectives and an undesirable result definition for **arsenic** for inclusion in the GSP?
  - Should staff develop minimum thresholds, measurable objectives and an undesirable result definition for **nitrates** for inclusion in the GSP?

Review of SMC Approach for Nitrates and Arsenic in Other Basins

- Woodard & Curran reviewed the approach for setting sustainable management criteria (SMCs) in approved GSPs.
- GSPs in 16 subbasins were reviewed:
  - 11/16 set SMCs for Nitrate
  - 7/11 set SMCs for Arsenic
    - (in 5 basins, arsenic was not identified as a concern)
  - In most cases, the SMC was set equal to the California MCL
  - In most cases where an SMC was not set, DWR requested additional info/rationale in determination letter

Summary of Minimum Thresholds Approach for Nitrates and Arsenic in Basins with Approved GSP

Basin	Nitrate MT Criteria Used	Arsenic MT Criteria Used
East San Joaquin	No MT set	No MT set
Kings	MCL (10 mg/L as N) or 20% above recent value	MCL (0.01 mg/L as N) or 20% above recent value
Las Posas	Based on Groundwater Levels criteria	No MT set; not identified as a concern
Merced	No MT set	No MT set
Mound	MCL (10 mg/L as N)	No MT set; not identified as a concern
Ojai Valley	MCL (10 mg/L as N)	No MT set; not identified as a concern
Oxnard	No MT set	No MT set; not identified as a concern
Paso Robles	MCL (10 mg/L as N)	No MT set; not identified as a concern
Petaluma	MCL (10 mg/L as N)	MCL (0.01 mg/L)
Pleasant Valley	Based on Groundwater Levels criteria	Based on Groundwater Levels criteria
Santa Cruz Mid-County	MCL (10 mg/L as N)	MCL (0.01 mg/L)
Santa Margarita	San Lorenzo River TMDL (5mg/L)	MCL (0.01 mg/L)
Turlock	MCL (10 mg/L as N)	MCL (0.01 mg/L)
White Wolf	MCL (10 mg/L as N)	MCL (0.01 mg/L)
Yolo	No MT set	No MT set
Yuba	No MT set	No MT set

TO: Standing Advisory Committee
Agenda Item No. 7c

FROM: Jim Beck / Brian Van Lienden

DATE: January 4, 2024

SUBJECT: Discussion and Take Appropriate Action on GSP Draft Chapters [Final Discussion]

Recommended Motion
Approve GSP chapters 1 and 4.

Discussion
A brief overview of draft Groundwater Sustainability Plan (GSP) chapters 1 and 4 is provided as Attachment 1, and draft final redline GSP chapters are provided as Attachment 2 for consideration of approval. The below draft chapters reflect Cuyama Basin Groundwater Sustainability Agency Standing Advisory Committee, tech forum, public stakeholder, and Board comments and direction from public meetings held September through November 2023.

i. Chapter 1. Agency Information, Plan Area, Communication
ii. Chapter 4. Monitoring Networks

Cuyama Basin Groundwater Sustainability Agency

7c. Discuss and Take Appropriate Action on GSP Draft Chapters

January 4, 2024

HALLMARK GROUP Woodard & Curran

Discuss and Take Appropriate Action on GSP Draft Chapters

- Updated versions of the following chapters have been provided for approval:
  - Chapter 1: Agency Information, Plan Area, and Communications
  - Chapter 4: Monitoring Networks
- Updates account for:
  - New information not available when 2020 GSP was developed
  - Updated policies approved by the CBGSA Board at the Sep 2023 and Nov 2023 Board meetings
- Staff is requesting Board approval of these chapters at this Board meeting
- Comments can be provided by email or by mail to Taylor Blakslee
  - These will be considered when preparing the full Public Draft version of the GSP in September 2024

1. AGENCY INFORMATION, PLAN AREA, AND COMMUNICATION

1.1 Introduction and Agency Information

This section describes the Cuyama Basin Groundwater Sustainability Agency (CBGSA), its authority in relation to the Sustainable Groundwater Management Act (SGMA), and the purpose of this Groundwater Sustainability Plan (GSP).

This GSP meets regulatory requirements established by the California Department of Water Resources (DWR) as shown in the completed *Preparation Checklist for GSP Submittal* (Appendix A). The CBGSA's Notification of Intent to Develop a Groundwater Sustainable Plan is in Appendix B.

On June 6, 2016, Santa Barbara County Water Agency (SBCWA) sent DWR a notice of intent to form a Groundwater Sustainability Agency (GSA). Following this submittal, the CBGSA Board of Directors was organized, and now includes the following individuals:

- ~~Derek Yurosek – Chairperson, Cuyama Basin Water District (CBWD)~~
- ~~Lynn Compton – Vice Chairperson, County of San Luis Obispo~~
- ~~Byron Albano – CBWD~~
  - Cory- Bantilan~~—~~, Chair, SBCWA
- ~~Tom Bracken – CBWD~~
- ~~George Cappello – CBWD~~
  - ~~Paul Chounet –~~ Matt Vickery, Vice Chair, Cuyama ~~Community Services~~ Basin Water District (~~CCSD~~)CBWD)
  - Arne Anselm, Secretary, County of Ventura
  - Byron Albano, Treasurer, CBWD
  - Rick Burnes, CBWD
  - Jimmy Paulding, County of San Luis Obispo
- ~~—~~Zack- Scrivner~~— County of Kern~~
  - ~~Glenn Shephard –~~, County- of ~~Ventura~~ Kern
  - Das- Williams~~—~~, SBCWA
  - Deborah Williams, Cuyama Community Services District (CCSD)
  - Jane- Wooster~~—~~, CBWD
  - Derek Yurosek, CBWD
-

In addition, the following individuals serve as alternatives to regular CBGSA Board members:

- Darcel Elliott – SBCWA
- Steve Lavagnino – SBCWA
- ~~Louise Draucker~~Juan Gonzalez – CCSD

- Brad DeBranch – CBWD
- Matt Klinchuch – CBWD
- ~~Arne Anselm~~Kim Loeb – County of Ventura
- ~~Debbie Arnold~~Blaine Reely – County of San Luis Obispo
- ~~Alan Christensen~~Katelyn Zenger – County of Kern

During development of ~~this~~the 2020 GSP, board meetings were held on the first Wednesday of every month at 4 pm in the Cuyama Family Resource Center, at 4689 California State Route 166, in New Cuyama, California. During development of the 2025 GSP update, the board meets 6 times per year at the same location.

The CBGSA's established boundary corresponds to DWR's *California's Groundwater Bulletin 118 – Update 2003* (Bulletin 118) groundwater basin boundary for the Cuyama Valley Groundwater Basin (Basin) (DWR, 2003). No additional areas were incorporated.

1.1.1 Contact Information

Contact information for the CBGSA is shown below.

- Cuyama Basin General Manager/CBGSA Director: Jim Beck
- Phone Number: (661) 447-3385
- Email: tblakslee@hgcpm.com
- Physical and Mailing Address: 4900 California Avenue, Tower B, 2nd Floor, Bakersfield, CA. 93309
- Website: http://cuyamabasin.org/index.html

1.1.2 Management Structure

The CBGSA is governed by an 11-member Board of Directors that meets ~~monthly.~~six times a year. The General Manager manages the day-to-day operations of the CBWD, while Board Members vote on actions of the CBGSA; the Board is the CBGSA's decision-making body.

During GSP development, a Standing Advisory Committee (SAC) was formed to act in an advisory capacity to the CBGSA Board of Directors. The SAC includes the following individuals:

- ~~Roberta Jaffe – Chairperson~~
- Brenton Kelly~~ – Vice Chairperson~~ (Chair)
- Brad DeBranch (Vice Chair)
- Louise Draucker
- Jake Furstenfeld
- Jean Gaillard

- Joe- Haslett
- ~~Mike Post~~
- ~~Hilda Leticia Valenzuela~~
- ~~The ninth position on the SAC, which would be filled by a person representing the Hispanic community, is currently vacant. The CBGSA is currently in the process of identifying a person to fill this position.~~Roberta Jaffe
- Karen Adams
- John Caufield
- David Lewis

1.1.3 Legal Authority

Per Section 10723.8(a) of the California Water Code, SBCWA gave notice to DWR on behalf of the CBGSA of its decision to form a GSA, which is Basin 3-013, per DWR's Bulletin 118 (Appendix C).

1.2 Plan Area

This section describes the Basin, including major streams and creeks, institutional entities, agricultural and urban land uses locations of groundwater production wells, locations of state lands and geographic boundaries of surface water runoff areas. This section also describes existing surface water and groundwater monitoring programs, existing water management programs, and general plans in the Basin. The information contained in this section reflects information from publicly available sources~~,~~ and may not reflect all information that will be used for GSP technical analysis.

This section of the GSP satisfies Section 354.8 of the SGMA regulations.

1.2.1 Plan Area Definition

The Basin is in California's Central Coast Hydrologic Region. It is beneath the Cuyama Valley, which is bounded by the Caliente Range to the northwest and the Sierra Madre Mountains to the southeast. The Basin was initially defined in Bulletin 118. The boundaries of the Cuyama Basin were delineated by DWR because they were the boundary between permeable sedimentary materials and impermeable bedrock. DWR defines this boundary as "impermeable bedrock with lower water yielding capacity. These include consolidated rocks of continental and marine origin and crystalline/or metamorphic rock."

1.2.2 Plan Area Setting

Figure 1-1 shows the Basin and its key geographic features. The Basin encompasses an area of about 378 square miles and includes the communities of New Cuyama and Cuyama, which are located along State Route (SR) 166 and Ventucopa, which is located along SR 33. The Basin encompasses an

approximately 55-mile stretch of the Cuyama River, which runs through the Basin for much of its extent before leaving the Basin to the northwest and flowing towards the Pacific Ocean. The Basin also encompasses stretches of Wells Creek in its north-central area, Santa Barbara Creek in the south-central area, the Quatal Canyon drainage and Cuyama Creek in the southern area of the Basin. Most of the agriculture in the Basin occurs in the central portion east of New Cuyama, and along the Cuyama River near SR 33 through Ventucopa.

Figure 1-2 shows the CBGSA boundary. The CBGSA boundary covers all of Cuyama Basin. The CBGSA was created by a Joint Exercise of Powers Agreement among the following agencies:

- Counties of Kern, San Luis Obispo, and Ventura
- SBCWA, representing the County of Santa Barbara
- CBWD
- CCSD

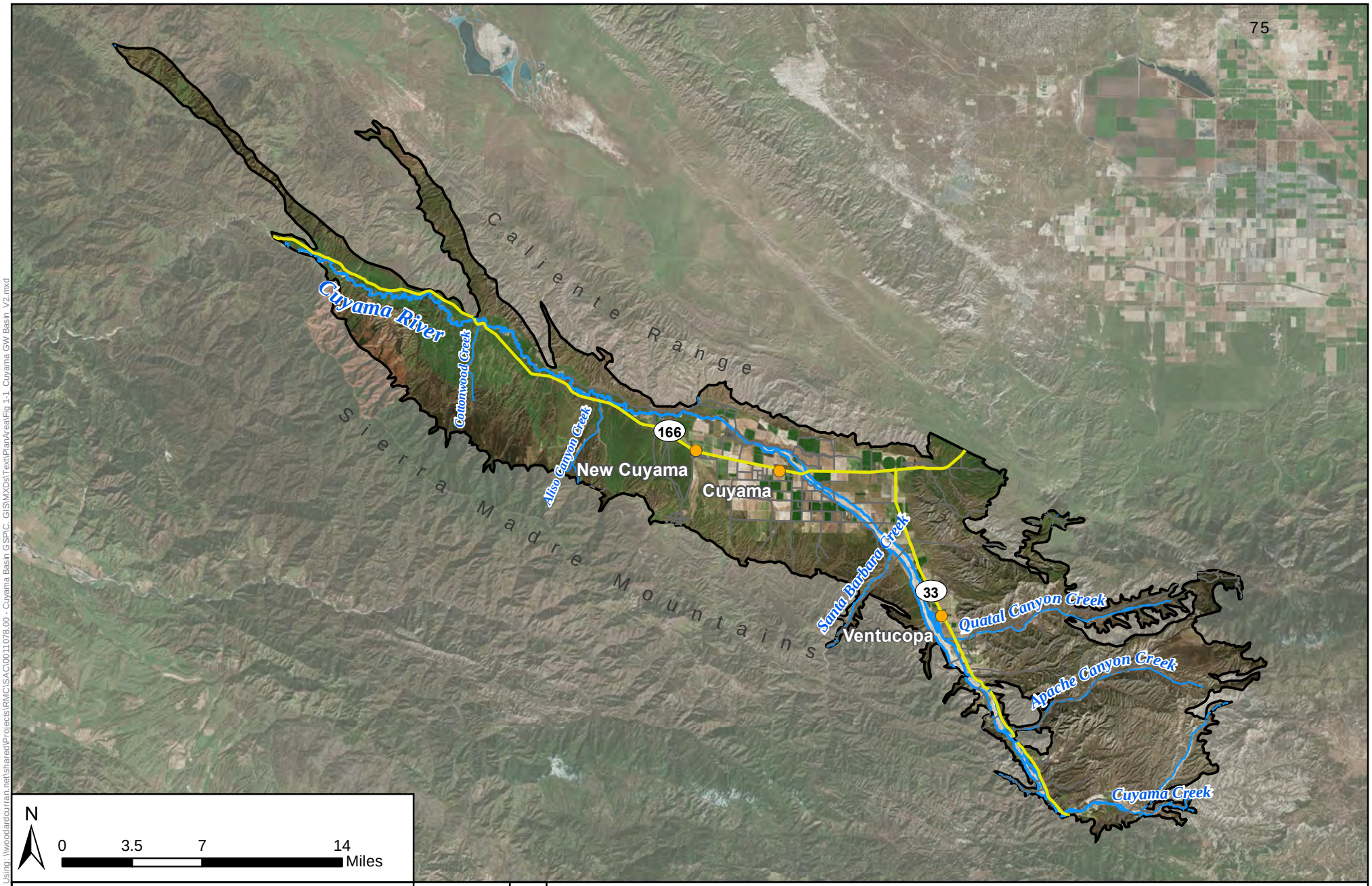


Figure 1-1 - Cuyama Valley Groundwater Basin

Cuyama Basin Groundwater Sustainability Agency

Cuyama Valley Groundwater Basin Groundwater Sustainability Plan

April 2019

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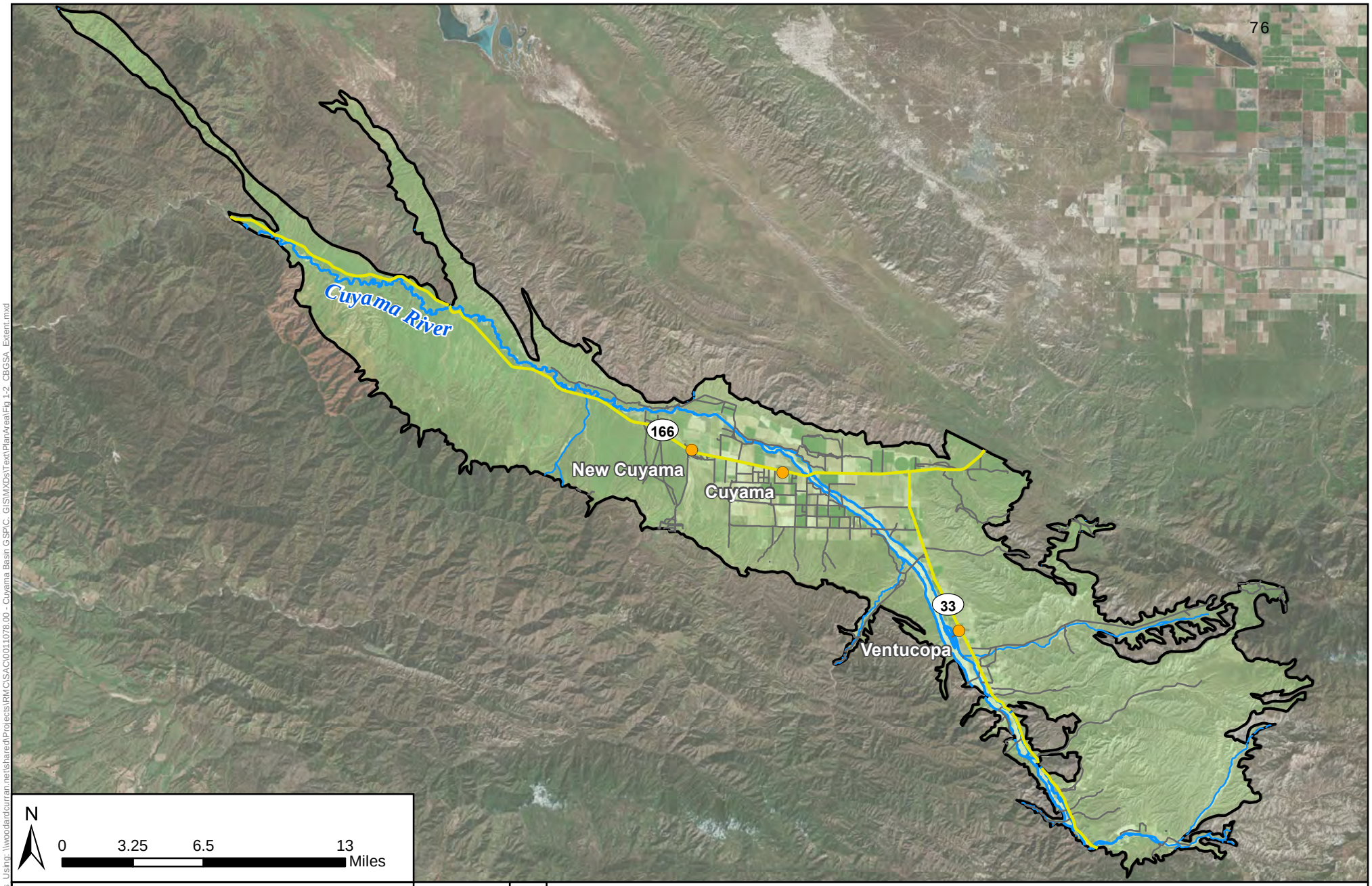
Legend

- Towns
- Cuyama Basin
- Highways
- Local Roads
- Cuyama River
- Streams/Creeks



N

0 3.25 6.5 13 Miles

Figure 1-2 - Cuyama Valley Groundwater Sustainability Agency Boundary

Cuyama Basin Groundwater Sustainability Agency

Cuyama Valley Groundwater Basin Groundwater Sustainability Plan

April 2019

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Legend

- Towns
- Cuyama Basin GSA
- Highways
- Local Roads
- Cuyama River
- Streams/Creeks

Figure 1-3 shows the Basin and neighboring groundwater basins. The Carrizo Plain Basin is located immediately northeast of the Cuyama Basin and they share a boundary ~~at a location~~ about 5 miles east of the intersection of SR 166 and SR 133. The San Joaquin Valley Basin is located just east of the Carrizo Plain Basin. The Basin also shares a boundary with the Mil Potrero Area Basin, which is located just east of one of the Basin's southeastern tips, and the Lockwood Valley Basin is located close to the Basin's southern area but does not share a boundary with it. To the southwest, and more distant from the Basin, are the Santa Maria, San Antonio Creek Valley and Santa Ynez River Valley basins, which are located about 30 to 40 miles southwest of the Cuyama Basin.

Figure 1-4 depicts the Basin's extent relative to the boundaries of the various counties that overlie the Basin. Santa Barbara County has jurisdiction over the largest portion of the Basin (168 square miles), covering most of the area south of the Cuyama River, as well as Ventucopa and a small area to the north of that community. San Luis Obispo County has jurisdiction over areas north of the Cuyama River (covering 77 square miles). The Cuyama River marks the boundary between San Luis Obispo County and Santa Barbara County. Kern County has jurisdiction over the smallest extent of Cuyama Basin area compared to the other counties (13 square miles). Its jurisdictional coverage is located just east of the SR 166 and SR 33 intersection, as well as tips of the Basin in the Quatal Canyon area. Ventura County has jurisdiction over the southeastern area of the Basin (covering 120 square miles), including the area east of Ventucopa.

Figure 1-5 shows the non-county jurisdictional boundaries in the Basin. The CBWD was formed in 2016 and covers a large area of the Basin (about 130 square miles), from a location about 5 miles west of Wells Creek to 2 miles east of the intersection of SR 166 and SR 33, and south of Ventucopa along SR 33. The CCSD was formed in 1977 and covers a small area of the Basin (about 0.5 square miles) located along SR 166 in the community of New Cuyama.

Figures 1-6 through 1-~~13~~16 show the agricultural and urban land uses in the Cuyama Basin for the years 1996, 2000, 2003, 2006, 2009, 2012, 2014, 2016, 2018, 2020, and ~~2016~~2022, respectively. The 1996 land use data are from historical DWR county land use surveys[1] while the 2014 ~~and 2016~~through 2022 land use data were developed for DWR using remote sensing data.[2] Data for the remaining years were developed by the CBGSA using the same remote sensing method that DWR used for 2014 ~~and 2016~~through 2022. Agricultural land is located primarily in the New Cuyama and Ventucopa areas, and along the SR 166 and SR 33 corridors between those communities. There were about 34,000 acres of irrigated land in 2022, including about 19,000 acres of idle land. There is a regular rotation of crops with between 9,000 and ~~15~~19,000 acres of agricultural area left idle each year between 2000 and ~~2016 (the 1996 dataset does not include records of idle land).~~2022. Areas that are in active agricultural use primarily produce miscellaneous truck crops, carrots, potatoes and sweet potatoes, miscellaneous grains and hay,

[1] https://www.water.ca.gov/Programs/Water-Use-And-Efficiency/Land-And-Water-Use/Land-Use-Surveys

[2] https://gis.water.ca.gov/app/CADWRLandUseViewer/

and grapes. Various other crop types are produced in the Basin as well, such as fruit and nut trees, though at smaller production scales.

In addition to the crop types shown on the maps, much of the land area in the Basin, particularly in the western and eastern areas, consists of non-irrigated pasture. These are not present on the map because they are not detected by the remote sensing approach. Some recently planted crops are also not shown on the maps because they were either not detected by the remote sensing approach or were planted subsequent to the most recently mapped year of 2016. These include a new vineyard along SR 166 in the western part of the basin (which the remote sensing approach identifies as "idle" in 2016) and new olive orchards along SR 33. These additional land uses will be accounted for in the numerical modeling used to develop water budgets for the GSP.

Figure 1-17 shows ~~2016~~2022 land use by water source in the Basin. Almost all of the water use in the Basin is served by groundwater. There are 37 surface water rights permits in the Basin that allow up to 116 acre-feet per year. Much of the surface water use is for stockwatering of pasture land, which may not be included in the land use dataset shown in ~~the figure~~Figure 1-17.

Figure 1-18 shows the number of domestic wells per square mile and the average depth of domestic wells in each square mile in the Basin. Figure 1-~~15~~18 shows a grid pattern where each block on the grid is a section that covers 1 square mile of land. The number in each square represents the average depth of the well(s) in the section. Most of the sections in the Basin that have domestic wells contain only one well, while ~~twelve~~fourteen sections contain two wells each, three sections contain three wells each, ~~four~~six sections contain four wells each~~, and one section contains six wells~~. Wells range in depth broadly across the Basin, from as shallow as 120 feet below ground surface in the southeast portion of the Basin to 1,000 feet below ground surface in the central portion of the Basin.

Figure 1- 19 shows the density and average depth of production wells in the Basin per square mile. There is a wide distribution of production well density in the Basin (between 1 and ~~11~~12 wells per square mile). Depths of production wells range from 50 feet below ground surface (bgs) on the outer edges of the Basin, to over 1,200 feet bgs in the central portion of the Basin.Figure 1-20 shows the density and average depth of public wells in the Cuyama Basin. The Basin contains ~~three~~four public wells, one just south of New Cuyama, one southwest of New Cuyama, one east of Ventucopa and one at the southern tip of the Basin. These wells have depths of 855, 400, 280 and 800 feet, respectively.

Information presented in Figures 1-~~15~~18 through 1-~~17~~20 reflect information contained in DWR's well completion report database, which contains information about the majority of wells drilled after 1947. However, some wells may not have been reported to DWR (potentially up to 30 percent of the total), and therefore are not included in the database or in these figures. Furthermore, designations of each well as a domestic, production, or public well were developed by DWR based on information contained in the well completion reports and have not been modified for this document~~.~~

~~Figure 1-18 shows the public lands in and around the Basin.~~. In addition, the database includes wells which have been abandoned or destroyed but have not been noted as such.

Figure 1-21 shows the active pumping well list in the Basin as confirmed since adoption of the 2020 GSP by the CBGSA. There are 262 active wells in the basin split into two categories production and domestic. Since the GSP adoption the CBGSA has undertaken steps to create this create this active well list by reaching out directly to landowners to receive information on their wells and locations, including a landowner well survey that got distributed to the community. This active well dataset was posted on the Cuyama Basin website for landowners to review and provide feedback to verify accuracy of the data. A survey was also conducted specifically for de-minimus users to obtain locations of their wells. Because it is the most complete and accurate dataset available, this active well dataset will be utilized by the CBGSA in place of the DWR well completion report data for any future analysis of potential impacts to beneficial users. Figure 1-22 shows the public lands in and around the Basin. Some portions of the land that overlies the Cuyama Basin, and most of the areas immediately surrounding the Basin, have a federal or State jurisdictional designation. The Los Padres National Forest covers most of the Basin's northwestern arm, then runs just outside the Basin's western boundary until the Forest boundary turns east at about Ventucopa where it covers the southern part of the basin. The balance of the northwestern arm consists of private holdings and the state-owned Carrizo Plains Ecological Reserve which extends into the basin to the Santa Barbara County-San Luis Obispo County line at the Cuyama River. A portion of the Basin north of Ventucopa, as well as an area nearby that is immediately outside the Basin, is designated as the Bitter Creek National Wildlife Refuge. The Bureau of Land Management has jurisdiction over a large area outside the Basin, and along the Basin's northern boundary, including small parts of the Basin north of the Cuyama River. Most of the northeastern arm of the Basin is designated as State Lands~~.~~. Figure 1-23 shows that the Basin is located within the Cuyama Watershed, which lies within the larger Santa Maria watershed, with the Basin occupying roughly the entirety of the Santa Maria Basin's eastern contributing watershed, and a small part of the Cuyama Basin's northeastern arm that flows into the Estrella River Basin due to the topography present in this area. Figure 1-23 illustrates the Cuyama Watershed's location in the Santa Maria Basin, as well as the larger Basin's major receiving water bodies, which include the Santa Maria River, the Cuyama River, Aliso Canyon Creek, Cottonwood Creek, Apache Canyon Creek, Santa Barbara Creek, the Quatal Canyon drainage, and Cuyama Creek.

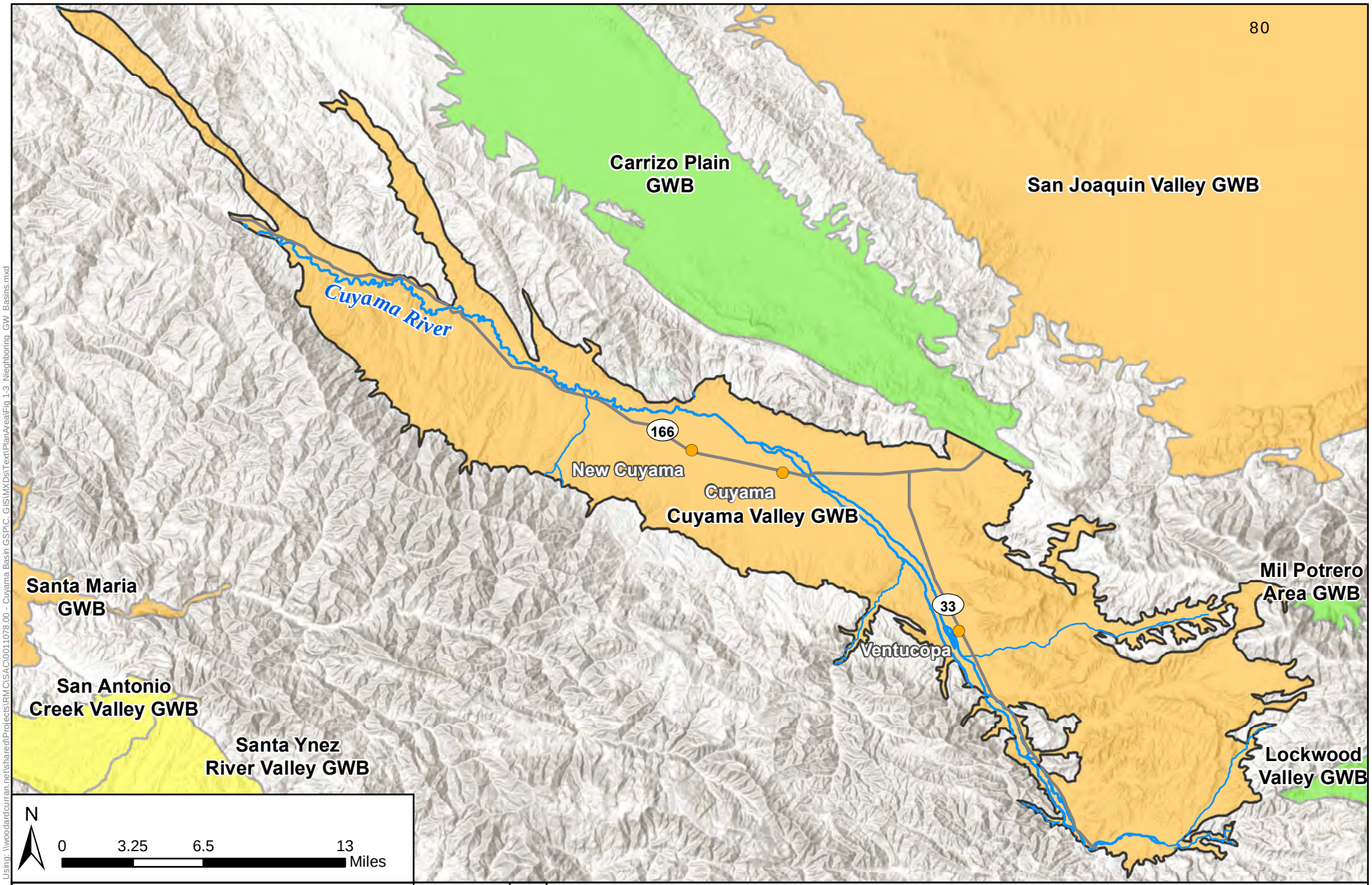

Figure 1-3 - Neighboring Groundwater Basins

Cuyama Basin Groundwater Sustainability Agency

Cuyama Valley Groundwater Basin Groundwater Sustainability Plan

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Legend

- Towns
- Cuyama Basin
- Highways
- Cuyama River
- Streams/Creeks

Basin Priority

- High Priority
- Medium Priority
- Low Priority
- Very Low Priority

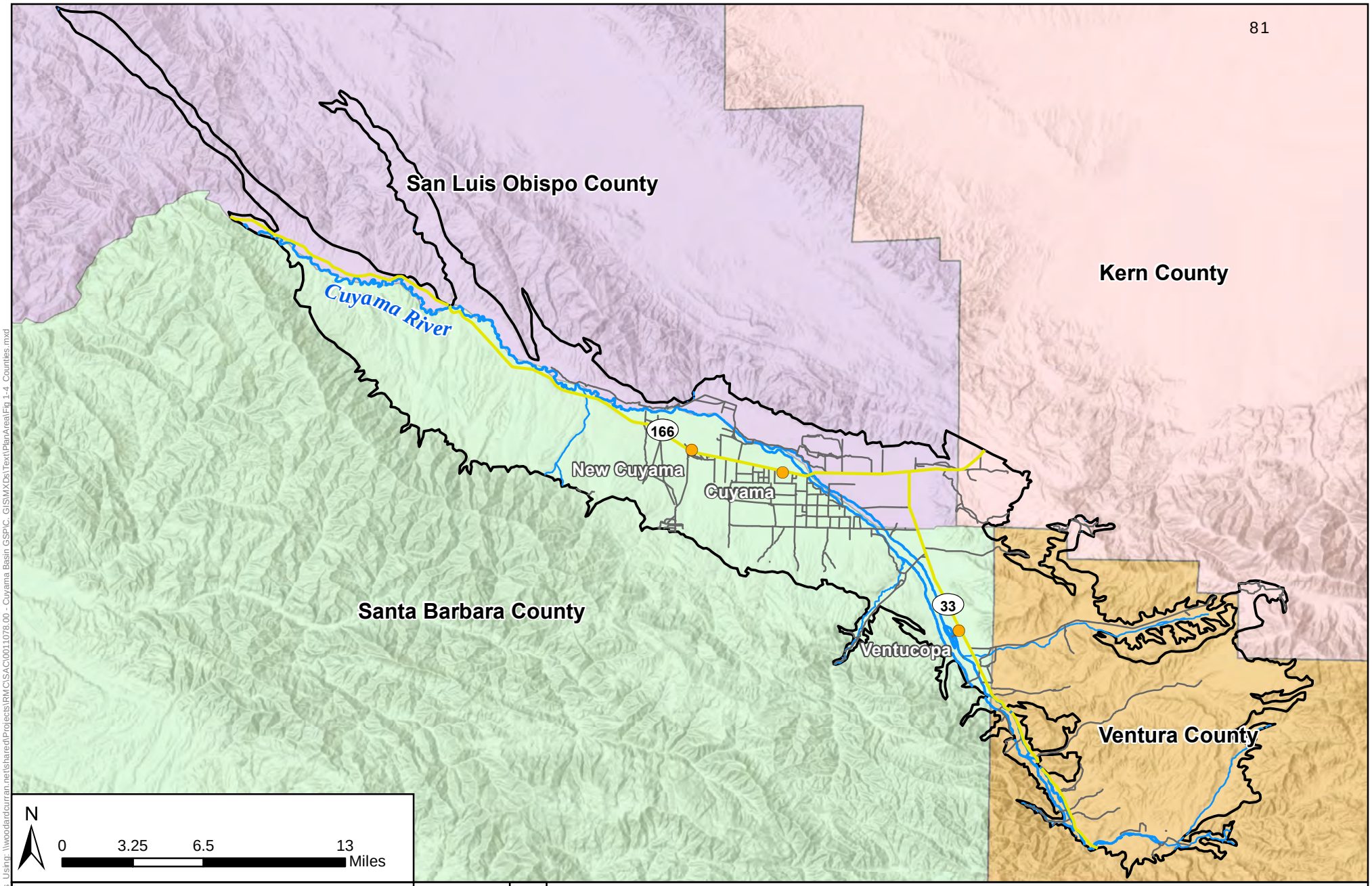

Figure 1-4 - Counties Overlying Cuyama Basin

Cuyama Basin Groundwater Sustainability Agency

Cuyama Valley Groundwater Basin Groundwater Sustainability Plan

April 2019

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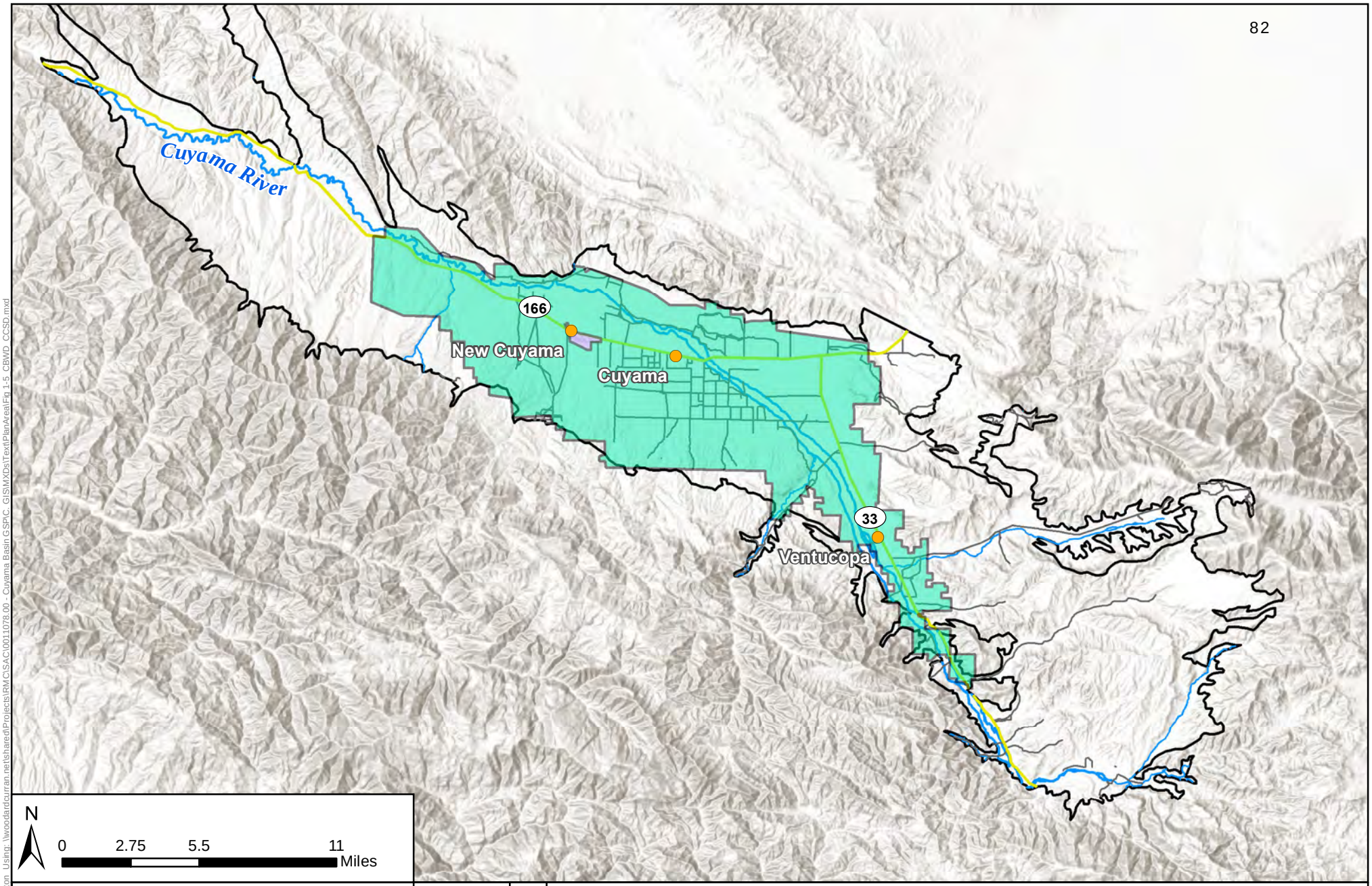
Legend

- Towns
- Cuyama Basin
- Highways
- Local Roads
- Cuyama River
- Streams/Creeks

County

- Kern County
- San Luis Obispo County
- Santa Barbara County
- Ventura County



N

0 2.75 5.5 11 Miles

Figure 1-5 - Non-County Jurisdictional Boundaries

Cuyama Basin Groundwater Sustainability Agency

Cuyama Valley Groundwater Basin Groundwater Sustainability Plan

April 2019

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Legend

- Cuyama Basin
- Towns
- Cuyama Community Service District
- Cuyama Basin Water District
- Highways
- Local Roads
- Cuyama River
- Streams/Creeks

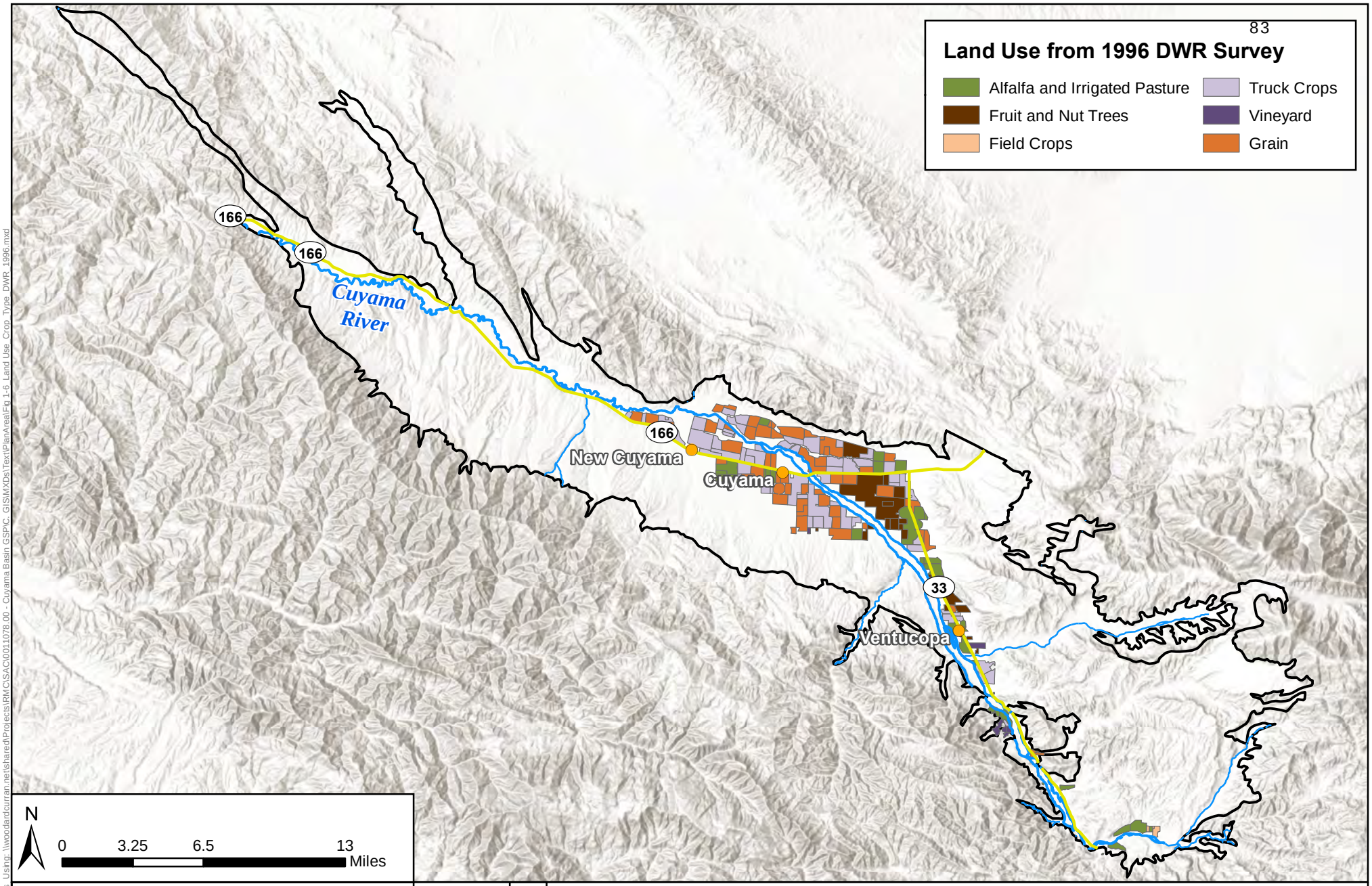

Figure 1-6 - 1996 Land Use

Cuyama Basin Groundwater Sustainability Agency

Cuyama Valley Groundwater Basin Groundwater Sustainability Plan

April 2019

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Legend

- Cuyama Basin
- Towns
- Highways
- Cuyama River
- Streams/Creeks

Source: California Department of Water Resources County Land Use Surveys, 1996 dataset.
https://www.water.ca.gov/Programs/Water-Use-And-Efficiency/Land-And-Water-Use/Land-Use-Surveys

Figure Exported: 6/19/2018 By: mwicks Using: \\woodardcurran.net\shared\Projects\RMC\SAC\0011078.00 - Cuyama Basin GSP\C. GIS\MXDs\Text\PlanArea\Fig 1-6 Land Use Crop Type DWR 1996.mxd

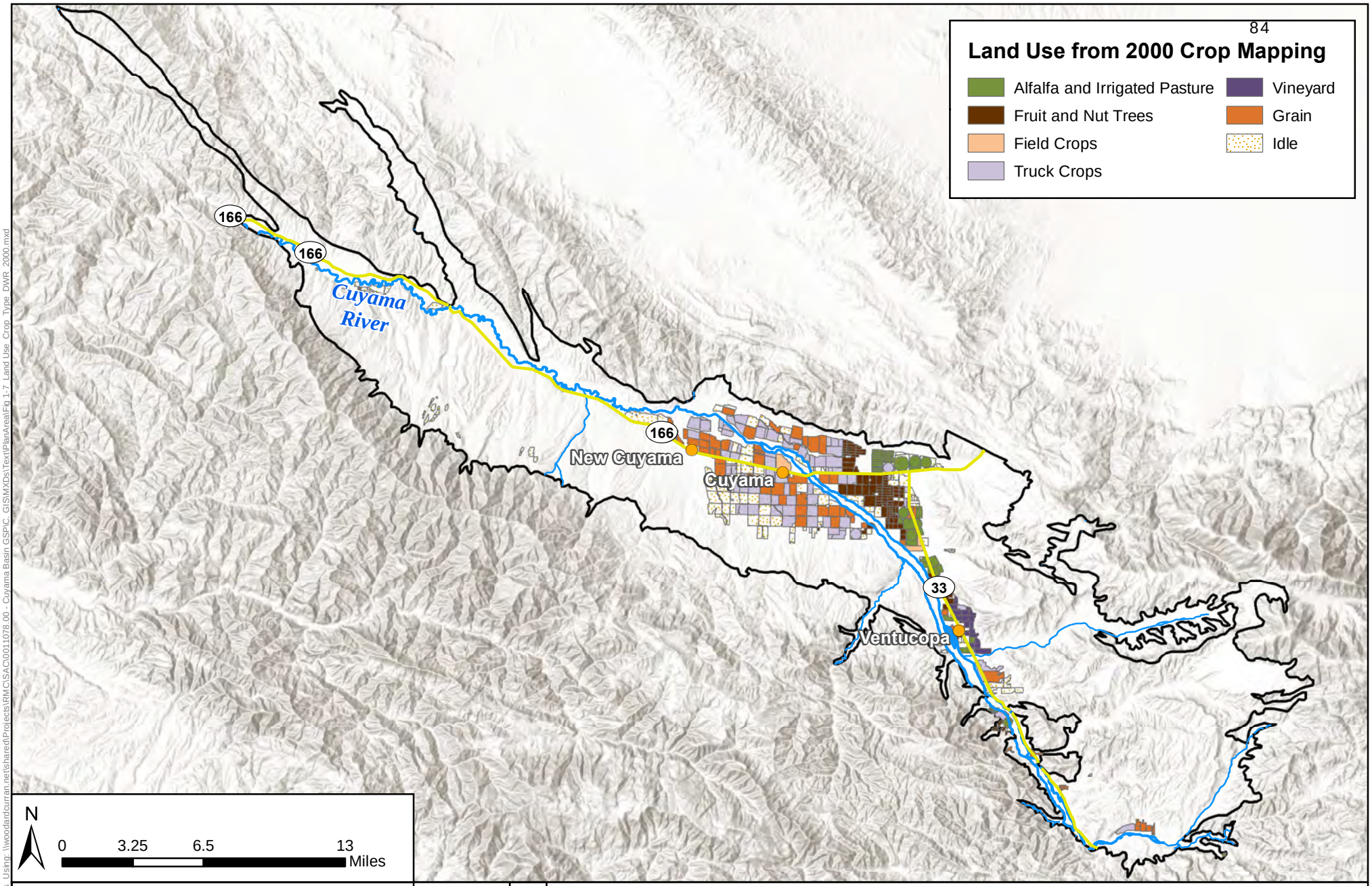

Figure 1-7 - 2000 Land Use

Cuyama Basin Groundwater Sustainability Agency

Cuyama Valley Groundwater Basin Groundwater Sustainability Plan

April 2019

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Legend

- Cuyama Basin
- Towns
- Highways
- Cuyama River
- Streams/Creeks

Source: Crop Mapping developed by LandIQ for the Cuyama Basin GSA, 2000 dataset

Figure Exported: 6/19/2018 By: mwicks Using: \\woodardcurran.net\shared\Projects\RMC\SAC\0011078.00 - Cuyama Basin GSP\C. GIS\MXDs\Text\PlanArea\Fig 1-7 Land Use Crop Type DWR 2000.mxd

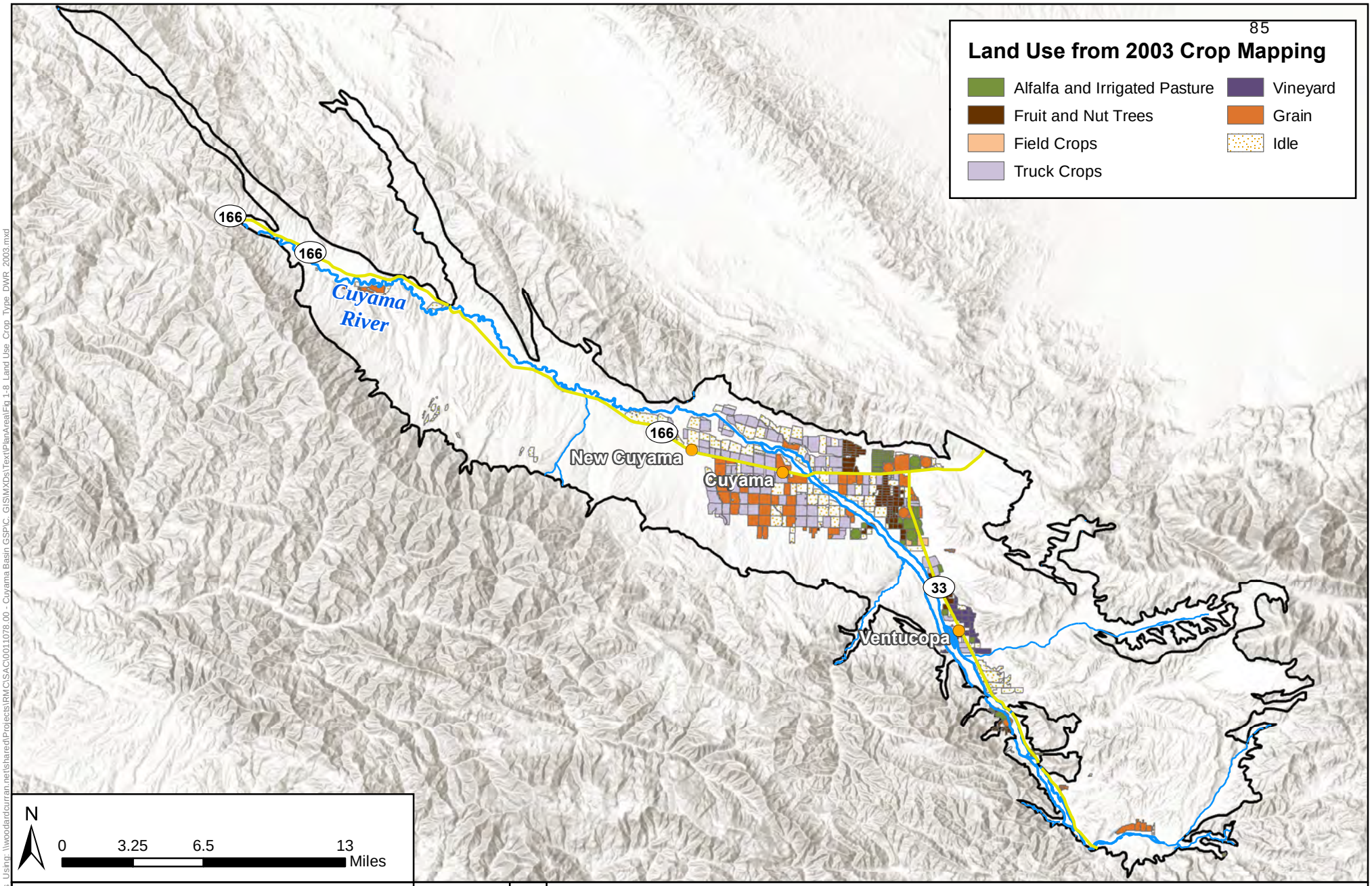

Figure 1-8 - 2003 Land Use

Cuyama Basin Groundwater Sustainability Agency

Cuyama Valley Groundwater Basin Groundwater Sustainability Plan

April 2019

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Legend

- Cuyama Basin
- Towns
- Highways
- Cuyama River
- Streams/Creeks

Source: Crop Mapping developed by LandIQ for the Cuyama Basin GSA, 2003 dataset.

Figure Exported: 6/19/2018 By: mwicks Using: \\woodardcurran.net\shared\Projects\RMC\SAC\0011078.00 - Cuyama Basin GSP\C. GIS\MXDs\Text\PlanArea\Fig 1-8 Land Use Crop Type DWR 2003.mxd

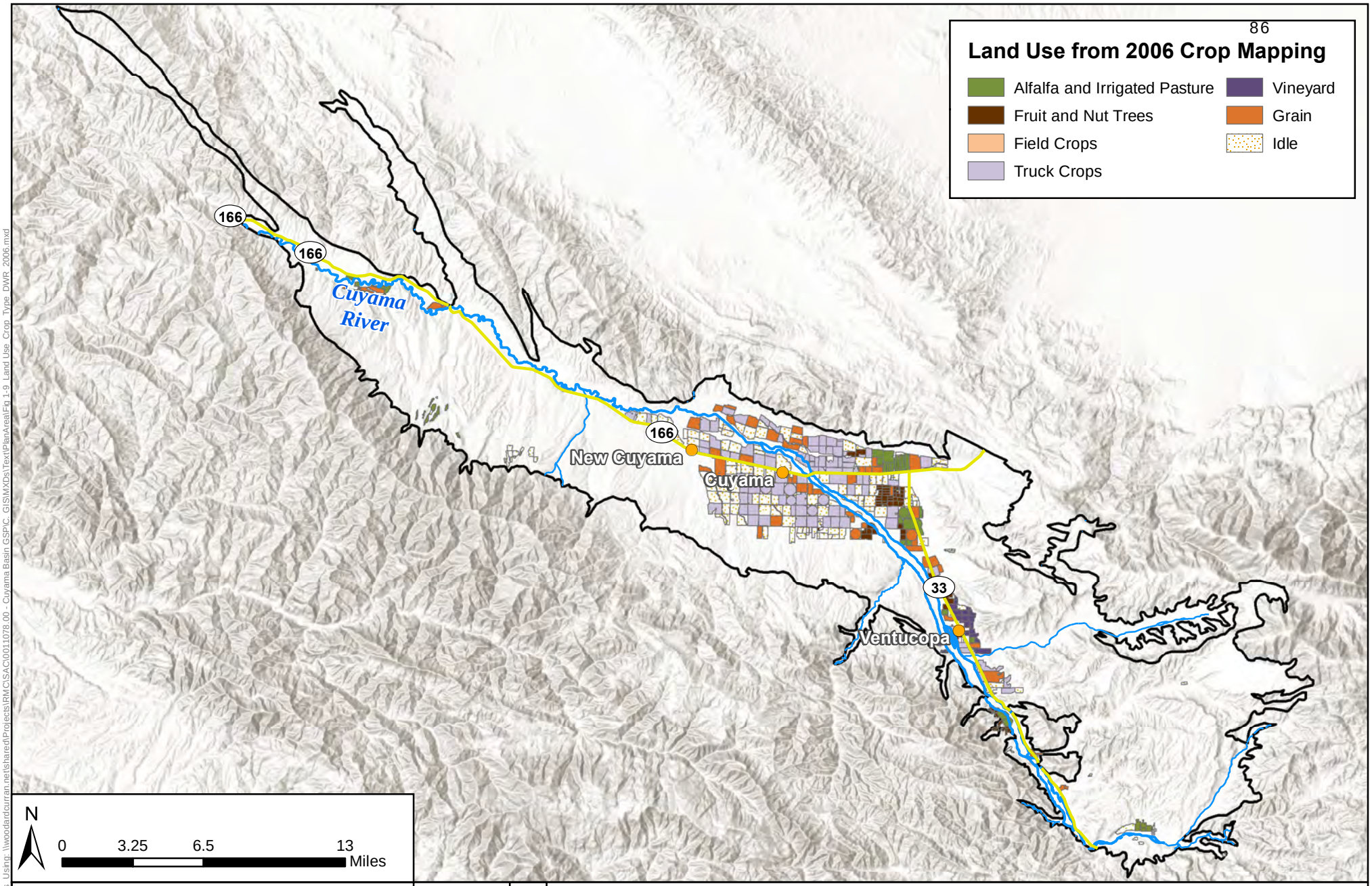

Figure 1-9 - 2006 Land Use

Cuyama Basin Groundwater Sustainability Agency

Cuyama Valley Groundwater Basin Groundwater Sustainability Plan

April 2019

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Legend

- Cuyama Basin
- Towns
- Highways
- Cuyama River
- Streams/Creeks

Source: Crop Mapping developed by LandIQ for the Cuyama Basin GSA, 2006 dataset.

Figure Exported: 6/19/2018 By: mwicks Using: \\woodardcurran.net\shared\Projects\RMC\SAC\0011078.00 - Cuyama Basin GSP\C. GIS\MXDs\Text\PlanArea\Fig 1-9 Land Use Crop Type DWR 2006.mxd

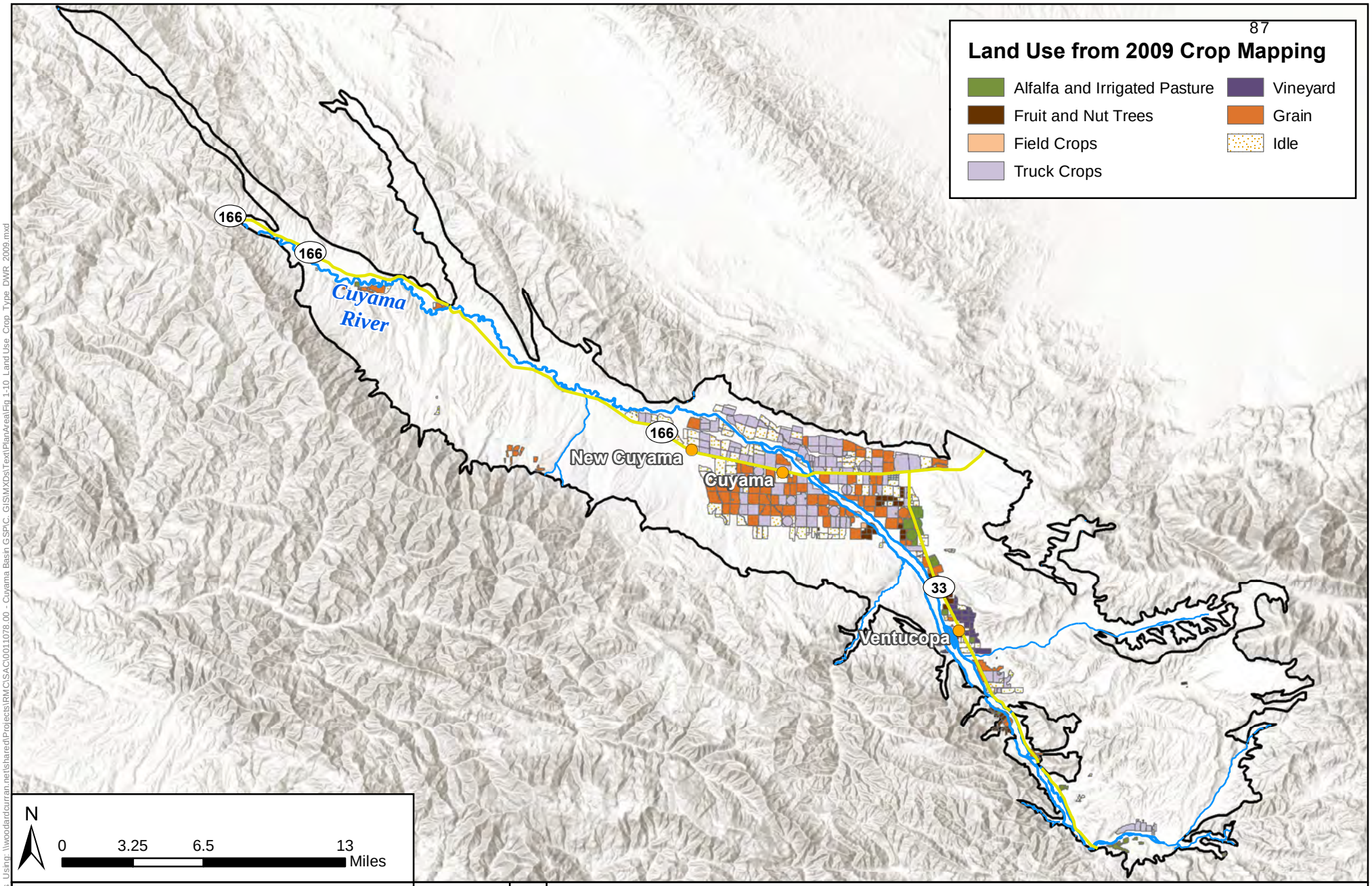

Figure 1-10 - 2009 Land Use

Cuyama Basin Groundwater Sustainability Agency

Cuyama Valley Groundwater Basin Groundwater Sustainability Plan

April 2019

WOODARD &CURRAN

Legend

- Cuyama Basin
- Towns
- Highways
- Cuyama River
- Streams/Creeks

Source: Crop Mapping developed by LandIQ for the Cuyama Basin GSA, 2009 dataset.

Figure Exported: 6/19/2018 By: mwicks Using: \\woodardcurran.net\shared\Projects\RMC\SAC\0011078.00 - Cuyama Basin GSP\C. GIS\MXDs\Text\PlanArea\Fig 1-10 Land Use Crop Type DWR 2009.mxd

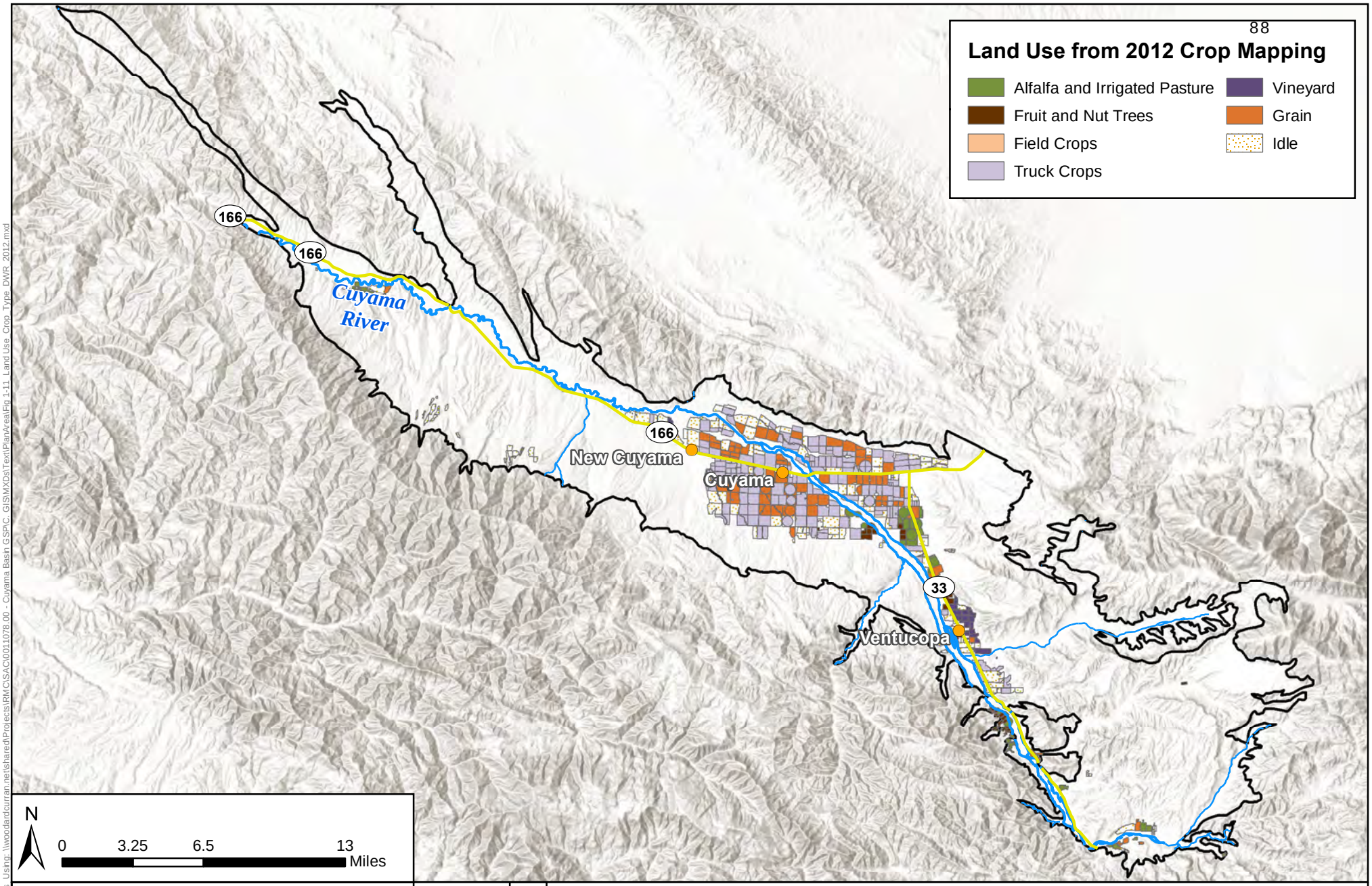

Figure 1-11 - 2012 Land Use

Cuyama Basin Groundwater Sustainability Agency

Cuyama Valley Groundwater Basin Groundwater Sustainability Plan

April 2019

WOODARD &CURRAN

Legend

- Cuyama Basin
- Towns
- Highways
- Cuyama River
- Streams/Creeks

Source: Crop Mapping developed by LandIQ for the Cuyama Basin GSA, 2012 dataset.

Figure Exported: 6/19/2018 By: mwicks Using: \\woodardcurran.net\shared\Projects\RMC\SAC\0011078.00 - Cuyama Basin GSP\C. GIS\MXDs\Text\PlanArea\Fig 1-11 Land Use Crop Type DWR 2012.mxd

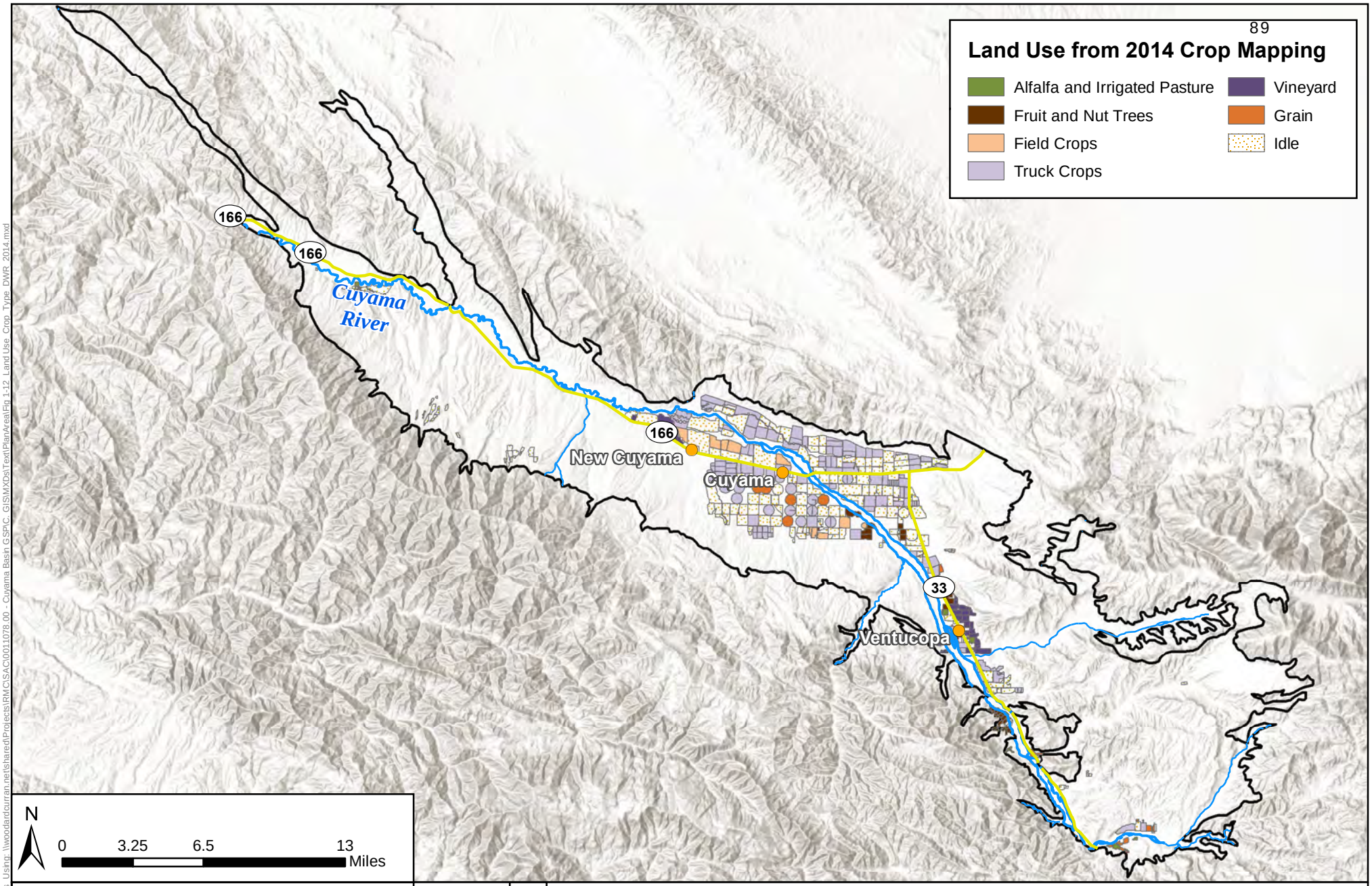

Figure 1-12 - 2014 Land Use

Cuyama Basin Groundwater Sustainability Agency

Cuyama Valley Groundwater Basin Groundwater Sustainability Plan

April 2019

WOODARD &CURRAN

Legend

- Cuyama Basin
- Towns
- Highways
- Cuyama River
- Streams/Creeks

Source: California Department of Water Resources County Land Use Surveys, 2014 dataset. https://gis.water.ca.gov/app/CADWRLandUseViewer/

Figure Exported: 6/19/2018 By: mwicks Using: \\woodardcurran.net\shared\Projects\RMC\SAC\0011078.00 - Cuyama Basin GSP\C. GIS\MXDs\Text\PlanArea\Fig 1-12 Land Use Crop Type DWR 2014.mxd

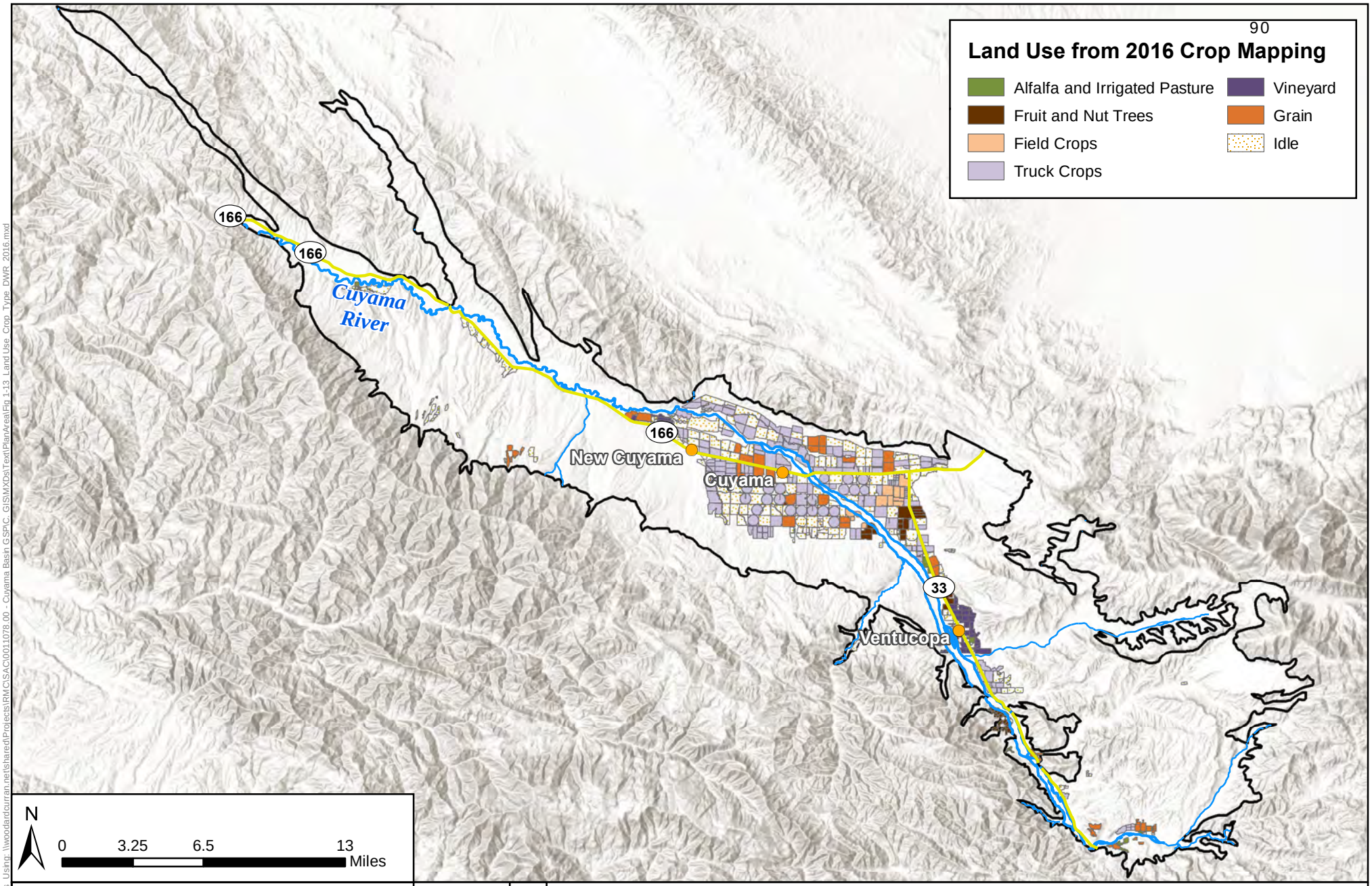

Figure 1-13 - 2016 Land Use

Cuyama Basin Groundwater Sustainability Agency

Cuyama Valley Groundwater Basin Groundwater Sustainability Plan

April 2019

WOODARD &CURRAN

Legend

- Cuyama Basin
- Towns
- Highways
- Cuyama River
- Streams/Creeks

Source: California Department of Water Resources County Land Use Surveys, 2016 dataset.
https://gis.water.ca.gov/app/CADWRLandUseViewer/

Figure Exported: 6/19/2018 By: mwicks Using: \\woodardcurran.net\shared\Projects\RMC\SAC\0011078.00 - Cuyama Basin GSP\C. GIS\MXDs\Text\PlanArea\Fig 1-13 Land Use Crop Type DWR 2016.mxd

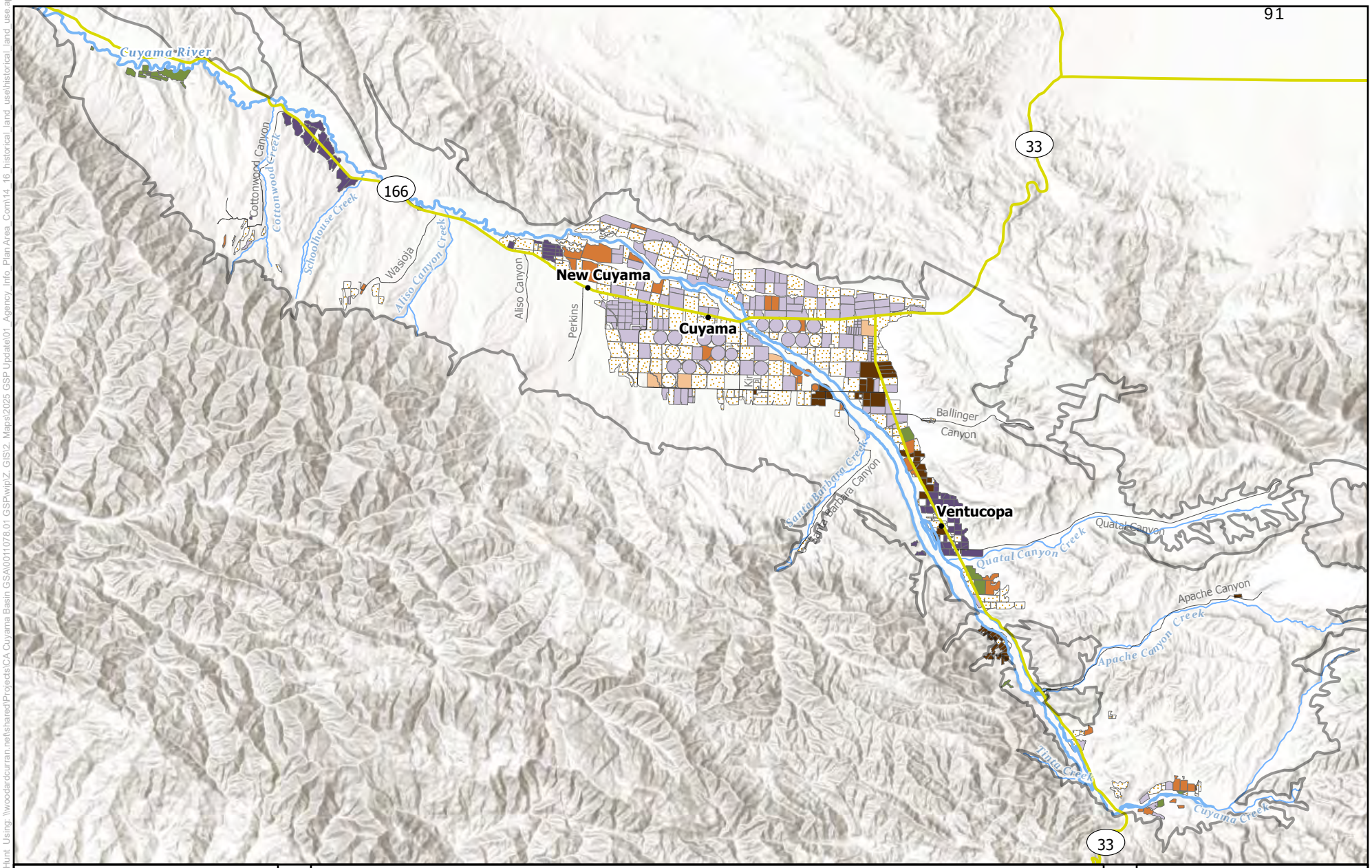

Figure 1-14: 2018 Land Use

Cuyama Valley Groundwater Basin

Legend

Land Use from 2018 Crop Mapping
- Alfalfa and Irrigated Pasture
- Fruit and Nut Trees
- Field Crops
- Truck Crops
- Vineyard
- Grain
- Idle

- Highway
- Local Road
- Town
- Cuyama River
- Creek
- Cuyama Basin

N

Woodard & Curran

0 1.25 2.5 5 Miles

Map Created: December 2023

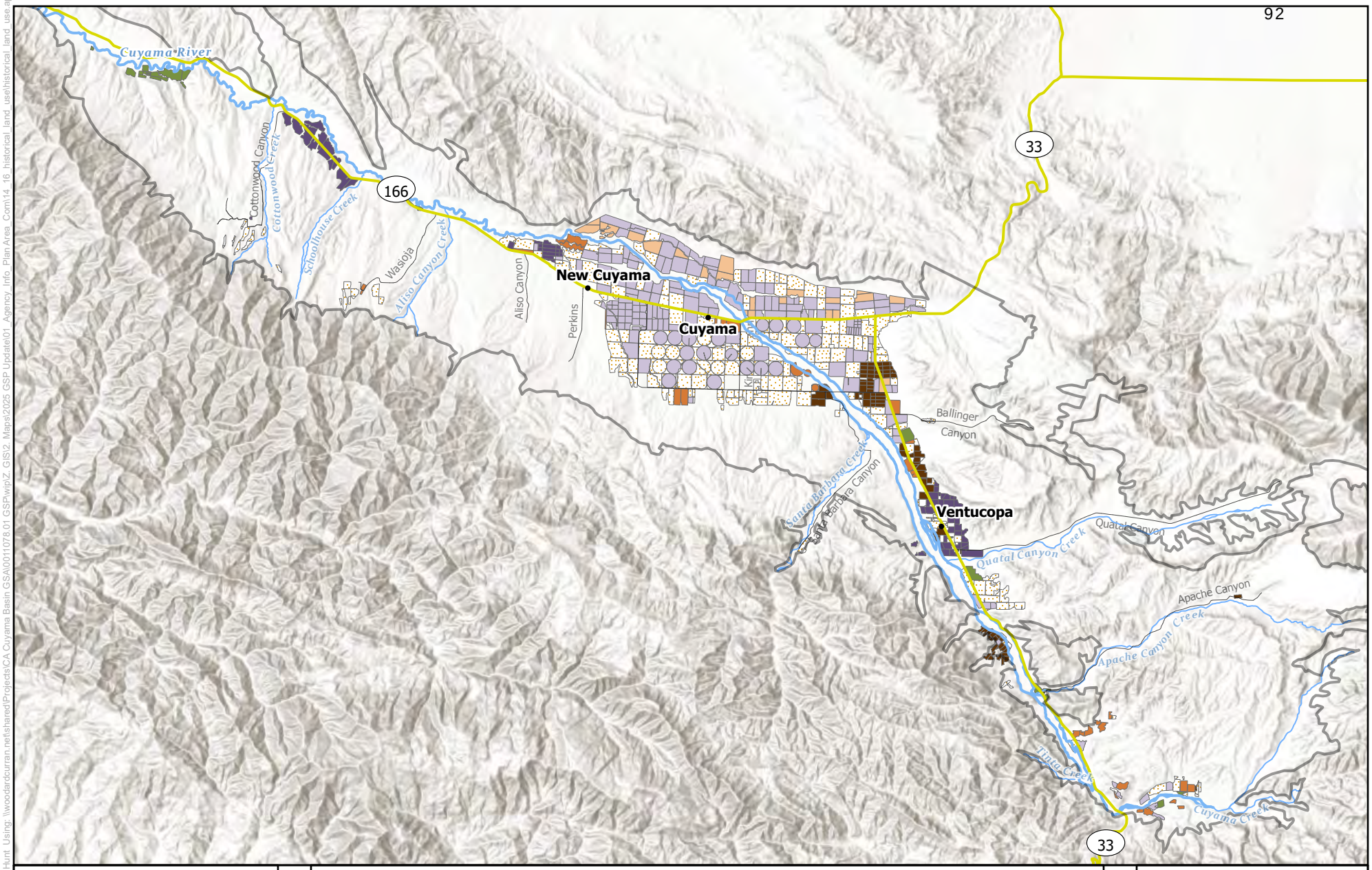

Figure 1-15: 2020 Land Use

Cuyama Valley Groundwater Basin

Legend

Land Use from 2020 Crop Mapping
- Alfalfa and Irrigated Pasture
- Fruit and Nut Trees
- Field Crops
- Truck Crops
- Vineyard
- Grain
- Idle

- Highway
- Local Road
- Town
- Cuyama River
- Creek
- Cuyama Basin

N

Woodard & Curran

0 1.25 2.5 5 Miles

Map Created: December 2023

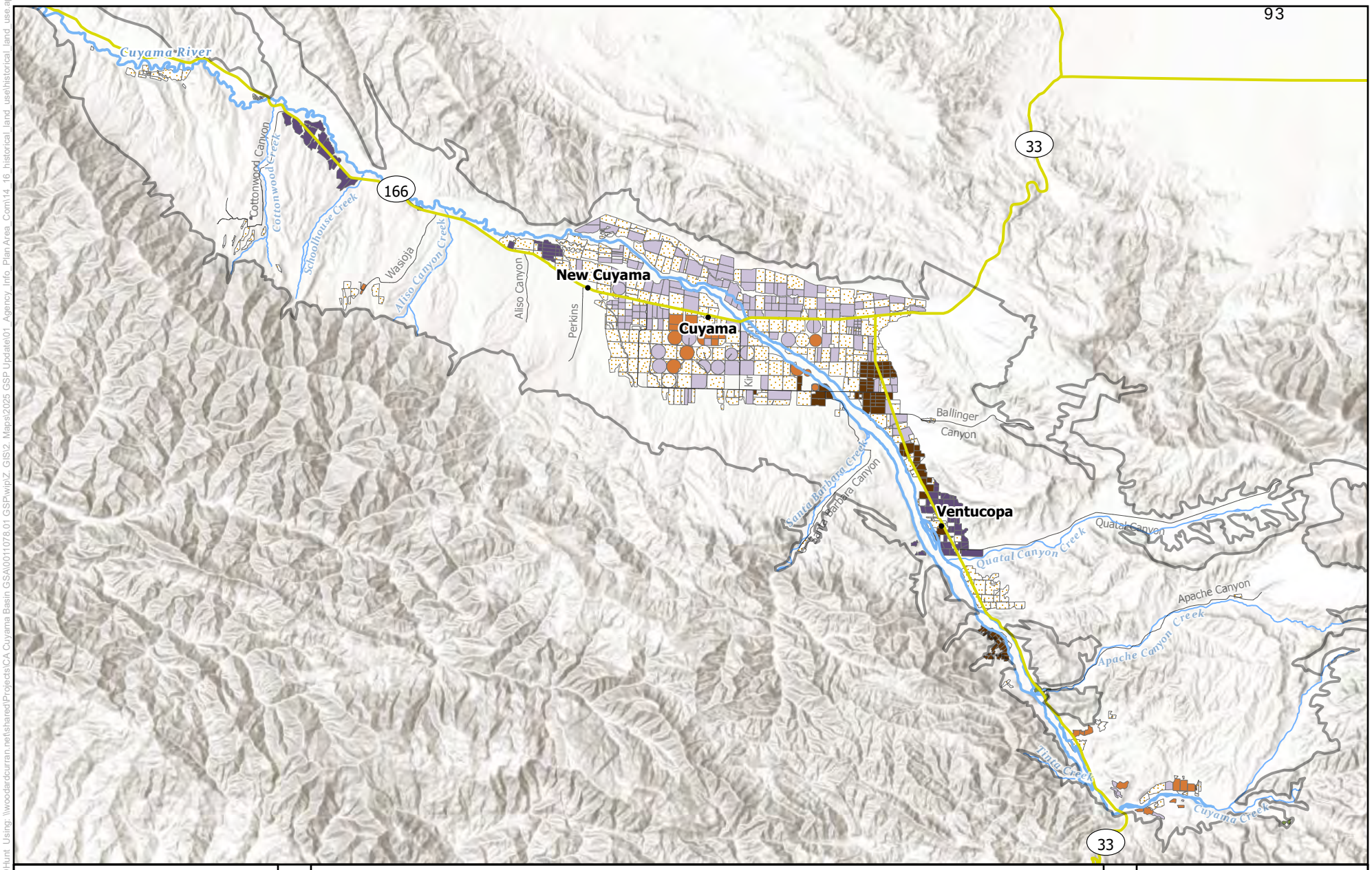

Figure 1-16: 2022 Land Use

Cuyama Valley Groundwater Basin

Legend

Land Use from 2022 Crop Mapping
- Alfalfa and Irrigated Pasture
- Fruit and Nut Trees
- Field Crops
- Truck Crops
- Vineyard
- Grain
- Idle

- Highway
- Local Road
- Town
- Cuyama River
- Creek
- Cuyama Basin

N

Woodard & Curran

0 1.25 2.5 5 Miles

Map Created: December 2023

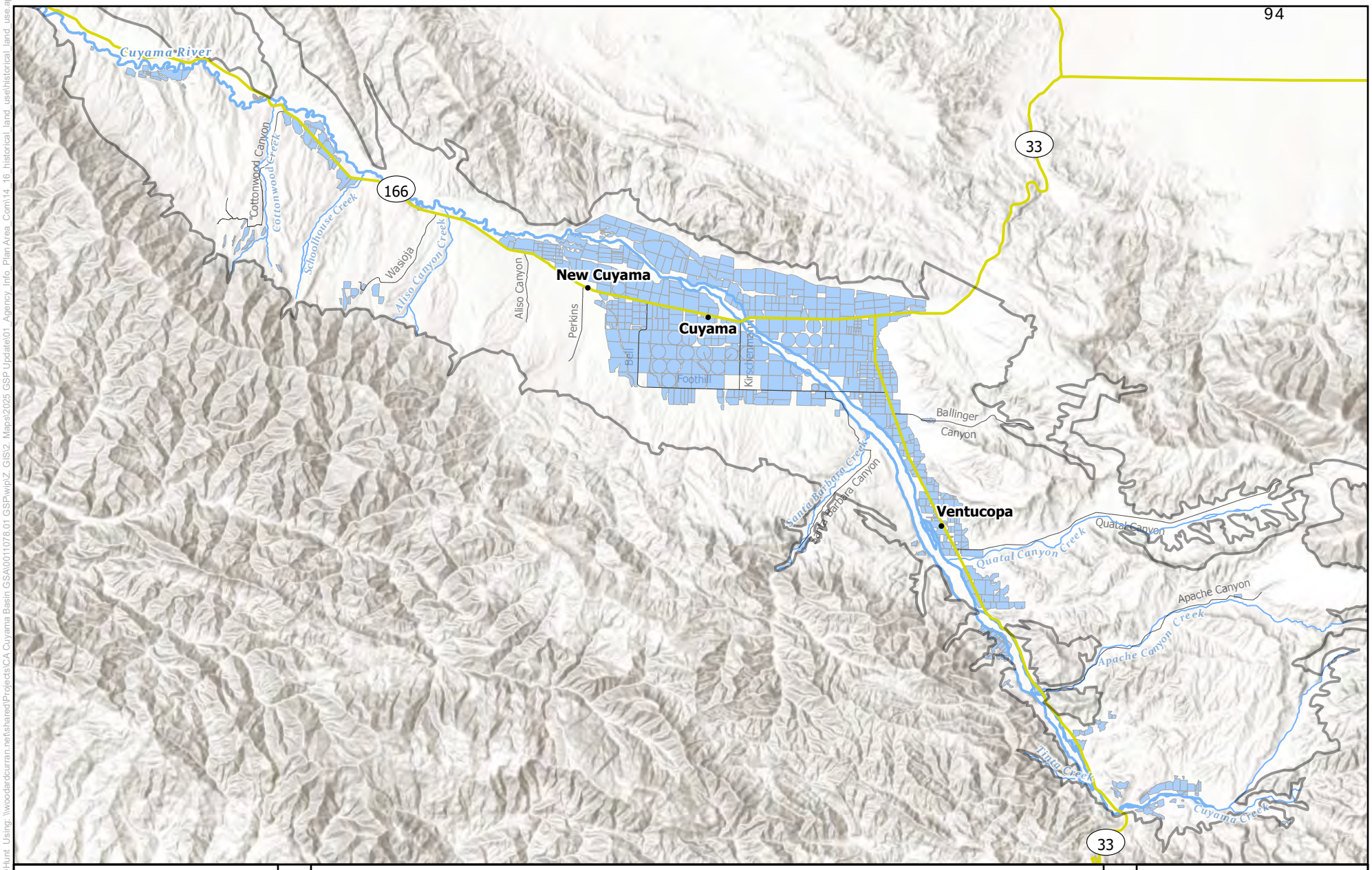

Figure 1-17: Water Source for Land Use

Cuyama Valley Groundwater Basin

Legend

Water Source
- Irrigated by Surface Water
- irrigated by Surface and Groundwater
- Irrigated by Groundwater

- Highway
- Local Road
- Town
- Cuyama River
- Creek
- Cuyama Basin

N

Woodard & Curran

0 1.25 2.5 5 Miles

Map Created: December 2023

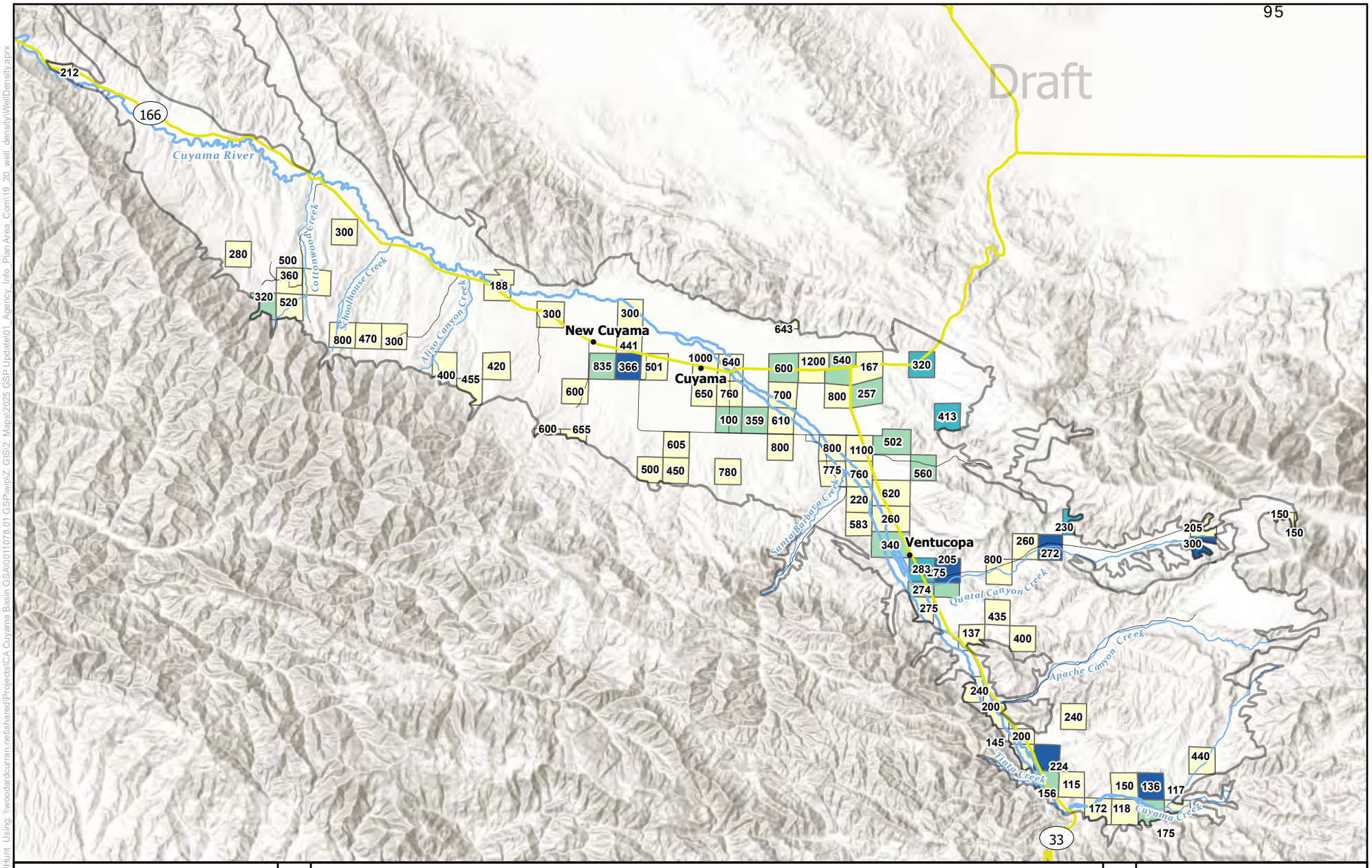

Figure 1-18: Domestic Well Density and Average Depth

Depth reported in feet bgs

Cuyama Valley Groundwater Basin

Legend

Domestic Well Count by Township & Range
- 1
- 2
- 3
- 4

Highway
Local Road
Town
Cuyama River
Creek
Cuyama Basin

N

Woodard & Curran

0 1.25 2.5 5 Miles

Map Created: December 2023

Figure Exported: 12/21/2023 By: DHunt Using: \\woodardcurran.net\shared\Projects\CA Cuyama Basin GSA\001078.01 GSP\wip\Z. GIS\2. Maps\2025 GSP Update\01_Agency_Info_Plan Area_Com\19_20_well_density\WellDensity.aprx

Data sources: CA DWR, esri, USGS. Well data (December 2023): https://dwr.maps.arcgis.com/apps/webappviewer/index.html?id=181078580a214c0986e2da28f8623b37

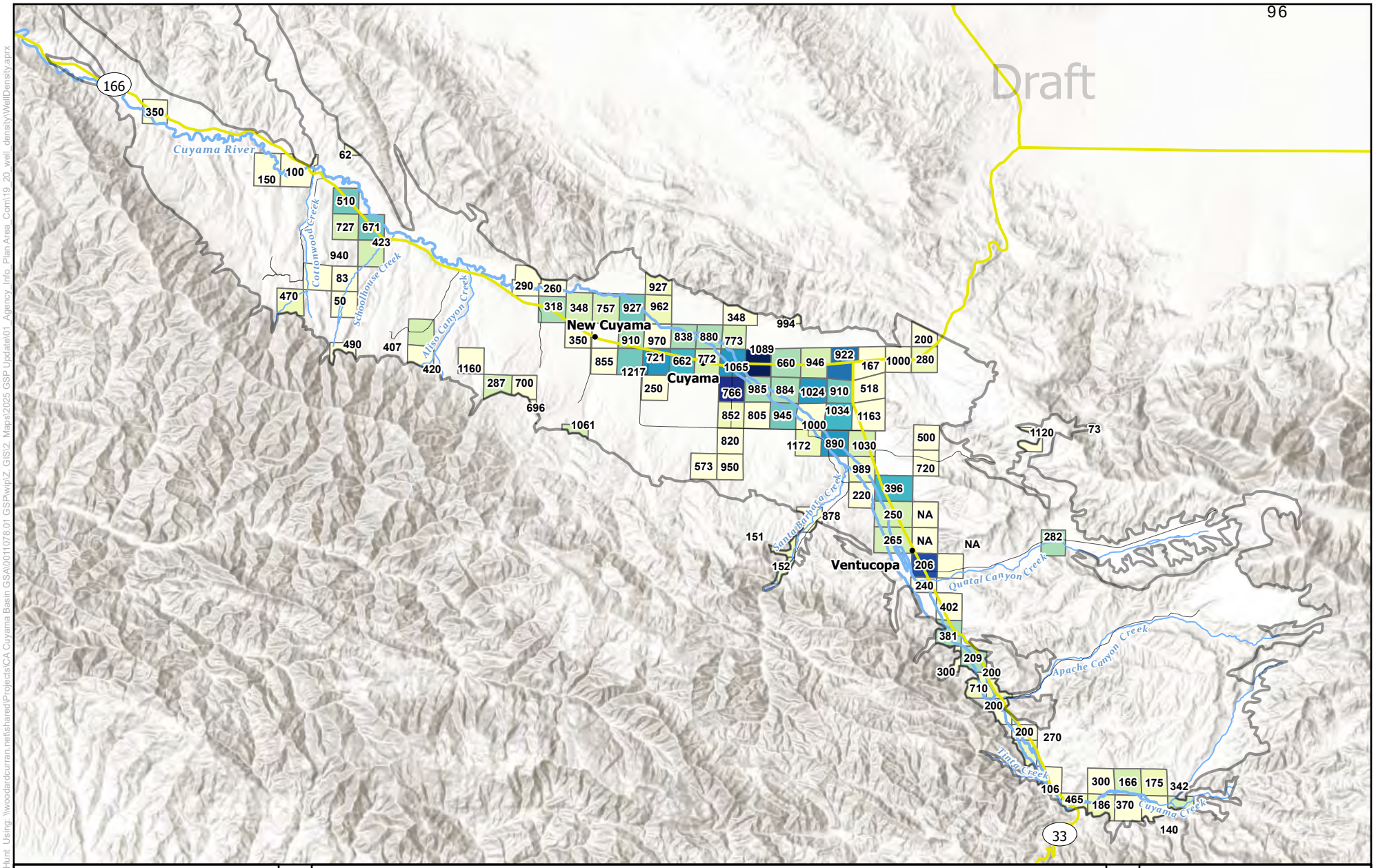

Figure 1-19: Production Well Density and Average Depths

Depth reported in feet bgs

Cuyama Valley Groundwater Basin

Legend

Production Well Count by Township & Range

1 2 3 4 5 6 7 8 9 10 12

Highway
Local Road
Town
Cuyama River
Creek
Cuyama Basin

N

Woodard & Curran

0 1.25 2.5 5 Miles

Map Created: December 2023

Figure Exported: 12/21/2023 By: DHunt Using: \\woodardcurran.net\shared\Projects\CA Cuyama Basin GSA\001078.01 GSP\wip\Z. GIS\2. Maps\2025 GSP Update\01_Agency_Info_Plan Area_Com\19_20_well_density\WellDensity.aprx

Data sources: CA DWR, esri, USGS. Well data (December 2023): https://dwr.maps.arcgis.com/apps/webappviewer/index.html?id=181078580a214c0986e2da28f8623b37

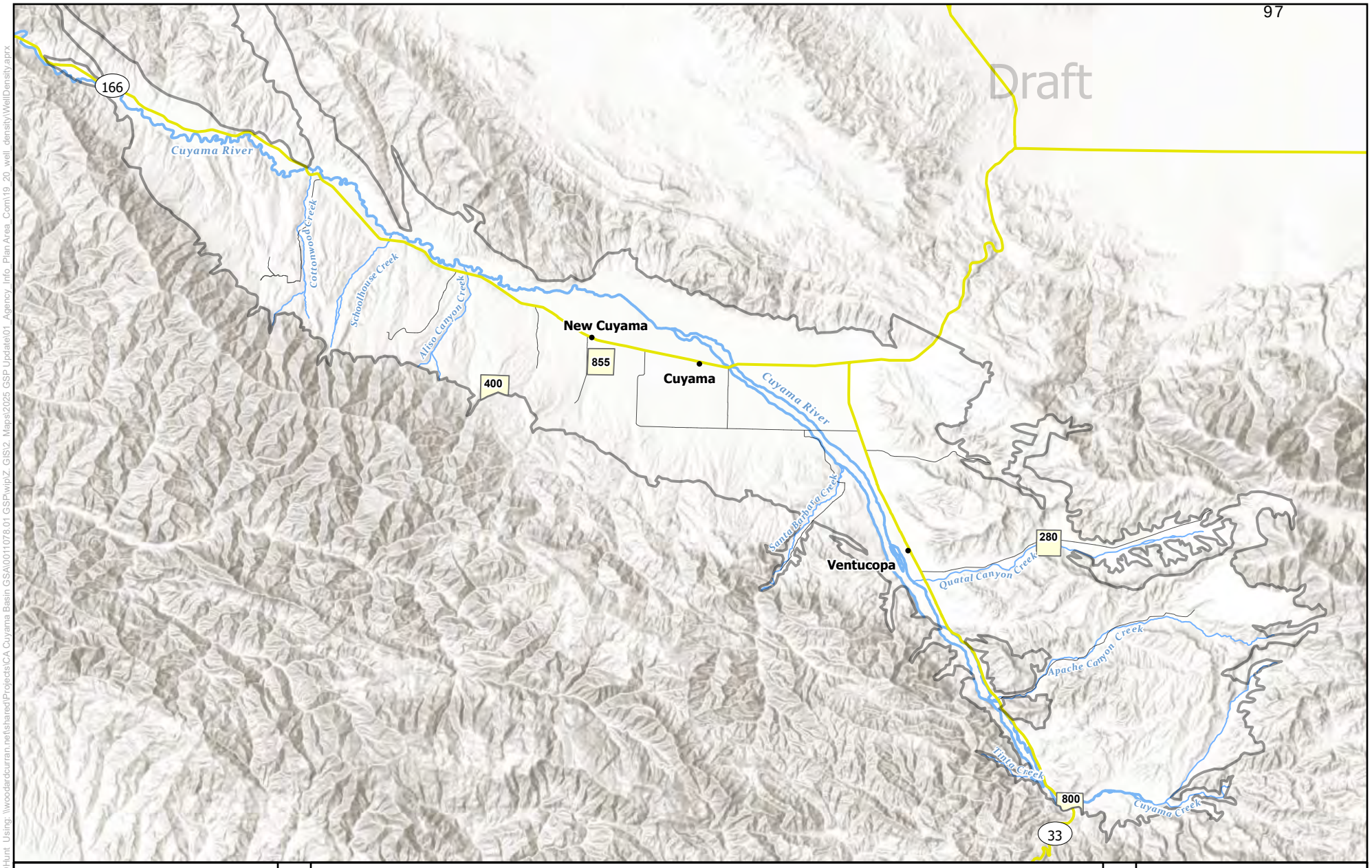

Figure 1-20: Public Well Density and Average Depths

Depth reported in feet bgs

Cuyama Valley Groundwater Basin

Legend

Public Well Count by Township & Range

1

Highway

Local Road

Town

Cuyama River

Creek

Cuyama Basin

N

Woodard & Curran

0 1.25 2.5 5 Miles

Map Created: December 2023

Figure Exported: 12/21/2023 By: DHunt Using: \\woodardcurran.net\shared\Projects\CA Cuyama Basin GSA\001078.01 GSPwip\Z. GIS\2. Maps\2025 GSP Update\01_Agency_Info_Plan Area_Com\19_20_well_density\WellDensity.aprx

Data sources: CA DWR, esri, USGS. Well data (December 2023): https://dwr.maps.arcgis.com/apps/webappviewer/index.html?id=181078580a214c0986e2da28f8623b37

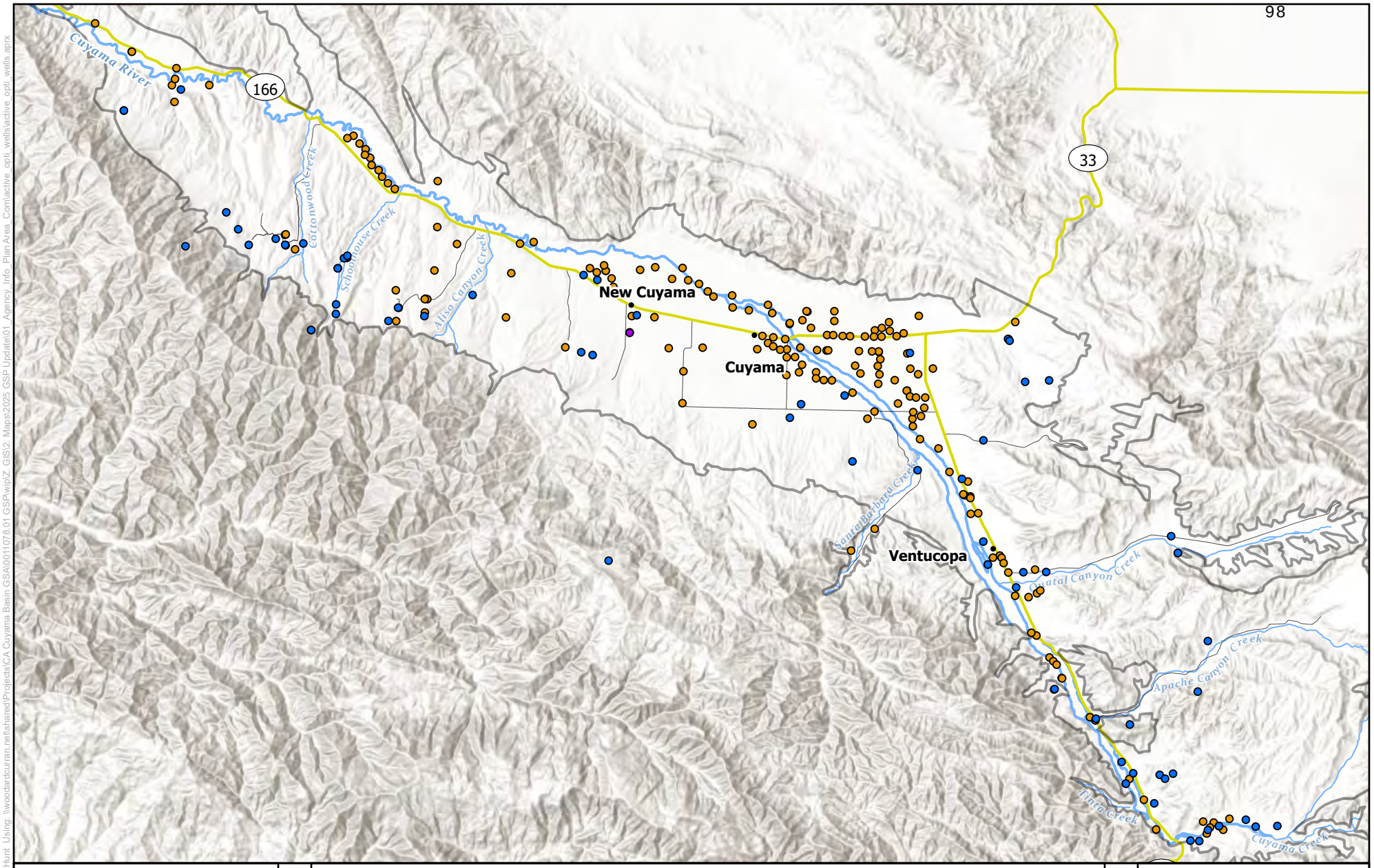

Figure 1-21: Active Wells in Network

Cuyama Valley Groundwater Basin

Legend

Well Type
- Domestic
- Production
- Public

Highway
Local Road
Town
Cuyama River
Creek
Cuyama Basin

N

Woodard & Curran

0 1.25 2.5 5 Miles

Map Created: December 2023

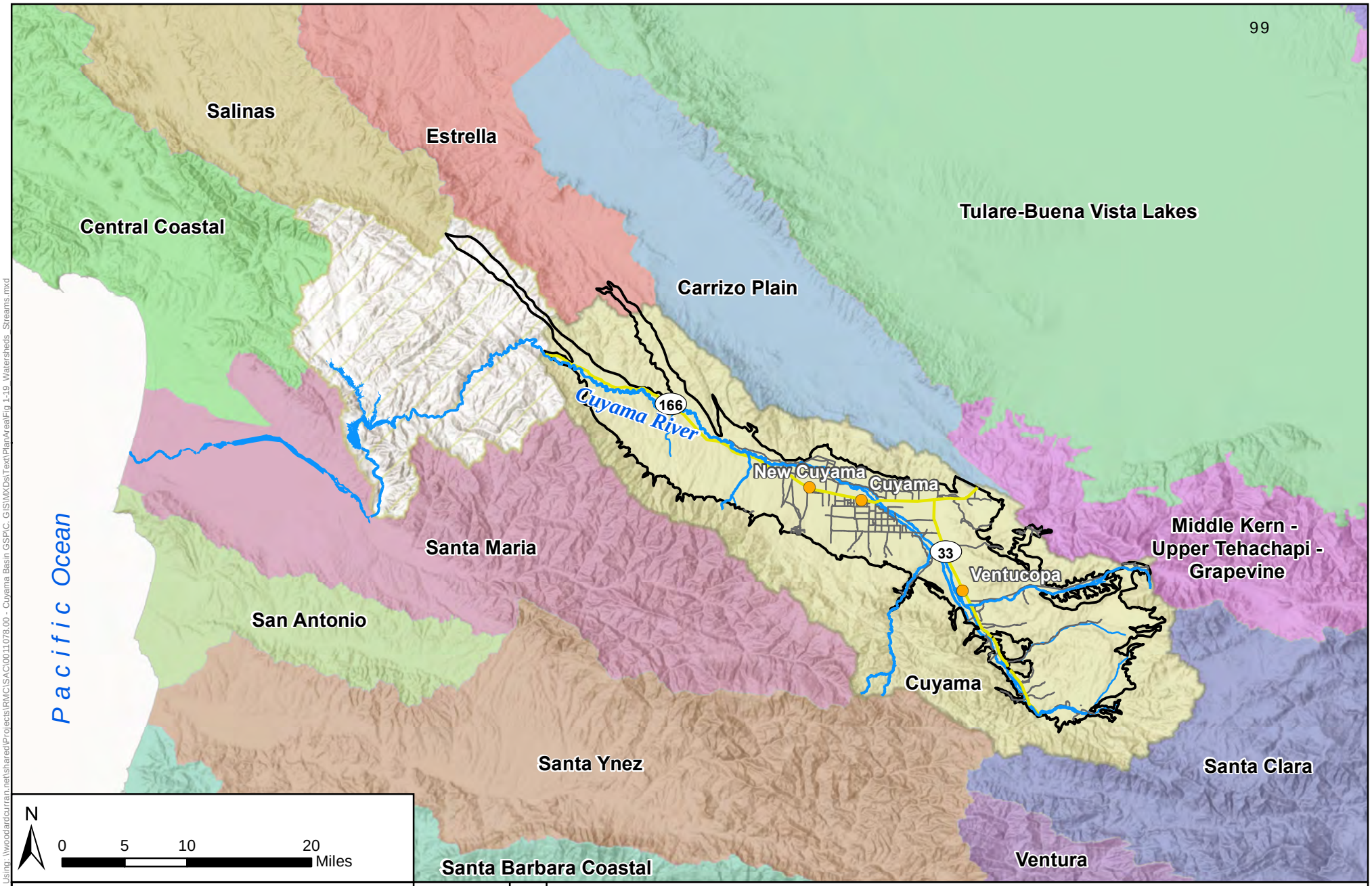

Figure 1-22 - Regional Watersheds

Cuyama Basin Groundwater Sustainability Agency

Cuyama Valley Groundwater Basin Groundwater Sustainability Plan

April 2019

WOODARD &CURRAN

Legend

- Cuyama Basin
- Towns
- Highways
- Local Roads
- Cuyama River
- Streams/Creeks

Cuyama Watershed

- Contributes to Cuyama GW Basin
- Does Not Contribute to Cuyama GW Basin

Watershed Data Source: USGS TNM Hydrography (WBD), U.S. Geological Survey - National Geospatial Program
Watersheds are 8-digit Hydrologic Units

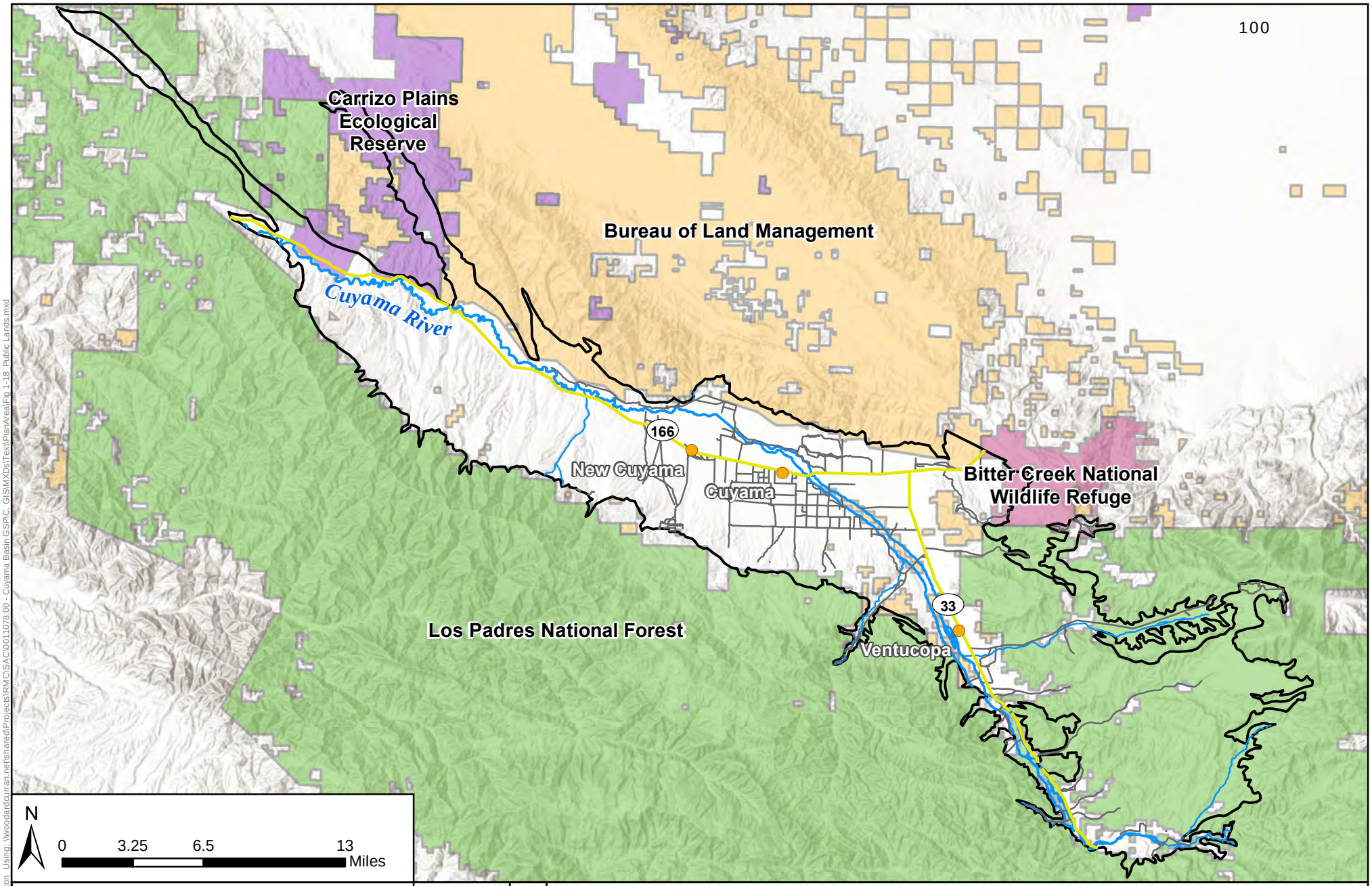

Figure 1-23 - Federal and State Lands

Cuyama Basin Groundwater Sustainability Agency

Cuyama Valley Groundwater Basin Groundwater Sustainability Plan

April 2019

WOODARD &CURRAN

Legend

- Cuyama Basin
- Towns
- Highways
- Local Roads
- Cuyama River
- Streams/Creeks
- Bureau of Land Management
- US Forest Service
- US Fish and Wildlife
- State Lands

~~1.2.2~~1.2.3 Existing Surface Water Monitoring Programs

Existing surface water monitoring in the Cuyama Basin is extremely limited. Surface water monitoring in the basin is limited to DWR's California Data Exchange Center program, and monitoring performed by the United States Geological Survey (USGS). The only California Data Exchange Center gage in the Cuyama River watershed is at Lake Twitchell, which is downstream of the Cuyama Basin. The USGS has ~~two~~four active gages that capture flows in the Cuyama River watershed upstream of Lake Twitchell, as well as four deactivated gages (Figure 1-~~20).~~24). A new stream gage was installed in 2021 on the Cuyama River near New Cuyama (ID11136710). In addition, gage 11136500, which was previously deactivated, was reactivated in 2021. Table 1-1 lists the active and deactivated gages in the Basin.

Table 1-1: USGS Surface Flow Gages in the Cuyama Basin

Gage Number	Location	Status	Years of Record
11136800	Cuyama River below Buckhorn Canyon near Santa Maria	Active	1959-~~2017~~2023
11136710	Cuyama River near New Cuyama	Active	2021-2023
11136650	Aliso Canyon Creek near New Cuyama	Deactivated	1963-1972
11136600	Santa Barbara Canyon Creek near Ventucopa	Active	2009-~~2017~~2023
11136500	Cuyama River near Ventucopa	~~Deactivated~~Active	1945-1958; 2009-2014; 2021-2023
11136480	Reyes Creek near Ventucopa	Deactivated	1972-1978
11136400	Wagon Road Creek near Stauffer	Deactivated	1972-1978

The ~~two~~four active gages include one gage on the Cuyama River downstream of the Basin (ID 11136800), which is located just upstream of Lake Twitchell. This gage has ~~58~~64 recorded years of streamflow measurements from 1959 to ~~2017. The other~~2023. Another active gage is south of the city of Ventucopa along Santa Barbara Canyon Creek (ID 11136600) and has ~~seven~~thirteen recorded years of streamflow measurements ranging from 2010 to ~~2017. Although neither~~2023. The new gage located farther upstream of ~~these~~the Twitchell Reservoir near New Cuyama began measurements on October 1, 2021; t. here are currently 3 years of recorded data. The reactivated gage near Ventucopa now has about 21 years of recorded data. These stream gages provide a more comprehensive picture of surface water flows in the Cuyama Basin~~, they provide some~~ than was previously available, including information about the inflow and outflow of surface water ~~through~~in different parts of the Basin.

The ~~need for~~2020 GSP identified surface water gages to measure ~~flow~~stream flows on the Cuyama River ~~is recognized~~ as a data gap ~~for this GSP.~~. The CBGSA ~~is working to identify~~ identified the optimal locations for a new ~~gages; new gages installations will be funded~~gage and for the reactivation of the previous gage and they were installed by USGS under the ~~current~~ SGMA Category 1 grant from DWR~~, or may be funded by the DWR Technical Support Services program.~~ in 2021. With the addition of these new

active stream gages in the Cuyama Basin, CBSGA has filled this data gap and effectively monitors surface water flows in the basin.

Figure 1-24: Rivers, Streams, and Surface Flow Gages

Cuyama Valley Groundwater Basin

Legend

- Cuyama Watershed
- Contributes to Cuyama GW Basin
- Does not Contribute to Cuyama GW Basin
- Active Flow Gages
- New Active Flow Gages
- Inactive
- Highway
- Local Road
- Town
- Cuyama River
- Creek
- Cuyama Basin

N

Woodard & Curran

0 1.75 3.5 7 Miles

Map Created: December 2023

~~1.2.3~~1.2.4 Existing Groundwater Monitoring Programs

Existing groundwater monitoring programs in the Basin are primarily operated by regional, state, and federal agencies. Existing groundwater monitoring programs in the Basin collect data on groundwater elevation, groundwater quality and subsidence at varying temporal frequencies. Each groundwater monitoring program in the Basin is described below~~, and additional information is~~. The following sections describe the different monitoring programs that were described in the 2020 GSP. The existing groundwater monitoring programs have stayed the same with the addition of different datasets being integrated into these platforms to increase public access. Specially, the DWR's Water Data Library and Groundwater Ambient Monitoring and Assessment (GAMA) have included additional datasets published in their databases since the first GSP. Specific activities and data sources utilized by the CBGSA for the current Cuyama Basin groundwater elevation and quality monitoring networks are provided in Chapter 4.

Groundwater Elevation Monitoring

DWR Water Data Library

DWR's Water Data Library (WDL) is a database that stores groundwater elevation measurements from wells in the Basin measured from 1946 through the present. Data contained in the WDL are from several different monitoring entities, including the Ventura County Watershed Protection District (VCWPD), SBCWA, Santa Barbara County Flood Control and Water Conservation District, , and San Luis Obispo County Flood Control and Water Conservation District (SLOCFC&WCD~~).~~), and USGS.

USGS – National Water Information System

The USGS's National Water Information System contains extensive water data, including manual measurements of depth to water in wells throughout California. Wells are monitored by the USGS in the Santa Barbara County Flood Control and Water Conservation District's jurisdictional area. ~~Most of the~~ There are eight wells currently categorized as active while most wells groundwater monitoring points in the basin are inactive and no longer collect measurements. All these active wells have measurements that ~~were monitored~~start in 2017 ~~have been monitored since 2008, although a few have measurements dating back to 1983.~~or 2018. . Groundwater level measurements at these wells are taken approximately ~~once per quarter.~~every few years

California Statewide Groundwater Elevation Monitoring Program

The California Statewide Groundwater Elevation Monitoring (CASGEM) Program monitors seasonal and long-term groundwater elevation trends in dedicated groundwater basins throughout California. Monitoring entities establish CASGEM dedicated monitoring wells and report seasonal groundwater levels to CASGEM's database. ~~The information below describes sources where CASGEM data can be retrieved.~~The GASGEM database has 77 wells that are all reported on a voluntary basis with measurements starting in 1968. The primary collecting organizations include Ventura County Flood Control District and CA DWR with one well submitted by Santa Barbra County Water Agency.

DWR Sustainable Groundwater ~~Information Center Interactive Map~~Management Act Data Viewer

DWR's Sustainable Groundwater Management Act (SMGA) data viewer has replaced Groundwater Information Center Interactive Map (GICIMA~~) is a~~). This database ~~that~~ collects and stores groundwater elevations and depth-to-water measurements among other groundwater quantity and quality information. Groundwater elevations are measured biannually in the spring and fall by local monitoring agencies. Depth-to-water and groundwater elevation data are submitted to the ~~GICIMA by the various monitoring entities including the SLOCFC&WCD, SBCWA, and VCWPD~~SGMA data viewer by various entities including the Cuyama Basin GSA, CA DWR, SBCWA, County of Ventura Watershed Protection district and San Luis Obispo County Flood Control and Water Conservation District. The SGMA Data Viewer contains 96 wells with groundwater elevation data from 2017 to 2023 with a total of 3204 groundwater elevation measurements submitted during this time frame. Historically, these agencies had individual monitoring programs and databases. However, the CBGSA is now able to download all of this data directly from the SGMA Data Viewer.

~~SBCWA CASGEM Monitoring Plan~~

~~The SBCWA's CASGEM Monitoring Plan discusses the SBCWA's 19-well monitoring network, which includes 16 actively monitored wells and three inactive wells no longer monitored due to accessibility and permission issues. Initially, SBCWA was the sole monitoring entity for the entire Basin, but in 2014 SBCWA reapplied to CASGEM as a partial monitoring entity to reduce their monitoring activities and grant permission for neighboring counties (San Luis Obispo and Ventura) to monitor their portions of the Basin.~~

~~Of the 16 active wells in SBCWA's monitoring network, three are CASGEM dedicated monitoring wells and 13 are voluntary. Wells are monitored by either SBCWA staff or USGS staff. The three CASGEM dedicated monitoring wells are measured biannually in April and October, whereas the 13 voluntary wells are measured annually. All wells are single completion. CASGEM dedicated wells have known Well Completion Reports and perforated intervals.~~

~~SLOCFC&WCD CASGEM Monitoring Plan~~

~~The SLOCFC&WCD's CASGEM Monitoring Plan identifies two wells in their CASGEM monitoring network. Upon recognition as a CASGEM monitoring entity in 2014, San Luis Obispo County Department of Public Works staff monitored these wells biannually. Static water level measurements are obtained biannually in April and October (corresponding to seasonal highs and low groundwater elevations).~~

~~VCWPD CASGEM Monitoring Plan~~

~~The VCWPD CASGEM Monitoring Plan identifies the two wells in their CASGEM monitoring network. Upon recognition as a CASGEM monitoring entity in 2014, VCWPD staff have monitored the two wells biannually. Static water level measurements are obtained biannually, due to the remoteness of the area, in April and October (corresponding to seasonal highs and low groundwater elevations). The two wells are in the southernmost portion of the Basin.~~

~~VCWPD does not have information beyond location and water elevation measurements for the two wells. There are no well completion reports for either well, and the perforation intervals are unknown. VCWPD identifies the southeastern portion of the Basin as a spatial data gap, given that the area contains no monitoring wells.~~

Groundwater Quality Monitoring

~~DWR WDL~~

~~DWR's WDL monitors groundwater quality data.~~Groundwater Ambient Monitoring and Assessment Program (GAMA)

The State Water Resources Control Board (SWRCB) established the Groundwater Ambient Monitoring and Assessment (GAMA) Program to monitor groundwater quality throughout the state of California in 2020. The GAMA Program compiles and standardizes groundwater quality data across different regulatory agencies to increase public availability and access to data. This program also conducts groundwater studies related to groundwater vulnerability, groundwater quality for domestic wells and impact of non-point source contamination. The GAMA Program receives data from a variety of monitoring entities including DWR, USGS, and the SWRCB. In the Basin, these three agencies submit data from monitoring wells for a suite of constituents including TDS, nitrates and nitrites, arsenic, and manganese.

DWR Water Data Library

DWR's Water Data Library (WDL) contains monitoring data for groundwater quality. Samples are collected from a variety of well types including irrigation, stock, domestic, and some public supply wells. Wells are not regularly sampled, and most wells have only one- or two-days' worth of sampling measurements and large temporal gaps between the results. Constituents most frequently monitored include dissolved chloride, sodium, calcium, boron, magnesium, and sulfate. Measurements taken include conductance, pH, total alkalinity and hardness (more than 1,000 total samples per parameter). Additional dissolved nutrients, metals, and total dissolved solids (TDS) are also sampled but have fewer sample results available ~~(one to 1,000 samples per parameter).~~. This data is updated to GAMA yearly.

GeoTracker ~~Groundwater Ambient Monitoring and Assessment Program~~

~~Established in 2000, the Groundwater Ambient Monitoring and Assessment (GAMA) Program monitors groundwater quality throughout the state of California. The GAMA Program will create a comprehensive groundwater monitoring program throughout California and increase public availability and access to groundwater quality and contamination information. The GAMA Program receives data from a variety of monitoring entities including DWR, USGS, and the State Water Resources Control Board. In the Basin, three agencies submit data from monitoring wells for a suite of constituents including TDS, nitrates and nitrites, arsenic, and manganese.~~

GeoTracker is the SWRCB's data management system for sites that have potential to impact or currently impact groundwater, especially those sites that require groundwater cleanup. These sites include leaking underground storage tanks, Department of Defense and site cleanup programs, and permitted facilities

which could impact groundwater such oil and gas production. GeoTracker is a portal that has a GIS interface and retrieve records from SWRCB programs. This data is updated in GAMA monthly.

National Water Information System

The USGS's National Water Information System monitors groundwater for chemical, physical, and biological properties in water supply wells throughout the Basin and data are updated to ~~GeoTracker~~GAMA on a quarterly basis. The majority of wells with groundwater quality data were monitored prior to 2015.

Irrigated Lands Regulatory Program

The Irrigated Lands Regulatory Program, established in 2003, regulates discharges from irrigated agriculture to surface and ground waters and establishes waste discharge orders for selected regions. The Irrigated Lands Regulatory Program focuses on priority water quality issues, such as pesticides and toxicity, nutrients, and sediments. Wells are sampled biannually, once between March and June, and once between September and December. This data is now available in GAMA and updated monthly.

Division of Drinking Water

The State Water Resources Control Board's Division of Drinking Water, (formerly the Department of Health Services) monitors public water system wells per the requirements of Title 22 of the California Code of Regulations relative to levels of organic and inorganic compounds such as metals, microbial compounds and radiological analytes. Data are available for active and inactive drinking water sources, for water systems that serve the public, and wells defined as serving 15 or more connections, or more than 25 people per day. In the Basin, Division of Drinking Water wells were monitored for Title 22 requirements, including pH, alkalinity, bicarbonate, calcium, magnesium, potassium, sulfate, barium, copper, iron, zinc, and nitrate. This data is now available in GAMA and updated quarterly.

Subsidence Monitoring

In the Basin, subsidence monitoring is performed using continuous global positioning system (CGPS) stations monitored by the University NAVSTAR Consortium's (UNAVCO) Plate Boundary Observatory (PBO) program. There are no known extensometers in the Basin.

UNAVCO PBO

The UNAVCO PBO network consists of a network of about 1,100 CGPS and meteorology stations in the western United States used to monitor multiple pieces of information, including subsidence. There are two stations in the Cuyama Basin: CUHS, located near the city of New Cuyama, and VCST, located south of the city of Ventucopa. The CUHS station has subsidence data from 2000 through ~~2017~~2023, and the VCST station has subsidence data from 2001 through ~~2017~~2023.

~~1.2.4~~1.2.5 Existing Water Management Programs

Santa Barbara County Integrated Regional Water Management Plan ~~2013~~2019

The *Santa Barbara County Integrated Regional Water Management Plan ~~2013~~2019* (IRWM Plan ~~2013~~2019) is the main integrated regional water management planning document for the Santa Barbara County IRWM Region (County of Santa Barbara, ~~2013). IRWM Plan 2013~~2019). A plan was developed in 2013 with an update in 2019 to reflect changes in DWR's 2016 IRWM Guidelines, Volume 2. IRWM Plan 2019 emphasizes multi-agency collaboration, stakeholder involvement and collaboration, regional approaches to water management, water management involvement in land use decisions, and project monitoring to evaluate results of current practices. ~~IRWM Plan 2013~~The changes made in IRWM Plan 2019 focus on cooperating partners and their key water management issues for involved agency collaboration, the impact of SGMA, changes to the sub-regions for synergistic project planning, change in prioritization of climate change vulnerabilities including drought. Additionally, a new county hosted database was developed for their data management system and 3 subcommittees were created for cultural and disadvantage communities. IRWM Plan 2019 identifies regionally and locally focused projects that help achieve regional objectives and targets while working to address water-related challenges in the region.

The following IRWM Plan ~~2013~~2019 objectives related to groundwater use would potentially influence implementation of the GSP:

- Protect, conserve, and augment water supplies
- Protect, manage, and increase groundwater supplies
- Practice balanced natural resource stewardship
- Protect and improve water quality
- Maintain and enhance water and wastewater infrastructure efficiency and reliability.

IRWM Plan ~~2013~~2019 provides valuable resources related to potential concepts, projects and monitoring strategies that can be incorporated into the CBGSA GSP.

San Luis Obispo County ~~2014~~2019 IRWM Plan

The San Luis Obispo ~~2014~~2019 IRWM Plan presents a comprehensive water resources management approach to managing the region's water resources, focusing on strategies to improve the sustainability of current and future needs of San Luis Obispo County (County of San Luis Obispo, 2019). The 2019 Plan

builds off the 2014~~).~~ IRWM Plan with changes to a few relevant sections including governance and stakeholder involvement, region description of groundwater and quality issues to reflect SGMA. Much of the 2014 IRWM Plan was based on the San Luis Obispo County Water Master Report (SLOCFC&WCD, 2012) There were no significant changes to the goals in the 2019 update.

The following ~~2014~~2019 IRWM Plan goals related to groundwater use would potentially influence implementation of the GSP:

- **Water Supply Goal:** Maintain or improve water supply quantity and quality for potable water, fire protection, ecosystem health, and agricultural production needs; as well as to cooperatively address limitations, vulnerabilities, conjunctive-use, and water-use efficiency.
- **Ecosystem and Watershed Goal:** Maintain or improve the health of the Region's watersheds, ecosystems, and natural resources through collaborative and cooperative actions, with a focus on assessment, protection, and restoration/enhancement of ecosystem and resource needs and vulnerabilities.
- **Groundwater Monitoring and Management (Groundwater) Goal:** Achieve sustainable use of the region's water supply in groundwater basins through collaborative and cooperative actions.
- **Water Resources Management and Communications (Water Management) Goal:** Promote open communications and regional cooperation in the protection and management of water resources, including education and outreach related to water resources conditions, conservation/water use efficiency, water rights, water allocations, and other regional water resource management efforts.

The ~~2014~~2019 IRWM Plan provides valuable resources related to potential concepts, projects, and monitoring strategies that can be incorporated into the CBGSA GSP.

Ventura County ~~2014~~2019 IRWM Plan

The Ventura County ~~2014~~2019 IRWM Plan reflects the unique needs of a diverse region in Ventura County, which encompasses three major watersheds, 10 cities, portions of the Los Padres National Forest, a thriving agricultural economy, and is home to more than 823,000 people (~~County~~Watersheds Coalition of Ventura~~, 2014~~ County, 2019). The ~~2014~~2019 IRWM Plan is a comprehensive document that primarily addresses region-wide water management and related issues. The 2019 Plan amendment was developed for the existing 2014 Plan to address revisions required by DWR 2016 Prop 1 IRWM program guidelines and plan standards.

The following ~~2014~~2019 IRWM Plan goals related to groundwater use would potentially influence implementation of the GSP:

- ~~Reduce dependence on imported water and protect~~Protect, conserve, and augment local water-supply portfolio to increase local water ~~supplies~~resilience
- Protect and improve water quality
- Protect and restore habitat and ecosystems in watersheds

The ~~2014~~2019 IRWM Plan provides valuable resources related to potential concepts, projects and monitoring strategies that can be incorporated into the CBGSA GSP.

Kern County ~~2011~~2020 IRWM Plan

The Kern County ~~2011~~2020 IRWM Plan covers most of Kern County but does not include the portion of the county that includes the Cuyama Basin (Kern County Water Agency, ~~2011~~2020). Therefore, the IRWM Plan is not relevant to the Cuyama GSP and is not addressed here.

~~1.2.5~~1.2.6General Plans in Plan Area

As illustrated in Figure 1-4, the Cuyama Basin is located within the geographic boundaries of four counties, including Kern, San Luis Obispo, Santa Barbara and Ventura. Each of these counties have an existing process for permitting new or replacement groundwater wells, which ~~would continue after~~has continued during implementation of this GSP. In addition, implementation of the CBGSA GSP would be affected by the policies and regulations outlined in the General Plans of these counties, given that the Cuyama Basin, and long-term land use planning decisions that would affect the Basin, are under the jurisdiction of these counties.

This section describes how implementation of the various General Plans may change water demands in the Basin, for example due to population growth and development of the built environment, how the General Plans may influence the GSP's ability to achieve sustainable groundwater use, and how the GSP may affect implementation of General Plan land use policies.

Santa Barbara County Comprehensive Plan

The Santa Barbara County Comprehensive Plan is a means by which more orderly development and consistent decision making in the county can be accomplished. The Plan involves a continuing process of research, analysis, goal-setting and citizen participation, the major purpose of which is to enable the County Board of Supervisors and Planning Commission to more effectively determine matters of priority in the allocation of resources, and to achieve the physical, social and economic goals of the communities in the county (County of Santa Barbara, 2016).

Relevant Santa Barbara County Comprehensive Plan Principles and Policies

The following Santa Barbara County Comprehensive Plan Land Use Element policies related to groundwater use would potentially influence implementation of the GSP:

- **Land Use Development Policy 4:** Prior to issuance of a development permit, the County shall make the finding, based on information provided by environmental documents, staff analysis, and the applicant, that adequate public or private services and resources (i.e., water, sewer, roads, etc.) are available to serve the proposed development.
- **Hillside and Watershed Protection Policy 7:** Degradation of the water quality of groundwater basins, nearby streams, or wetlands shall not result from development of the site. Pollutants, such as chemicals, fuels, lubricants, raw sewage, and other harmful waste, shall not be discharged into or alongside coastal streams or wetlands either during or after construction.

The following Santa Barbara County Comprehensive Plan Conservation Element, Groundwater Resources Section goals and policies related to groundwater use would potentially influence implementation of the GSP:

- **Goal 1:** To ensure adequate quality and quantity of groundwater for present and future county residents, and to eliminate prolonged overdraft of any groundwater basins.
  - **Policy 1.1:** The County shall encourage and assist all of the county's water purveyors and other groundwater users in the conservation and management, on a perennial yield basis, of all groundwater resources.
  - **Policy 1.2:** The County shall encourage innovative and/or appropriate, voluntary water conservation activities for increasing the efficiency of agricultural water use in the county.
  - **Policy 1.3:** The County shall act within its powers and financial abilities to promote and achieve the enhancement of groundwater basin yield.
- **Goal 2:** To improve existing groundwater quality, where feasible, and to preclude further permanent or long-term degradation in groundwater quality.
  - **Policy 2.1:** Where feasible, in cooperation with local purveyors and other groundwater users, the County shall act to protect groundwater quality where quality is acceptable, improve quality where degraded, and discourage degradation of quality below acceptable levels.
  - **Policy 2.2:** The County shall support the study of adverse groundwater quality effects which may be due to agricultural, domestic, environmental and industrial uses and practices.
- **Goal 3:** To coordinate County land use planning decisions and water resources planning and supply availability.
  - **Policy 3.1:** The County shall support the efforts of the local water purveyors to adopt and implement groundwater management plans pursuant to the Groundwater Management Act and other applicable law.
  - **Policy 3.2:** The County shall conduct its land use planning and permitting activities in a manner which promotes and encourages the cooperative management of groundwater resources by local agencies and other affected parties, consistent with the Groundwater Management Act and other applicable law.
  - **Policy 3.3:** The County shall use groundwater management plans, as accepted by the Board of Supervisors, in its land use planning and permitting decisions and other relevant activities.
  - **Policy 3.4:** The County's land use planning decisions shall be consistent with the ability of any affected water purveyor(s) to provide adequate services and resources to their existing customers, in coordination with any applicable groundwater management plan.
  - **Policy 3.5:** In coordination with any applicable groundwater management plan(s), the County shall not allow, through its land use permitting decisions, any basin to become seriously over drafted on a prolonged basis.
  - **Policy 3.6:** The County shall not make land use decisions which would lead to the substantial over commitment of any groundwater basin.

- **Policy 3.7:** New urban development shall maximize the use of effective and appropriate natural and engineered recharge measures in project design, as defined in design guidelines to be prepared by the Santa Barbara County Flood Control and Water Conservation District in cooperation with P&D.
- **Policy 3.8:** Water-conserving plumbing, as well as water-conserving landscaping, shall be incorporated into all new development projects, where appropriate, effective, and consistent with applicable law.
- **Policy 3.9:** The County shall support and encourage private and public efforts to maximize efficiency in the pre-existing consumptive M&I use of groundwater resources.
- **Policy 3.10:** The County, in consultation with the cities, affected water purveyors, and other interested parties, shall promote the use of consistent "significance thresholds" by all appropriate agencies with regard to groundwater resource impact analysis.

- **Goal 4:** To maintain accurate and current information on groundwater conditions throughout the county.
  - **Policy 4.1:** The County shall act within its powers and financial abilities to collect, update, refine, and disseminate information on local groundwater conditions.

The following Santa Barbara County Comprehensive Plan Agricultural Element goal and policy related to groundwater use would potentially influence implementation of the GSP:

- **Goal 1:** Santa Barbara County shall assure and enhance the continuation of agriculture as a major viable production industry in Santa Barbara Country. Agriculture shall be encouraged. Where conditions allow, (taking into account environmental impacts) expansion and intensification shall be supported.
  - **Policy 1F:** The quality and availability of water, air, and soil resources shall be protected through provisions including but not limited to, the stability of Urban/Rural Boundary Lines, maintenance of buffer areas around agricultural areas, and the promotion of conservation practices.

Santa Barbara County Comprehensive Plan's Influence on Water Demand and Groundwater Sustainability Plan's Goals

Review of relevant *Santa Barbara County Comprehensive Plan* goals and policies reveals that the County's goals and policies relative to future land use development and conservation complement the use and conservation of groundwater resources goals anticipated to be included in the CBGSA GSP. The Comprehensive Plan explicitly states as a goal ensuring that adequate quality and quantity of groundwater will be available for present and future county residents, as well as the elimination of prolonged overdraft of any groundwater basins through land use planning decisions and water resources planning.

The county is expected to grow from ~~428,600~~453,500 to ~~520,000~~521, 700 residents between ~~2015~~2017 and ~~2040~~2050 (Santa Barbara County Association of Governments, ~~2012~~2019). These growth estimates are County-wide, and the General Plan does not specify how much growth, if any, is expected to occur within the Basin. Ensuring sustainable management of the Basin through implementation of the GSP will

be critical in terms of supporting projected population growth in the county while maintaining sustainable groundwater levels in the Basin.

GSP's Influence on Santa Barbara County Comprehensive Plan's Goals and Policies

Successful implementation of the GSP will help to ensure that the Cuyama Basin's groundwater supply is managed in a sustainable manner. Given the amount of population growth projected in the county in the coming years, it is possible that changes in groundwater management by the GSP will result in changes to the pace, location and type of development that will occur in the county in the future. It is anticipated that GSP implementation will be consistent with the Comprehensive Plan's goals related to sustainable land use development in the county.

San Luis Obispo County General Plan

The *San Luis Obispo County General Plan* describes official County policy on the location of land uses and their orderly growth and development. It is the foundation upon which all land use decisions are based, guides action the County takes to assure a vital economy, ensures a sufficient and adequate housing supply, and protects agricultural and natural resources (County of San Luis Obispo, 2015).

Relevant San Luis Obispo General Plan Principles and Policies

The following San Luis Obispo General Plan Land Use Element principles and policies related to groundwater use would potentially influence implementation of the GSP:

- **Principle 1:** Preserve open space, scenic natural beauty and natural resources. Conserve energy resources. Protect agricultural land and resources.
  - **Policy 1.2:** Keep the amount, location and rate of growth allowed by the Land Use Element within the sustainable capacity of resources, public services and facilities.
  - **Policy 1.3:** Preserve and sustain important water resources, watersheds and riparian habitats.

The following San Luis Obispo General Plan Conservation and Open Space Element goals and policies related to groundwater use would potentially influence implementation of the GSP:

- **Goal WR 1:** The county will have a reliable and secure regional water supply.
  - **Policy WR 1.2:** Conserve Water Resources. Water conservation is acknowledged to be the primary method to serve the county's increasing population. Water conservation programs should be implemented countywide before more expensive and environmentally costly forms of new water are secured.
  - **Policy WR 1.3:** New Water Supply. Development of new water supplies should focus on efficient use of our existing resources. Use of reclaimed water, interagency cooperative projects, desalination of contaminated groundwater supplies, and groundwater recharge projects should be considered prior to using imported sources of water or seawater desalination, or dams and on-stream reservoirs.

- **Policy WR 1.7:** Agricultural Operations. Groundwater management strategies will give priority to agricultural operations. Protect agricultural water supplies from competition by incompatible development through land use controls.
- **Policy WR 1.12:** Impacts of New Development. Accurately assess and mitigate the impacts of new development on water supply. At a minimum, comply with the provisions of Senate Bills 610 and 221.
- **Policy WR 1.14:** Avoid Net Increase in Water Use. Avoid a net increase in non-agricultural water use in groundwater basins that are recommended or certified as Level of Severity II or III for water supply. Place limitations on further land divisions in these areas until plans are in place and funded to ensure that the safe yield will not be exceeded.

- **Goal WR 2:** The County will collaboratively manage groundwater resources to ensure sustainable supplies for all beneficial uses.
  - **Policy WR 2.1:** Groundwater quality assessments Prepare groundwater quality assessments, including recommended monitoring, and management measures.
  - **Policy WR 2.2:** Groundwater Basin Reporting Programs. Support monitoring and reporting programs for groundwater basins in the region.
  - **Policy WR 2.3:** Well Permits. Require all well permits to be consistent with the adopted groundwater management plans.
  - **Policy WR 2.4:** Groundwater Recharge. Where conditions are appropriate, promote groundwater recharge with high-quality water.
  - **Policy WR 2.5:** Groundwater Banking Programs. Encourage groundwater-banking programs.
- **Goal WR 3:** Excellent water quality will be maintained for the health of the people and natural communities.
  - **Policy WR 3.2:** Protect Watersheds. Protect watersheds, groundwater and aquifer recharge areas, and natural drainage systems from potential adverse impacts of development projects.
  - **Policy WR 3.3:** Improve Groundwater Quality. Protect and improve groundwater quality from point and non-point source pollution, including nitrate contamination; MTBE and other industrial, agricultural, and commercial sources of contamination; naturally occurring mineralization, boron, radionuclides, geothermal contamination; and seawater intrusion and salts.
  - **Policy WR 3.4:** Water Quality Restoration. Pursue opportunities to participate in programs or projects for water quality restoration and remediation with agencies and organizations such as the Regional Water Quality Control Board (RWQCB), California Department of Fish and Wildlife (CDFW), National Marine Fisheries Service (NMFS), and Resource Conservation Districts (RCDs) in areas where water quality is impaired.
- **Goal 4:** Per capita water use in the county will decline by 20% by 2020.
  - **Policy WR 4.1:** Reduce Water Use. Employ water conservation programs to achieve an overall 20% reduction in per capita residential and commercial water use in the unincorporated area by 2020. Continue to improve agricultural water use efficiency consistent with Policy AGP 10 in the Agricultural Element.

- **Policy WR 4.2:** Water Pricing Structures. Support water-pricing structures to encourage conservation by individual water users and seek to expand the use of conservation rate structures in areas with Levels of Severity II and III for water supply.
- **Policy WR 4.3:** Water conservation The County will be a leader in water conservation efforts.
- **Policy WR 4.5:** Water for Recharge. Promote the use of supplemental water such as reclaimed sewage effluent and water from existing impoundments to prevent overdraft of groundwater. Consider new ways to recharge underground basins and to expand the use of reclaimed water. Encourage the eventual abandonment of ocean outfalls.
- **Policy WR 4.6:** Graywater. Encourage the use of graywater systems, rainwater catchments, and other water reuse methods in new development and renovation projects, consistent with state and local water quality regulations.
- **Policy WR 4.7:** Low Impact Development. Require Low Impact Development (LID) practices in all discretionary and land division projects and public projects to reduce, treat, infiltrate, and manage urban runoff.
- **Policy WR 4.8:** Efficient Irrigation. Support efforts of the resource conservation districts, California Polytechnic State University, the University of California Cooperative Extension, and others to research, develop, and implement more efficient irrigation techniques.

- **Goal 5:** The best possible tools and methods available will be used to manage water resources.
  - **Policy WR 5.1:** Watershed Approach. The County will consider watersheds and groundwater basins in its approach to managing water resources in order to include ecological values and economic factors in water resources development.

The following San Luis Obispo General Plan Agriculture Element goals and policies related to groundwater use would potentially influence implementation of the GSP:

- **Policy AGP10a:** Encourage water conservation through feasible and appropriate "best management practices." Emphasize efficient water application techniques; the use of properly designed irrigation systems; and the control of runoff from croplands, rangelands, and agricultural roads.
- **Policy AGP10b:** Encourage the U.C. Cooperative Extension to continue its public information and research program describing water conservation techniques that may be appropriate for agricultural practices in this county. Encourage landowners to participate in programs that conserve water.
- **Policy AGP11b:** Do not approve proposed general plan amendments or re-zonings that result in increased residential density or urban expansion if the subsequent development would adversely affect: (1) water supplies and quality, or (2) groundwater recharge capability needed for agricultural use.
- **Policy AGP11c:** Do not approve facilities to move groundwater from areas of overdraft to any other area, as determined by the Resource Management System in the Land Use Element.

San Luis Obispo County General Plan's Influence on Water Demand and Groundwater Sustainability Plan

The semi-arid climate in the county is subject to limited amounts of rainfall and recharge of groundwater basins and surface reservoirs. A focus of the County General Plan is that future development should take place recognizing that the dependable supply of some county groundwater basins is already being exceeded. If mining of groundwater continues in those areas without allowing aquifers to recharge, water supply and water quality problems will eventually result, which may be costly to correct and could become irreversible.

The General Plan explicitly encourages preservation of the county's natural resources, and states that future growth should be accommodated only while ensuring that this growth occurs within the sustainable capacity of these resources.

The county was expected to grow between 0.44 and 1 percent per year from 2013 through 2018, an increase of approximately 12,000 persons over the five-year period and is expected to grow by over 41,000 from 2010 to 2030 (County of San Luis Obispo, 2014). These growth estimates are County-wide and the General Plan does not specify how much growth, if any, is expected to occur within the Basin. Ensuring sustainable management of the basin through implementation of the GSP will be critical in terms of supporting projected population growth in the county while maintaining sustainable groundwater levels in the basin.

GSP's Influence on San Luis Obispo County General Plan's Goals and Policies

Successful implementation of the GSP will help to ensure that the Cuyama Basin's groundwater supply is managed in a sustainable manner. Given the amount of population growth projected in the county in the coming years, it is possible that changes in groundwater management by the GSP will impact the location and type of development that will occur in the Basin in the future. It is anticipated that GSP implementation will reinforce the General Plan's goals related to sustainable land use development in the county.

Ventura County General Plan

The Ventura County General Plan guides decision making and provides direction for growth and development. The 2040 General Plan consists of the following:

- County-wide Goals, Policies and Programs containing ~~four~~eleven chapters (~~Resources, Hazards~~Introduction, Land Use~~,~~ and ~~Public~~Community, Housing Element, Circulation Transportation and Mobility element, Pubic Facilities and ~~Services)~~Infrastructure, Conservation and Open space, Hazards and Safety, Agricultural, Water Resource, Economic Viability and Area Plan.)
- Four appendices (~~Resources, Hazards,~~Plan Area and Existing Community Land Use~~, and Public Facilities~~ Maps, Climate Change, Count of Ventura Measure (SAOR) Save Open Space and ~~Services), which contain background information~~Agricultural Resource Initiative – 2050 and ~~data in support of the Countywide Goals, Policies and Programs~~Guidelines for Orderly Development.)

- Several Area Plans which contain specific goals, policies and programs for specific geographical areas of the county

A few of these chapters and guiding principles which could potentially influence the GSP are described below.

Relevant Ventura County General Plan Principles and Policies

The following Ventura County General Plan ~~(Resources~~Water Resource Element Chapter~~, Water Resources Section, 1.3.1 Goals, 1.3.2 Policies)~~ 9 goals and policies related to groundwater use would potentially influence implementation of the GSP:

~~•~~ Goal 1: ~~Inventory and monitor the quantity and quality of the county's water resources.~~

- ~~**Goal 2:** Effectively~~To effectively manage ~~the~~ water ~~resources of the county~~supply by adequately planning for the development, conservation, and protection of water resources for present and future generations.

    - ~~**Goal 3:** Maintain and,~~Policy 1: The County should encourage water suppliers, groundwater management agencies, and groundwater sustainability agencies to inventory and monitor the quantity and quality of the county's water resources,
    - Policy 2: The County shall consider the location of a discretionary project within a watershed to determine whether or not it could negatively impact a water source.
    - Policy 3: The County shall support the use of, conveyance of, and seek to secure water from varied sources that contribute to a diverse water supply portfolio.
    - Policy 4: The County shall continue to support the conveyance of, and seek to secure water from, state sources.
    - Policy 5: The County shall participate in regional committees to coordinate planning efforts for water and land use that is consistent with the Urban Water Management Planning Act, Sustainable Groundwater Management Act, the local Integrated Regional Water Management Plan, and the Countywide National Pollutant Discharge Elimination System Permit (stormwater and runoff management and reuse)
    - Policy 6: The County shall encourage the continued cooperation among water suppliers in the county, through entities such as the Association of Water Agencies of Ventura County and the Watersheds Coalition of Ventura County, to ensure immediate and long-term water needs are met efficiently.
    - Policy 7: The County shall encourage continued cooperation among water suppliers in the county.

- Policy 8: The County shall encourage the consolidation of water suppliers where necessary to ensure all residents are receiving water of adequate quality and quantity.
- Policy 9: Where technically feasible, ~~restore the chemical, physical and biological integrity of~~the County shall support the use of groundwater basins for water storage.
- Policy 10: The County shall continue to support and participate with the Watersheds Coalition of Ventura County in implementing and regularly updating the Integrated Regional Water Management Plan.
- Policy 11: The County shall require all discretionary development to demonstrate an adequate long-term supply of water.
- Policy 12: The County shall evaluate the potential for discretionary development to cause deposition and discharge of sediment, debris, waste and other pollutants into surface runoff, drainage systems, surface water bodies, and groundwater.
- Policy 13: The County shall require that all County-owned water pumps use 100 percent renewable sourced electricity for water pumping, when feasible, and shall encourage private entities to use 100 percent renewable-sourced electricity when feasible.
- Policy 14: The County shall require that discretionary development for new golf courses shall be subject to conditions of approval that prohibit landscape irrigation with water from groundwater basins or inland surface waters.

- Goal 2: To implement practices and designs that improve and protect water resources.
  - Policy 1: The County shall cooperate with Federal, State and local agencies in identifying and eliminating or minimizing all sources of existing and potential point and non-point sources of pollution to ground and surface waters.
  - Policy 2: The County shall evaluate the potential for discretionary development to cause deposition and discharge of sediment, debris, waste, and other contaminants into surface runoff, drainage systems, surface water bodies, and groundwater.
  - Policy 3: The County shall require that discretionary development not significantly impact the quality or quantity of water resources within watersheds, groundwater recharge areas or groundwater basins.

- ~~**Goal 4:** Ensure that the demand for water does not exceed available water resources.~~
- ~~**Goal 5:** Protect and, where feasible, enhance watersheds and aquifer recharge areas.~~
- ~~**Goal 6:** Promote reclamation and reuse of wastewater for recreation, irrigation and to recharge aquifers.~~

- ~~**Goal 7:** Promote~~Policy 4: The County shall require discretionary development for out-of-river mining below the historic or predicted high groundwater level in the Del Norte/El Rio (Oxnard Forebay Basin) to demonstrate that exaction activities will not interfere with or affect water quality and quantity pursuant to the County's Initial Study Assessment Guidelines.

- Goal 3: To promote efficient use of water resources through water conservation~~.~~, protection, and restoration.

- Policy 1: ~~Discretionary development which is inconsistent with the goals and policies of the County's Water Management Plan (WMP) shall be prohibited, unless overriding considerations are cited by the decision-making body.~~
  - ~~**Policy 2:** Discretionary development shall comply with all applicable~~ The County ~~and States~~shall encourage the use of non-potable water, such as tertiary treated wastewater and household graywater, for industrial, agricultural, environmental, and landscaping needs consistent with appropriate regulations.

- ~~**Policy 3:** The installation of on-site septic systems shall meet all applicable State and County regulations.~~
  - ~~**Policy 4:** Discretionary~~Policy 2: The County shall require the use of water conservation techniques for discretionary development, as appropriate.
  - Policy 3: The County shall require discretionary development to incorporate low impact development design features and best management practices, including integration of stormwater capture facilities, consistent with County's Stormwater Permit.
  - Policy 4: The County shall strive for efficient use of potable water in County buildings and facilities through conservation measures, and technological advancements.

- Goal 4: To maintain and restore the chemical, physical, and biological integrity and quantity of groundwater resources.
  - Policy 1: The County shall work with water suppliers, water users, groundwater management agencies, and groundwater sustainability agencies to implement the Sustainable Groundwater Management Act (SGMA).
  - Policy 2: In areas identified as important recharge areas by the County or the applicable Groundwater Sustainability Agency, the County shall condition discretionary development to limit impervious surfaces where feasible and shall require mitigation in cases where there is the potential for discharge of harmful pollutants within important groundwater recharge areas.

- Policy 3: The County shall support groundwater recharge and multi-benefit projects consistent with the Sustainable Groundwater Management Act and the Integrated Regional Water Management Plan to ensure the long-term sustainability of groundwater.

- Policy 4: The County shall encourage the use of in-stream water flow and recycled water for groundwater recharge while balancing the needs of urban and agricultural uses, and healthy ecosystems, including in-stream waterflows needed for endangered species protection.

- Policy 5: The County shall require that discretionary development shall not significantly impact the quantity or quality of water resources ~~in~~within watersheds, groundwater recharge areas or groundwater basins.

- Policy ~~5: Landscape plans for~~ 6: The County shall require discretionary development ~~shall incorporate water conservation measures as prescribed by the County's Guide to Landscape Plans, including use~~ for out-of ~~low water usage landscape plants and irrigation systems and/or low water usage plumbing fixtures and other measures designed to reduce water usage.~~

  - **~~Policy 10:~~** ~~All new golf courses shall be conditioned to prohibit landscape irrigation with water from groundwater basins or inland surface waters identified as Municipal and Domestic Supply or Agricultural Supply in the California Regional Water Quality Control Board's Water Quality Control Plan unless either: a) the existing and planned water supplies for a Hydrologic Area, including interrelated Hydrologic Areas and Subareas, are shown to be adequate to meet the projected demands for existing uses as well as reasonably foreseeable probable future uses in the area, or b) it is demonstrated that the total groundwater extraction/recharge for the golf course will be equal to or less than~~ river mining below the historic ~~groundwater extraction/recharge (as defined in the Ventura County~~ or predicted high groundwater level in the Del Norte/El Rio (Oxnard Forebay Basin) to demonstrate that extraction activities will not interfere with or affect groundwater quality and quantity pursuant to the County's Initial Study Assessment Guidelines~~) for the site. Where feasible, reclaimed water shall be utilized for new golf courses~~.

Policy 7: The ~~following Ventura~~ County ~~General Plan (Land Use Chapter, 3.1.1 Goals) goal related~~shall require that discretionary development be subject to ~~groundwater use would potentially influence implementation~~conditions of ~~the GSP:~~

  - **~~Goal 1:~~** ~~Ensure that the county can accommodate anticipated future growth~~approval requiring proper drilling and ~~development while maintaining a safe~~construction of new oil, gas, and ~~healthful environment by preserving valuable natural resources, guiding development away from hazardous areas,~~ water wells and ~~planning for adequate public facilities~~removal and ~~services. Promote planned, well-ordered and efficient land use and development patterns~~plugging of all abandoned wells on-site.

~~The following Ventura County General Plan (Public Facilities Chapter, Water Supply Facilities section 4.3.1 Goals and 4.3.2 Policies) goals and policies related to groundwater use would potentially influence implementation of the GSP:~~

- ~~**Goal 1:** Ensure the provision of water in quantities sufficient to satisfy current and projected demand.~~
- ~~**Goal 2:** Encourage the employment of water conservation measures in new and existing development.~~
- ~~**Goal 3:** Encourage the continued cooperation among water suppliers in the county in meeting the water needs of the county as a whole.~~
- ~~**Policy 1:** Development that requires potable water shall be provided a permanent potable water supply of adequate quantity and quality that complies with applicable County and State water regulations. Water systems operated by or receiving water from Casitas Municipal Water District, the Calleguas Municipal Water District or the United Water Conservation District will be considered permanent supplies unless an Urban Water Management Plan (prepared pursuant to Part 2.6 of Division 6 of the Water Code) or a water supply and demand assessment (prepared pursuant to Part 2.10 of Division 6 of the Water Code) demonstrates that there is insufficient water supply to serve cumulative development in the district's service area. When the proposed water supply is to be drawn exclusively from wells in areas where groundwater supplies have been determined by the Environmental Health Division or the Public Works Agency to be questionable or inadequate, the developer shall be required to demonstrate the availability of a permanent potable water supply for the life of the project.~~
    - Policy 8: The County shall require all new water wells located within Groundwater Sustainability Agency (GSA) boundaries to be compliant with GSAs and adopted Groundwater Sustainability Plans (GSPs)
    - Policy ~~2: Discretionary development as defined in section 10912 of the Water Code~~9: The County shall prohibit new water wells in the Oxnard Plain Pressure Basin if the new water wells would increase seawater intrusion in the Oxnard or Mugu aquifers.
- Goal 5: To protect and, where feasible, enhance watersheds and aquifer recharge areas through integration of multiple facets of watershed-based approaches.
    - Policy 1: The County shall work with water suppliers, Groundwater Sustainability Agencies (GSAs), wastewater utilities, and stormwater management entities to manage and enhance the shift toward integrated management of surface and groundwater, stormwater treatment and use, recycled water and conservation, and desalination.
    - Policy 2: The County shall ~~comply with the water supply~~continue to seek funding and support coordination of watershed planning and watershed-level project implementation to protect and enhance local watersheds.

- Goal 6: To sustain the agricultural sector by ensuring an adequate water supply through water efficiency and conservation.
    - Policy 1: The County should support the appropriate agencies in their efforts to effectively manage and enhance water quantity and ~~demand assessment~~quality to ensure long-term, adequate availability of high quality and economically viable water for agricultural uses, consistent with water use efficiency programs.
    - Policy 2: The County should support programs designed to increase agricultural water use efficiency and secure long-term water supplies for agriculture.
    - Policy 3: The County should encourage the use of reclaimed irrigation water and treated urban wastewater for agricultural irrigation in accordance with federal and state requirements ~~of Part 2.10 of Division 6 of the Water Code~~in order to conserve untreated groundwater and potable water supplies.

- ~~**Policy 3:** Discretionary development shall be conditioned to incorporate water conservation techniques and the use of drought resistant native plants pursuant to the County's Guide to Landscape Plans.~~

- Goal 7: To consider the water needs of the natural environment with other water uses in the county.
    - Policy 1: The County shall encourage the appropriate agencies to effectively manage water quantity and quality to address long-term adequate availability of water for environmental purposes, including maintenance of existing groundwater-dependent habitats and in-stream flows needed for riparian habitats and species protection.

Ventura County Plan's Influence on Water Demand and Groundwater Sustainability Plan's Goals

Review of relevant Ventura County General Plan goals and policies reveals that the County's goals and policies relative to future land use development and conservation complement the use and conservation of groundwater resources goals included in the CBGSA GSP. The General Plan explicitly states as a goal ensuring that adequate quality and quantity of groundwater will be available for present and future county residents, as well as accommodating anticipated future growth and development while maintaining a safe and healthful environment by preserving valuable natural resources, including groundwater.

The county is expected to ~~grow~~decline from ~~865,090~~837,845 to ~~969,271~~722,411 residents between ~~2018~~2021 and ~~2040~~2050 (Caltrans, ~~2015~~2022). These ~~growth~~ estimates are County-wide and the General Plan does not specify how much ~~growth~~ population decline, if any, is expected to occur within the Basin. Ensuring sustainable management of the basin through implementation of the GSP will be critical in terms of supporting ~~projected~~forecasted population ~~growth~~ in the county while maintaining sustainable groundwater levels in the Basin.

GSP's Influence on Ventura County General Plan's Goals and Policies

Successful implementation of the GSP will help to ensure that the Cuyama Basin's groundwater supply is managed in a sustainable manner. Given the amount of population growth projected in the county in the coming years, it is possible that changes in groundwater management by the GSP will result in changes to the pace, location and type of development that will occur in the county in the future. It is anticipated that GSP implementation will reinforce the General Plan's goals related to sustainable land use development in the county.

Kern County General Plan

Because of the close interrelationship between water supplies, land use, conservation, and open space issues, the Land Use, Conservation, and Open Space Element sections of the Kern County General Plan are the most relevant elements for development of the GSP. These elements provide for a variety of land uses for future economic growth while also assuring the conservation of Kern County's agricultural, natural, and resource attributes (County of Kern, 2009).

Relevant Kern County General Plan Goals and Policies

The following Land Use, Conservation, and Open Space Element goals and policies related to groundwater use would potentially influence implementation of the GSP:

- **Goal 1.4.5:** Ensure that adequate supplies of quality water (appropriate for intended use) are available to residential, industrial, and agricultural users in Kern County.
    - **Policy 1.4.2:** The efficient and cost-effective delivery of public services and facilities will be promoted by designating areas for urban development which occur in or adjacent to areas with adequate public service and facility capacity.
    - **Policy 1.4.2.a:** Ensure that water quality standards are met for existing users and future development.
- **Goal 1.6.6:** Promote the conservation of water quantity and quality in Kern County.
- **Goal 1.6.7:** Minimize land use conflicts between residential and resource, commercial, and industrial land uses.
    - **Policy 1.6.11:** Provide for an orderly outward expansion of new urban development so that it maintains continuity of existing development, allows for the incremental expansion of infrastructure and public service, minimizes impacts on natural environmental resources, and provides a high-quality environment for residents and businesses.
    - **Policy 1.9.10:** To encourage effective groundwater resource management for the long-term economic benefit of the county, the following shall be considered:
    - **Policy 1.9.10.a:** Promote groundwater recharge activities in various zone districts.
    - **Policy 1.9.10.c:** Support the development of groundwater management plans.

- **Policy 1.9.10.d:** Support the development of future sources of additional surface water and groundwater, including conjunctive use, recycled water, conservation, additional storage of surface water and groundwater and desalination.

- **Goal 1.10.1:** Ensure that the county can accommodate anticipated future growth and development while maintaining a safe and healthful environment and a prosperous economy by preserving valuable natural resources, guiding development away from hazardous areas, and assuring the provision of adequate public services.
    - **Policy 1.10.6.39:** Encourage the development of the county's groundwater supply to sustain and ensure water quality and quantity for existing users, planned growth, and maintenance of the natural environment.
    - **Policy 1.10.6.40:** Encourage utilization of community water systems rather than the reliance on individual wells.
    - **Policy 1.10.6.41:** Review development proposals to ensure adequate water is available to accommodate projected growth.

Kern County General Plan's Influence on Water Demand and Groundwater Sustainability Plan's Goals

Review of relevant Kern County General Plan goals and policies reveals that the County's goals and policies relative to future land use development and conservation complement the use and conservation of groundwater resources goals that are anticipated to be included in the CBGSA GSP. The General Plan explicitly encourages development of the county's groundwater supply to ensure that existing users have access to high quality water, and states that future growth should be accommodated only while ensuring that adequate high-quality water supplies are available to existing and future users.

GSP's Influence on Kern County General Plan's Goals and Policies

Successful implementation of the GSP will help to ensure that the Cuyama Basin's groundwater supply is managed in a sustainable manner. Given the small portion of the Cuyama Basin that lies in Kern County, it is anticipated that GSP implementation will have little to no effects on the General Plan's goals related to sustainable land use development in the county.

~~1.2.6~~1.2.7 Plan Elements from CWC Section 10727.4

The plan elements from California Water Code Section 10727.4 require GSPs to address or coordinate the addressing of the components listed in Table 1-1. As noted in the table, several components of California Water Code Section 10727.4 address issues that are not within the CBGSA's authority~~,~~ and are coordinated with local agencies.

Table 1-2: Plan Elements from CWC Section 10727.4

Element	Location
(a) Control of saline water intrusion	Not applicable
(b) Wellhead protection areas and recharge areas.	To be coordinated with counties
(c) Migration of contaminated groundwater.	Coordinated with Regional Water Quality Control Board (RWQCB)
(d) A well abandonment and well destruction program.	To be coordinated with counties
(e) Replenishment of groundwater extractions.	Chapter 7, Projects and Management Actions
(f) Activities implementing, opportunities for, and removing impediments to, conjunctive use or underground storage.	Chapter 7, Projects and Management Actions
(g) Well construction policies.	To be coordinated with counties
(h) Measures addressing groundwater contamination cleanup, groundwater recharge, in-lieu use, diversions to storage, conservation, water recycling, conveyance, and extraction projects.	Chapter 7, Projects and Management Actions, and coordinated with RWQCB
(i) Efficient water management practices, as defined in Section 10902, for the delivery of water and water conservation methods to improve the efficiency of water use.	Coordinated with Cuyama Basin Water District
(j) Efforts to develop relationships with state and federal regulatory agencies.	Chapter 8, Plan Implementation
(k) Processes to review land use plans and efforts to coordinate with land use planning agencies to assess activities that potentially create risks to groundwater quality or quantity.	To be coordinated with counties
(l) Impacts on groundwater dependent ecosystems.	Chapter 2, Basin Settings, Section 2.2. Groundwater Conditions

1.3 Notice and Communication

The Notice and Communication chapter of this plan will be updated when a final draft of the 2025 GSP Update is completed.

1.4 References

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Chapter 4 Monitoring Networks

This chapter ~~of the *Cuyama Basin Groundwater Sustainability Plan* (GSP)~~ discusses the planned monitoring networks needed to guide the Cuyama Basin Groundwater Sustainability Agency (CBGSA) toward their sustainability goals. Monitoring networks need to be established for each sustainability indicator either directly or through monitoring through a proxy. This section satisfies Subarticle 4 of the Sustainable Groundwater Management Act (SGMA) regulations. This chapter also discusses the following:

- Monitoring network objectives
- Existing monitoring programs used ~~as part of each~~to develop the network in the 2020 GSP
- Development of revised monitoring networks for the 2025 GSP Update
- Monitoring network establishment for each sustainability indicator
- Monitoring network data gaps, and a plan to fill data gaps if they are present for each monitoring network

4.1 Useful Terms

This chapter describes groundwater wells, water quality measurements, subsidence stations, and other related components. Technical terms are defined below. Figure 4-1 is a diagram of a monitoring well with well-related terms identified on the diagram. Terms are defined here to guide readers through this chapter, and are not a definitive definition of each term:

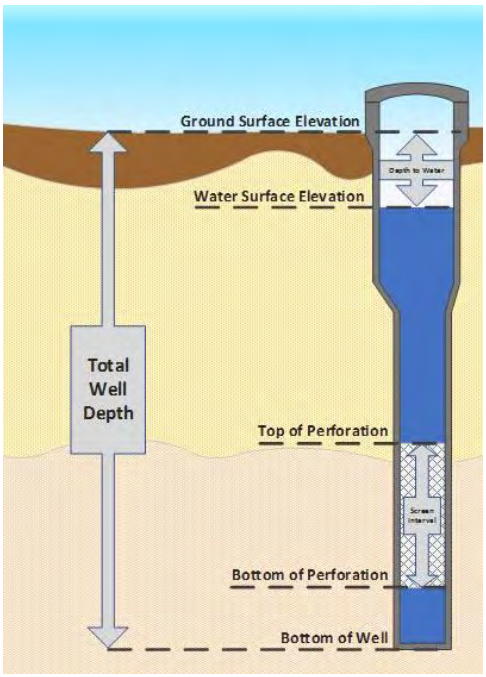

Figure 4-1: Well Completion Diagram

4.1.1 Well-Related Terms

- **Bottom perforation –** The distance to the bottom of the perforation from the ground surface elevation.
- **Depth to water –** The distance from the ground surface or the well' to where water is encountered inside the well
- **Ground surface elevation –** The elevation in feet above mean sea level at the well's location.
- **Screened interval** – The portion of a well casing that is screened to allow water from the surrounding soil into the well pipe. There can be several screened intervals within the same well. Screened interval is usually reported in feet below ground surface (bgs) for both the upper most limit and lower most limit of the screen.
- **Top perforation –** The distance to the top of the perforation from the ground surface elevation.
- **Total well depth** – The depth that a well is installed to. This is often deeper than the bottom of the screened interval.
- **Water surface elevation –** The elevation above mean sea level that water is encountered inside the well

4.1.2 Other Terms

- **Best management practice** – Refers to a practice, or combination of practices, that are designed to achieve sustainable groundwater management and have been determined to be technologically and economically effective, practicable, and based on best available science (Title 23 of the California Code of Regulations [CCR], Article 2).
- **Constituent** – Refers to a water quality parameter measured to assess groundwater quality.
- **Data gap** – Refers to a lack of information that significantly affects the understanding of the Basin setting or evaluation of the efficacy of Plan implementation and could limit the ability to assess whether a Basin is being sustainably managed (Title 23 of the CCR, Article 2).
- **Depth to groundwater –** This is the distance from the ground surface to groundwater typically reported at a well.
- **Historical high groundwater elevations –** This is the highest recorded measurement of static groundwater elevation (closest to the ground surface) in a monitoring well. Measurements of groundwater elevation are used to indicate the elevation of groundwater levels in the area near the monitored well.
- **Historical low groundwater elevations –** This is the lowest measurement of static groundwater elevation (furthest from the ground surface) in a monitoring well that was recorded. Measurements of groundwater elevation are used to indicate the elevation of groundwater levels in the area near the monitored well.
- **Hydrograph –** A hydrograph is a graph that shows the changes in groundwater elevation over time for each monitoring well. Hydrographs show how groundwater elevations change over the years and indicate whether groundwater is rising or descending over time.
- **Representative monitoring** – Refers to a monitoring site within a broader network of sites that typifies one or more conditions within the Basin or an area of the Basin (Title 23 of the CCR, Article 2).
- **Subsidence** – Refers to the sinking or downward settling of the earth's surface, not restricted in rate, magnitude, or area involved, and is often the result of over-extraction of subsurface water. For more information, see the Groundwater Conditions chapter.

4.2 Monitoring Network Objectives

This chapter describes the Cuyama Valley Groundwater Basin (Basin) monitoring networks for the five sustainability indicators that apply to the Basin. The objective of these monitoring networks is to detect undesirable results in the Basin, as described in Chapter 3, using the sustainability thresholds described in Chapter 5. Other related objectives of the monitoring network are defined via the SGMA regulations as follows:

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

The monitoring network plan provided to the Basin is intended to monitor:

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

The monitoring networks described in this chapter were ~~designed by evaluating~~developed for the 2020 GSP using data provided by the California Department of Water Resources (DWR), the United States Geological Survey (USGS), participating counties, and private landowners. The monitoring network ~~consists~~consisted of wells that are already being used for monitoring in the Basin. ~~Decisions to include wells in the~~ These monitoring ~~network were based on the criteria~~networks have been revised for the 2025 GSP Update as described in the sections below.

4.2.1 Basin Conditions Relevant to Measurement Density and Frequency

This section summarizes key Basin conditions that influence the development of monitoring networks. These key conditions include hydrogeologic considerations, land use considerations, and historical groundwater conditions.

The Basin, as described in the Section 2.1, is composed of one principal aquifer comprised of three geologic groups: Younger Alluvium, Older Alluvium, and Morales Formation. The majority of groundwater in the aquifer is stored in the Younger and Older alluvium. While there are many faults in the Basin, there are no major stratigraphic aquitards or barriers to vertical groundwater movement among the alluvium and Morales Formation. The aquifer has a wide range of thicknesses that vary spatially, with median reported hydraulic conductivity ranges from 1.22 to 72.1 feet per day (see Table 2-1 in Chapter 2 for detailed values). Figures 2-19 and 2-20 in Chapter 2 show the extent of these formations throughout the Basin.

The largest groundwater uses in the Basin are for irrigated agriculture. The figures shown in Chapter 1, Section 1.2, Plan Area show the extent of land used for irrigated agriculture in the Basin. Based on the

most recent data from ~~2016~~2022 , there are approximately 53 square miles of agricultural land in the Basin out of approximately 378 square miles, equaling approximately 14 percent of the Basin's land.

Data provided in Chapter 2, Section 2.2 shows the historical decline groundwater levels in the Basin's central portion. Groundwater elevations in this portion of the Basin have decreased by more than 400 feet from the 1940s to the present, as shown in Figure 4-2.

Turkey Trap Ridge Fault

Graveyard Ridge Fault

Cuyama

Barbara Canyon Fault

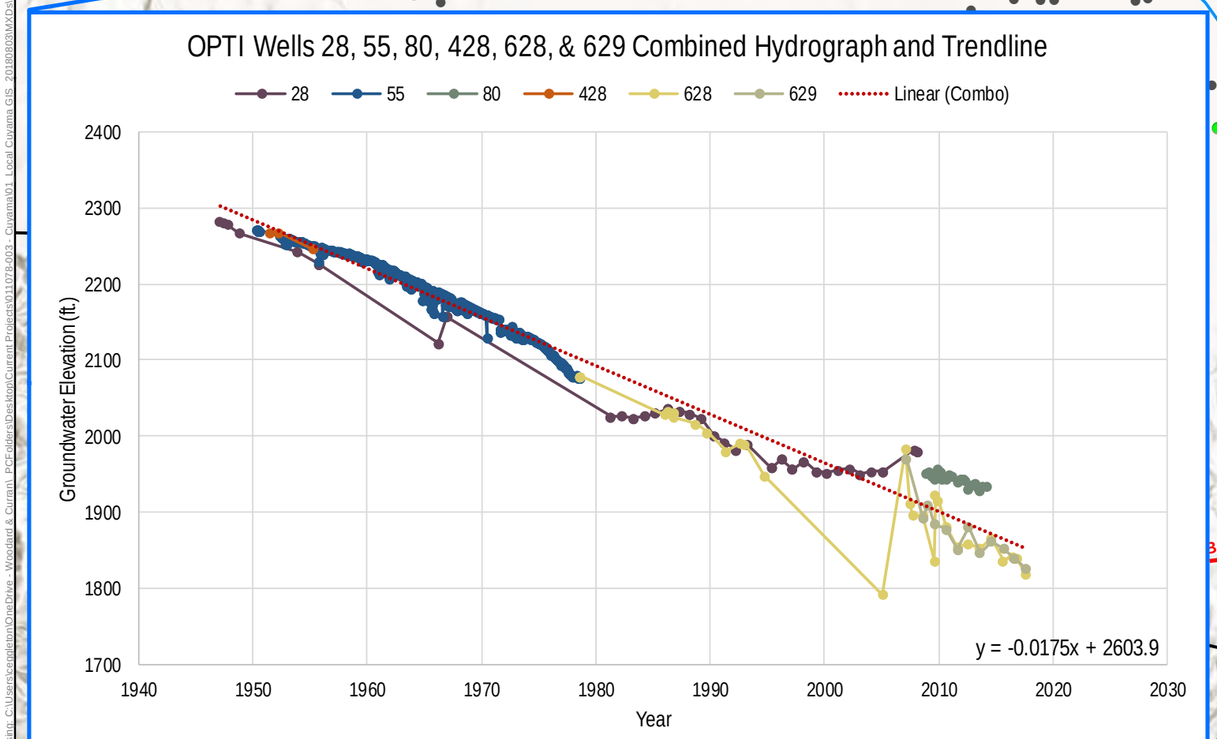

Figure 4-2: Cuyama GW Basin Central Basin with Combined Hydrograph

Cuyama Basin Groundwater Sustainability Agency

Cuyama Valley Groundwater Basin Groundwater Sustainability Plan

April 2019

WOODARD &CURRAN

Legend

- Cuyama Basin
- Towns
- Highways
- Cuyama River
- Streams
- Faults
- Currently Monitored Wells
- Not Currently Monitored

N

0 0.5 1 2 Miles

Plot Exported 11/2/2018 By ersullivan Using C:\Users\ersullivan\OneDrive - Woodard & Curran\PDFolders\Desktop\Current Projects\SW\1078.003 - Cuyama\01 Local Cuyama GIS\2018\08\08\MXDs\Text\Monitoring Network\Fig 4-2 HistoricalHydrographsCentralBasin_CombinedHydrograph.mxd

4.3 Existing Monitoring Used Prior to 2020 GSP Adoption

4.3.1 Groundwater Level Monitoring

This section describes groundwater level monitoring conducted by agencies and private ~~land owners in the Basin.~~landowners in the Basin prior to GSP adoption in January 2020. Since 2020, the CBGSA has performed its own groundwater level monitoring using the monitoring network approved in the GSP.

DWR, Statewide Dataset/California Statewide Groundwater Elevation Monitoring (CASGEM)

The State of California has several water-related database portals accessible online. These include the following:

- CASGEM Program
- Water Data Library
- Groundwater Information Center Interactive Map Application

The data for these portals are organized and saved in one master database, where each portal accesses and displays data depending on the search criteria and portal used.

The CBGSA contacted DWR directly to acquire all available data related to the Basin. DWR provided a customized hyperlink for CBGSA representatives to download the State's database in whole. Cuyama Basin data were then extracted from this dataset.

Although the master dataset was used to collect initial data, the CASGEM portal was used throughout the planning process to verify that data (DWR CASGEM Online System, 2018). The CASGEM Program is tasked with tracking seasonal and long-term groundwater elevation trends in groundwater basins throughout the State. In 2009, Senate Bill ~~Senate Bill~~ x7-6 ~~establish~~established collaboration between local monitoring parties and DWR, enabling DWR to collect groundwater elevation data, and ultimately establishing the CASGEM Program.

The CASGEM Program allows local agencies to be designated as CASGEM monitoring entities for groundwater basins throughout the State (CASGEM Brochure, 2018). CASGEM monitoring entities can measure groundwater elevations or compile data from other agencies to fulfill a monitoring plan, and each entity is responsible for submitting that data to DWR. Three monitoring entities operate as CASGEM monitoring entities in the Cuyama Basin as follows:

- Santa Barbara County Water Agency (SBCWA)
- Ventura County Watershed Protection District (VCWPD)
- San Luis Obispo Flood Control & Water Conservation District (SLOFC~~& &~~ WCD)

The CASGEM Program includes two kinds of wells in its database as follows:

- CASGEM wells, all of which include well construction information
- Voluntary wells that are included in the CASGEM database on a volunteer basis; well construction may not be identified or made public

The Basin has six CASGEM wells and 107 voluntary wells. Figure 4-3 shows the locations of these wells.

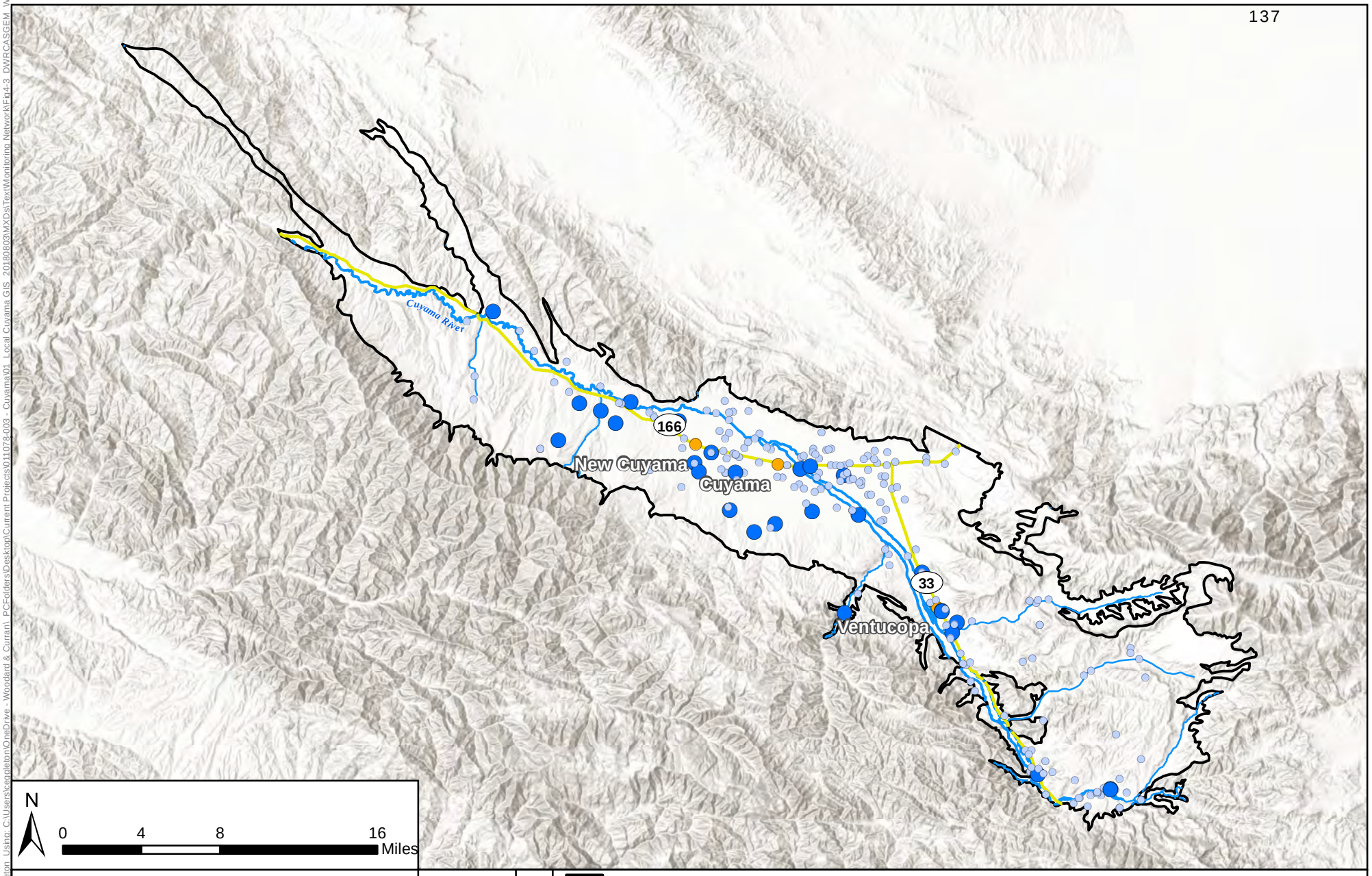

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Figure 4-3: Cuyama GW Basin Wells with Monitoring Data Provided by DWR

Cuyama Basin Groundwater Sustainability Agency

Cuyama Valley Groundwater Basin Groundwater Sustainability Plan

April 2019

WOODARD &CURRAN

Legend

- Cuyama Basin
- Towns
- Highways
- Cuyama River
- Streams
- DWR Database Wells Last Measured in 2017-2018
- DWR Database Wells Last Measured 2016 and Earlier

Most wells are measured on either a semi-annual or annual schedule. Summary statistics about these wells are listed below.

- 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 years
- Median number of records for a single well: 19

The greatest well density among current wells is in the central portion of the Basin and in the area around Ventucopa. There are also several monitoring wells in the south eastern portion of the Basin upstream of Ventucopa. CASGEM data are sparser along the north facing slopes of the main Cuyama Valley and the western portion of the Basin, as can be seen in Figure 4-3.

~~USGS~~

United States Geological Survey

The USGS has the most groundwater elevation monitoring locations in the Basin. Many of these wells were installed for a 1966 groundwater study and have since been retired.

There are significant overlaps between the DWR provided datasets and the USGS provided datasets. Approximately 106 wells appear in both downloaded datasets. Overlapping data is discussed below.

USGS data may be accessed through their online portals for the National Ground-Water Monitoring Network, Groundwater Watch, and the National Water Information System (NWIS).

The USGS online data portals provide approved data that has been quality-assured and deemed fit to be published by USGS. The portals also provide provisional data that is unverified and subject to revision. The CBGSA contacted USGS directly and coordinated download of USGS monitoring records in the Basin. The CBGSA used the USGS URL Generation tool was used to download all provisional and approved data about the Basin.

USGS has approximately 476 wells in the Basin. Summary statistics about these wells are listed below.

- Total number of USGS wells: 476
- Earliest measurement date: 1946

- Longest period of record: 68 years
- Median period of record: 2 years
- Median number of records for a single well: 2 years

A significant portion of the wells included in the USGS dataset are located near the Cuyama River and are in the central portion of the Basin. Wells are also found along many of the tributaries that feed the Cuyama River, recording data during large precipitation events. ~~Figure 4-4~~Figure 4-4 shows well locations included in the USGS dataset.

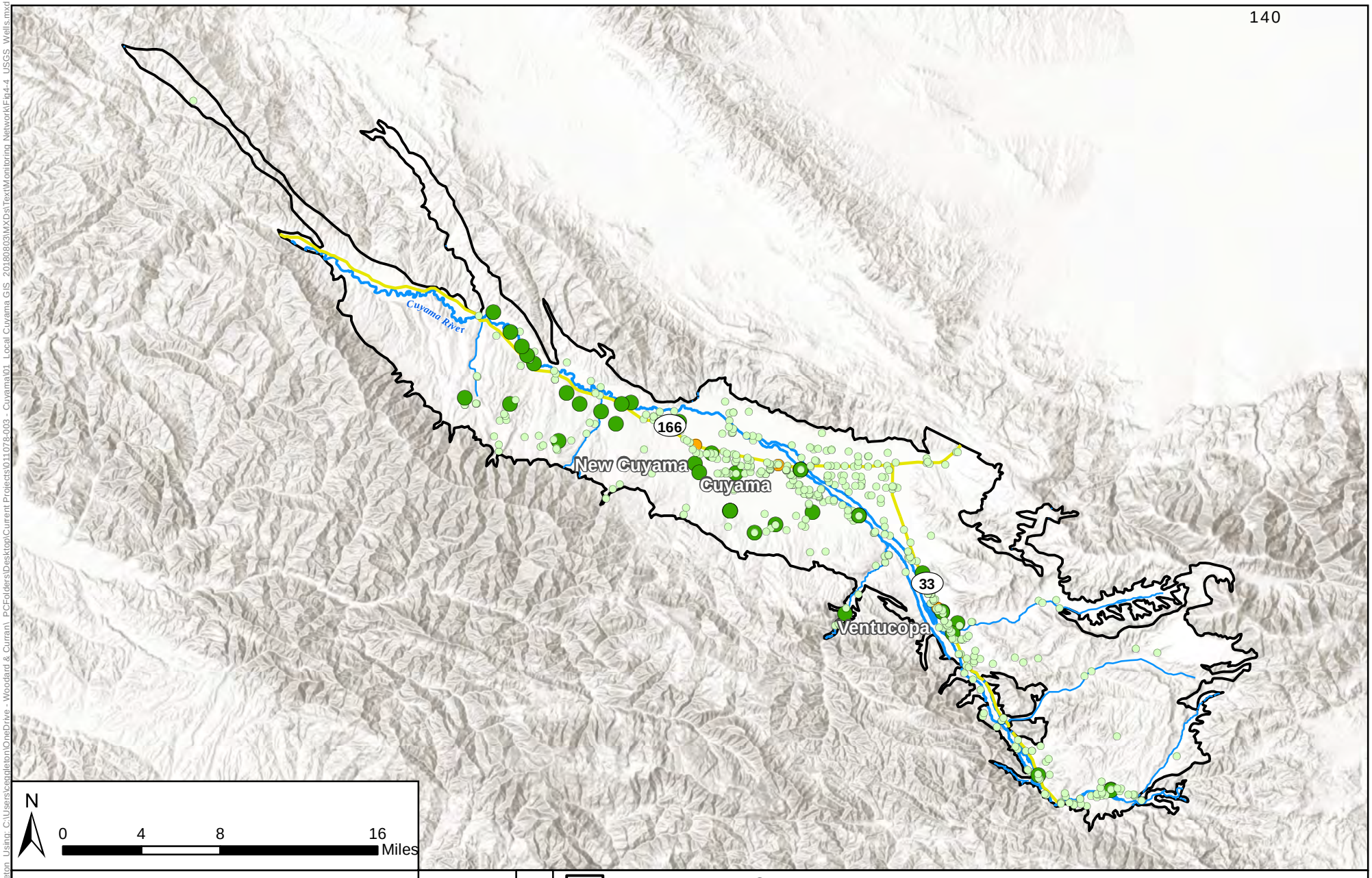


Figure 4-4: Cuyama GW Basin Wells with Monitoring Data Provided by USGS

Cuyama Basin Groundwater Sustainability Agency

Cuyama Valley Groundwater Basin Groundwater Sustainability Plan

April 2019

WOODARD &CURRAN

Legend

- Cuyama Basin
- Towns
- Highways
- Cuyama River
- Streams
- USGS Database Wells Last Measured in 2017-2018
- USGS Database Wells Last Measured 2016 or Earlier

Santa Barbara County Water Agency

SBCWA maintains data for 36 wells in the Cuyama Basin. Some of those wells are owned by private land owners, and others are owned by local agencies such as the California Department of Transportation and the California Department of Fish and Wildlife. Summary statistics about these wells are listed below.

- Number of SBCWA-monitored wells: 36
- Earliest measurement date year: 1950
- Longest period of record: 68 years
- Median period of record: 2 years
- Median number of records for a single well: 8

Wells included in the SBCWA dataset are in Santa Barbara County near the Cuyama River, and in the hills to the south of the river. ~~Figure 4-5~~Figure 4-5 shows the locations of these wells.

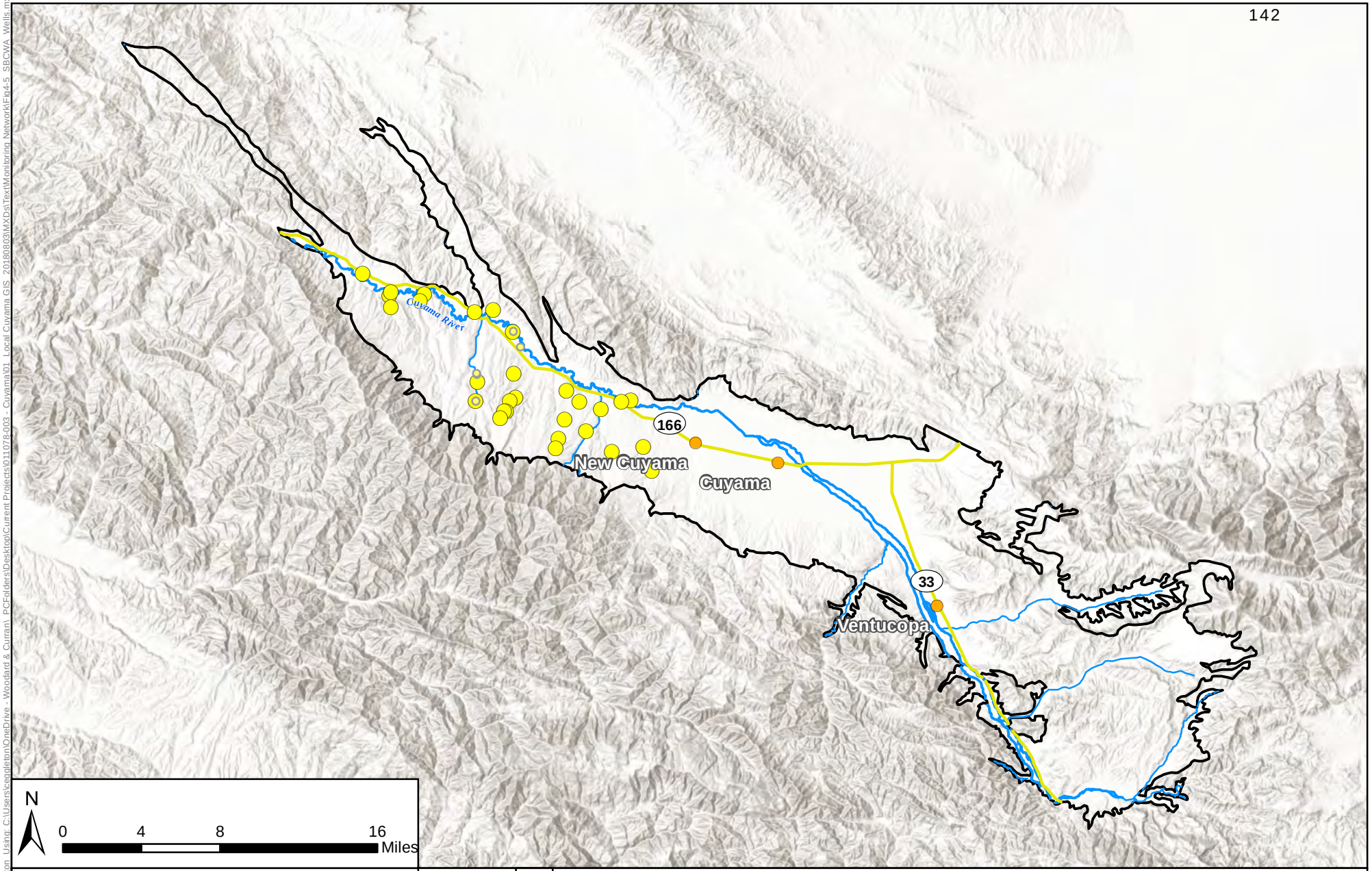


Figure 4-5: Cuyama GW Basin Wells with Monitoring Data Provided by SBCWA

Cuyama Basin Groundwater Sustainability Agency

Cuyama Valley Groundwater Basin Groundwater Sustainability Plan

April 2019

WOODARD &CURRAN

Legend

- Cuyama Basin
- Towns
- Highways
- Cuyama River
- Streams
- Santa Barbara County Database Wells Last Measured in 2017-2018
- Santa Barbara County Database Wells Last Measured 2016 or Earlier

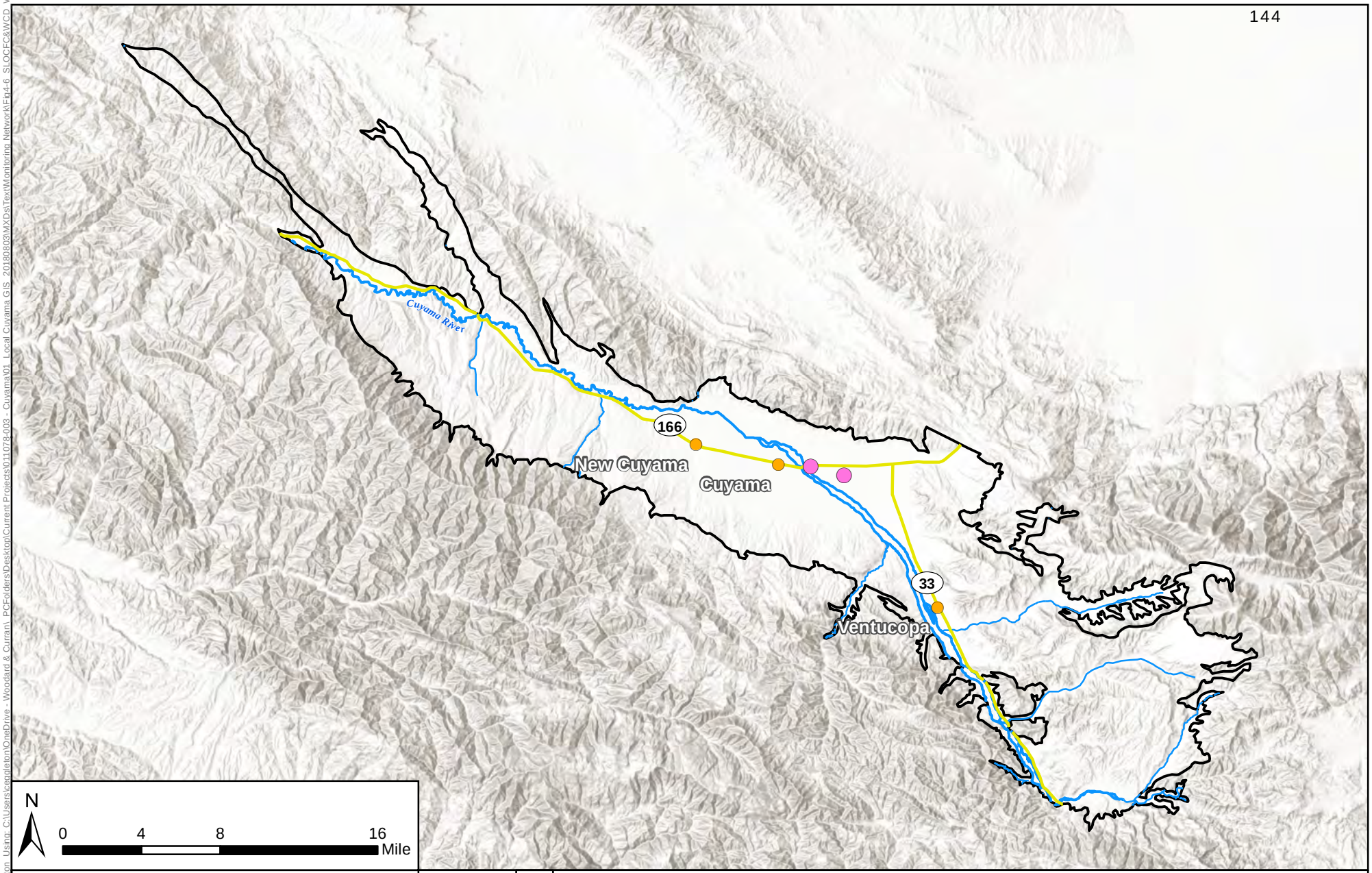
San Luis Obispo County Flood Control & Water Conservation ~~Distric~~District

SLOCFC~~&~~ & WCD maintains data for two wells within the Basin. SLOCFC~~&~~ & WCD also reports ~~theses~~these data to DWR; all data are for the wells is incorporated through the DWR CASGEM Program dataset.

These wells are in the central portion of the Basin, north of the Cuyama River and west of State Route (SR) 33. Both wells meet the minimum requirements for inclusion in the monitoring network, and summary statistics about these wells are listed below.

- Number of SLOCFC&WCD-monitored wells: 2
- Earliest measurement year: 1990
- Longest period of record: 28 years
- Median period of record: 18 years
- Median number of records for a single well: 35

Figure 4-6 show the well locations.



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0 4 8 16 Mile

Figure 4-6: Cuyama GW Basin Wells with Monitoring Data Provided by SLOCFC&WCD

Cuyama Basin Groundwater Sustainability Agency

Cuyama Valley Groundwater Basin Groundwater Sustainability Plan

April 2019

WOODARD &CURRAN

Legend

- Cuyama Basin
- San Luis Obispo County Wells Last Measured in 2017-2018
- Towns
- Highways
- Cuyama River
- Streams

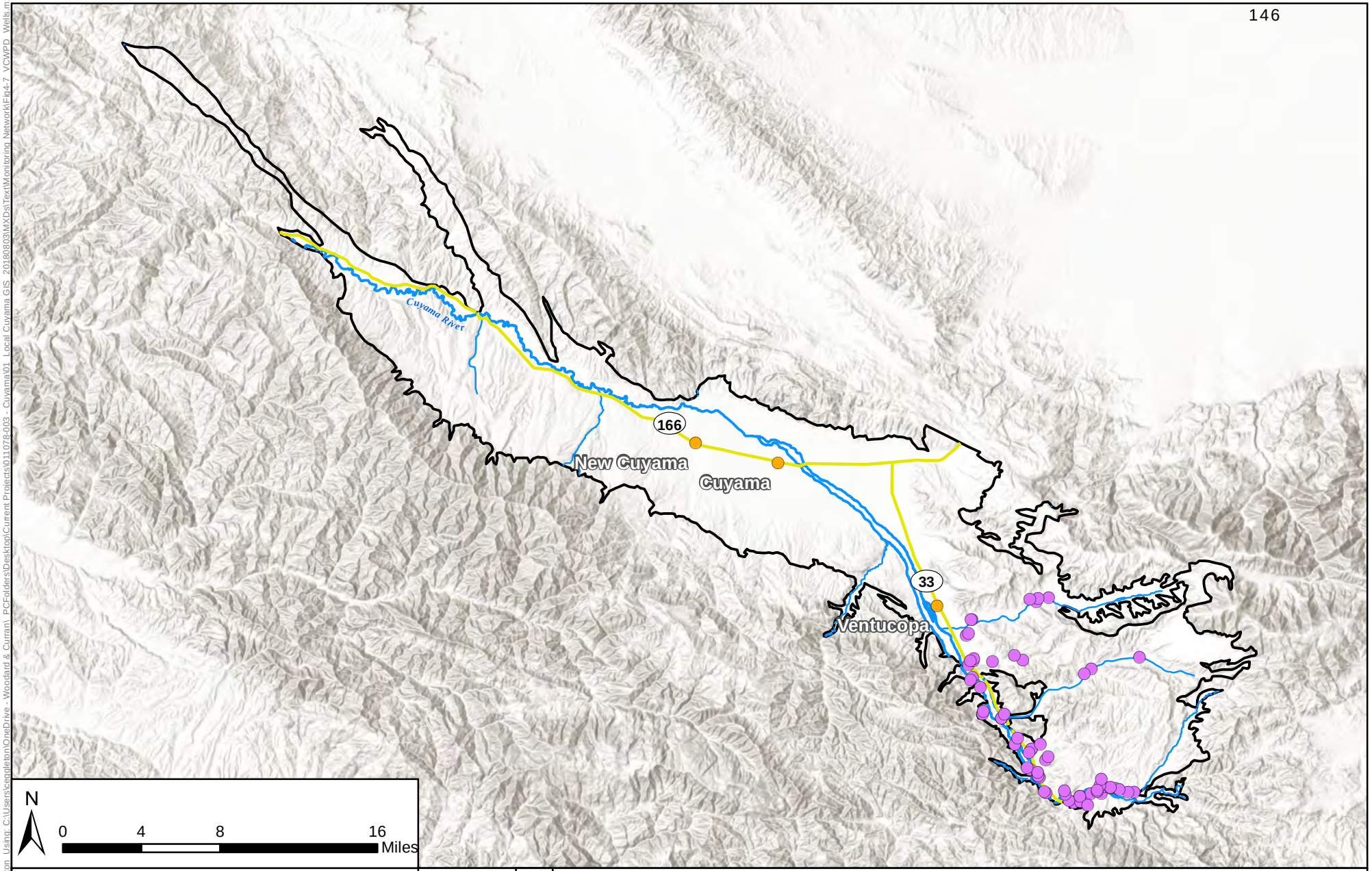
Ventura County Water Protection District

VCWPD manages 22 groundwater elevation monitoring wells in the Basin. A total of 20 wells are incorporated in the DWR CASGEM Program dataset.

The majority of wells managed by VCWPD are discontinued, and no longer measure groundwater elevations. Of the 22 wells, five have measured elevation data during the last decade. Summary statistics about these wells are listed below.

- Number of VCWPD-monitored wells: 22
- Earliest measurement year: 1971
- Longest period of record: 46 years
- Median period of record: 5.8 years
- Median number of records for a single well: 21.5

The wells included in the VCWPD dataset are in the southeastern portion of the Basin that intersects with Ventura County. The wells are primarily found near the Cuyama River close to agricultural land. Figure 4-7 shows well locations.



N

0 4 8 16 Miles

Figure 4-7: Cuyama GW Basin Wells with Monitoring Data Provided by VCWPD

Cuyama Basin Groundwater Sustainability Agency

Cuyama Valley Groundwater Basin Groundwater Sustainability Plan

April 2019

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Legend

- Cuyama Basin
- Ventura County Watershed Protection District
- Towns
- Highways
- Cuyama River
- Streams

Cuyama Community Services District

The Cuyama Community Services District (CCSD) performs monitoring on its two production wells, one of which has been retired. The CCSD wells are just south of the CCSD. Data for these wells are included in the SBCWA dataset, and in the DWR and USGS datasets. Summary statistics about these wells are listed below. Figure 4-8 shows the location of these wells.

- Number of CCSD-monitored wells: 2
- Earliest measurement year: 1981
- Longest period of record: 37 years
- Median period of record: 26.5 years
- Median number of records for a single well: 79

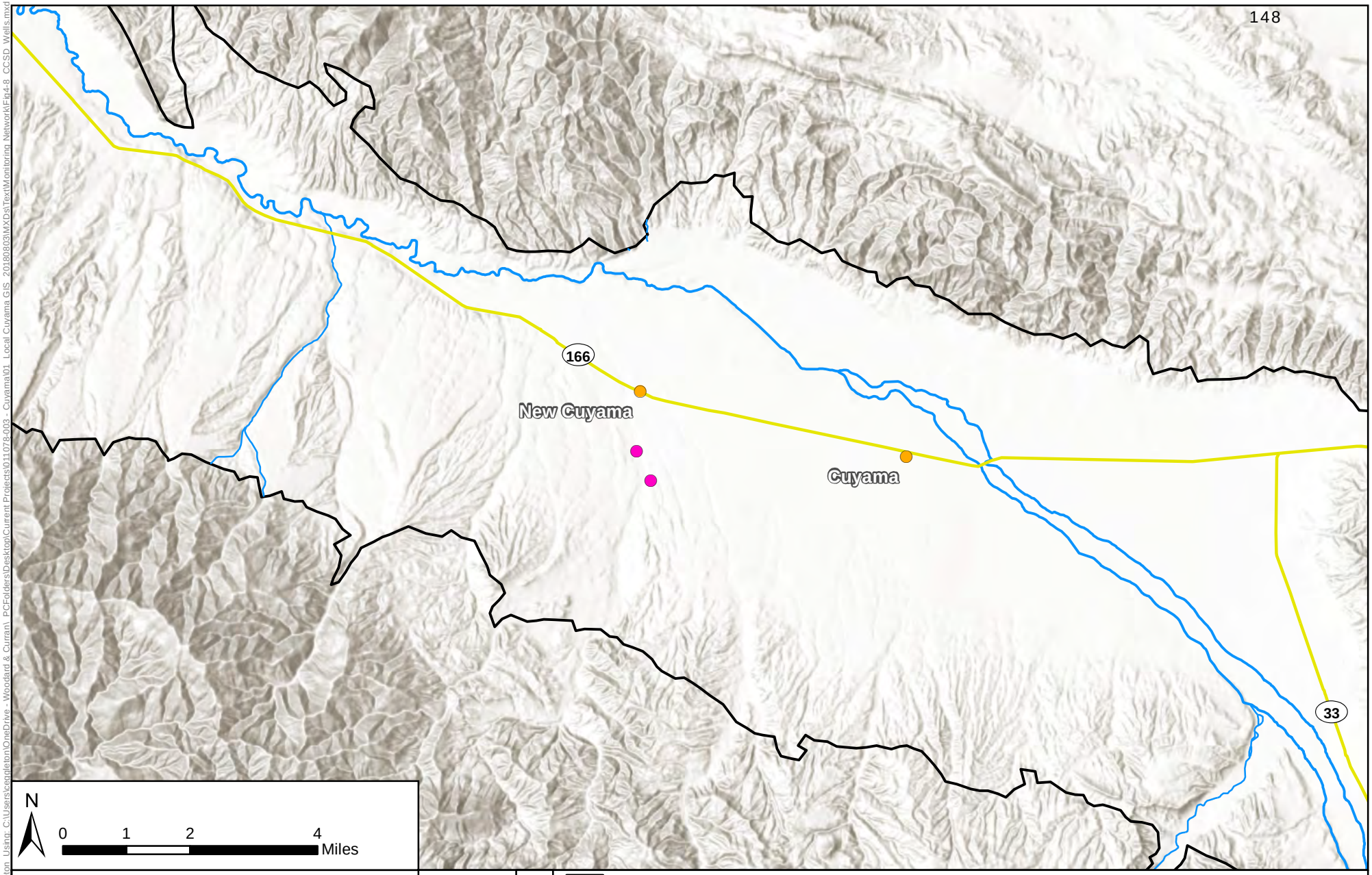

Figure 4-8: Cuyama GW Basin Wells with Data Provided by CCSD

Cuyama Basin Groundwater Sustainability Agency

Cuyama Valley Groundwater Basin Groundwater Sustainability Plan

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Private Landowners

Private landowners in the Basin own and operate large numbers of wells, primarily for irrigation and domestic use. Many wells owned by private landowners are included in the databases described above. In addition, and at the request of CBGSA, these landowners have provided additional monitoring data about 99 private wells. Summary statistics about these wells are listed below.

- Number of private landowner wells with monitoring data: 99
- Earliest measurement date year: 1975
- Longest period of record: 42 years
- Median period of record: 15 years
- Median number of records for a single well: 16

The private landowner wells are distributed throughout the Basin~~.~~. The majority of wells are located in the central portion of the Basin near the Cuyama River and SR 166. There is an additional cluster of wells toward the western portion of the Basin running along the Cuyama River. ~~Figure 4-9~~Figure 4-9 shows private landowner wells.

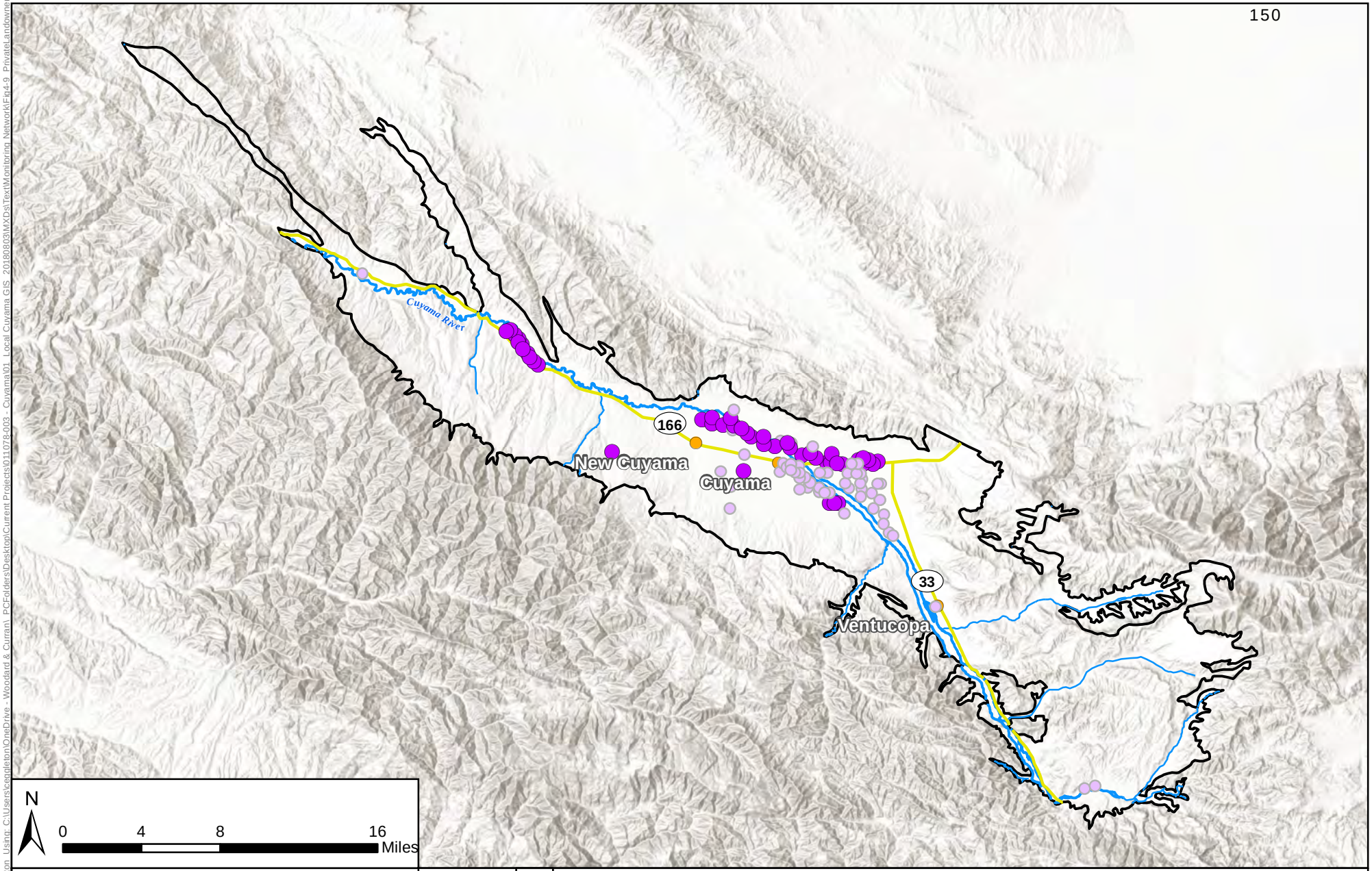

Figure 4-9: Cuyama GW Basin Wells with Monitoring Data Provided by Private Landowners

Cuyama Basin Groundwater Sustainability Agency

Cuyama Valley Groundwater Basin Groundwater Sustainability Plan

April 2019

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Legend

- Cuyama Basin
- Towns
- Highways
- Cuyama River
- Streams
- Private Landowner Reported Wells Last Measured in 2017-2018
- Private Landowner Reported Wells Last Measured 2016 and Earlier

4.3.2 Overlapping and Duplicate Data

Many of the data sources used to compile and create the Cuyama Basin database contain duplicate entries for wells, metadata, groundwater level measurements, and groundwater quality measurements. Much of the well information managed by counties in the Basin is also provided and incorporated into the DWR dataset. Many of the USGS wells and DWR wells overlap between datasets.

To avoid duplicate entries when compiling the Cuyama Basin database, wells were organized by their State Well Number, Master Site Code, USGS identification number, local name, and name. Analysts identified duplicates and removed or combined entries as necessary. Each unique well was then assigned an OPTI ID which was used as the primary identification number for all other processes and mapping exercises. Additional information about the management of well data is provided in Chapter 6.

OPTI IDs were used to identify Basin wells in the database because not all data sources use similar identification methods, as shown in Table 4-1 below.

Table 4-1: Well Identification Matrix

Data Maintaining Entity	State Well Number	CASGEM ID	USGS ID	Master Site Code	Local Name	Name
DWR	✓	✓		✓		
USGS	✓		✓		✓	
SLOCFC&WCD	✓					
SBCWA	✓		✓		✓	
VCWPD	✓					
Private Landowners					✓	✓

✓ = All wells had this information, ✓ = Some wells had the information, ✓ = Few wells had the information

4.3.3 Groundwater Quality Monitoring (Combined Existing Programs)

This section discusses existing groundwater quality monitoring programs in the Cuyama Basin.

National Water Quality Monitoring Council (NWQMC)/USGS/ Irrigated Land Regulatory Program (ILRP)

The NWQMC was created in 1997 to provide a collaborative, comparable, and cost-effective approach for monitoring and assessing the United States' water quality. Several organizations contribute to the

database, including the Advisory Committee on Water Information, the United States Department of Agriculture's (USDA's) Agricultural Research Service, the United States Environmental Protection Agency (EPA), and USGS (NWQMC, 2018).

A single online portal provides access to data from the contributing agencies. Data are included from the USGS NWIS, the EPA Storage ~~andand~~and Retrieval Data Warehouse, and the USDA's Agricultural Research Service Program, Sustaining The Earth's Watersheds – Agricultural Research Database System. Data ~~incorporate~~incorporates hundreds of different water quality constituents from the different contributing agencies. Initial water quality data for the Cuyama Basin was downloaded through NWQMC~~,~~ and included data about USGS monitoring sites and ILRP monitoring sites. ILRP was initiated in 2003 to prevent agricultural runoff from impairing surface waters, and in 2012, groundwater regulations were added to the program. ILRP water quality measurements are sampled from surface locations (DWR ILRP, 2018). There are currently five ILRP measurement sites in the Cuyama Basin. ILRP uses the California Environmental Data Exchange Network (CEDEN) to manage associate program data. CEDEN data are then integrated with USGS data, and then included in the NWQMC database (DWR CEDEN, 2018).

The NWQMC database provides TDS data about 180 water quality monitoring sites. This database also provides data for a variety of constituents not included here.

Summary statistics for the NWQMC, USGS, and ILRP monitoring sites is shown below.

- Number of measurement sites: 180
- Earliest measurement date year: 1940
- Longest period of record: 53 years
- Median period of record: less than 1 year
- Median number of records for a single site: 2

The majority of the water quality monitoring sites included in the NWQMC database are located in the central portion of the Basin and along the Cuyama River as it follows SR 33. Figure 4-10 shows these monitoring sites.

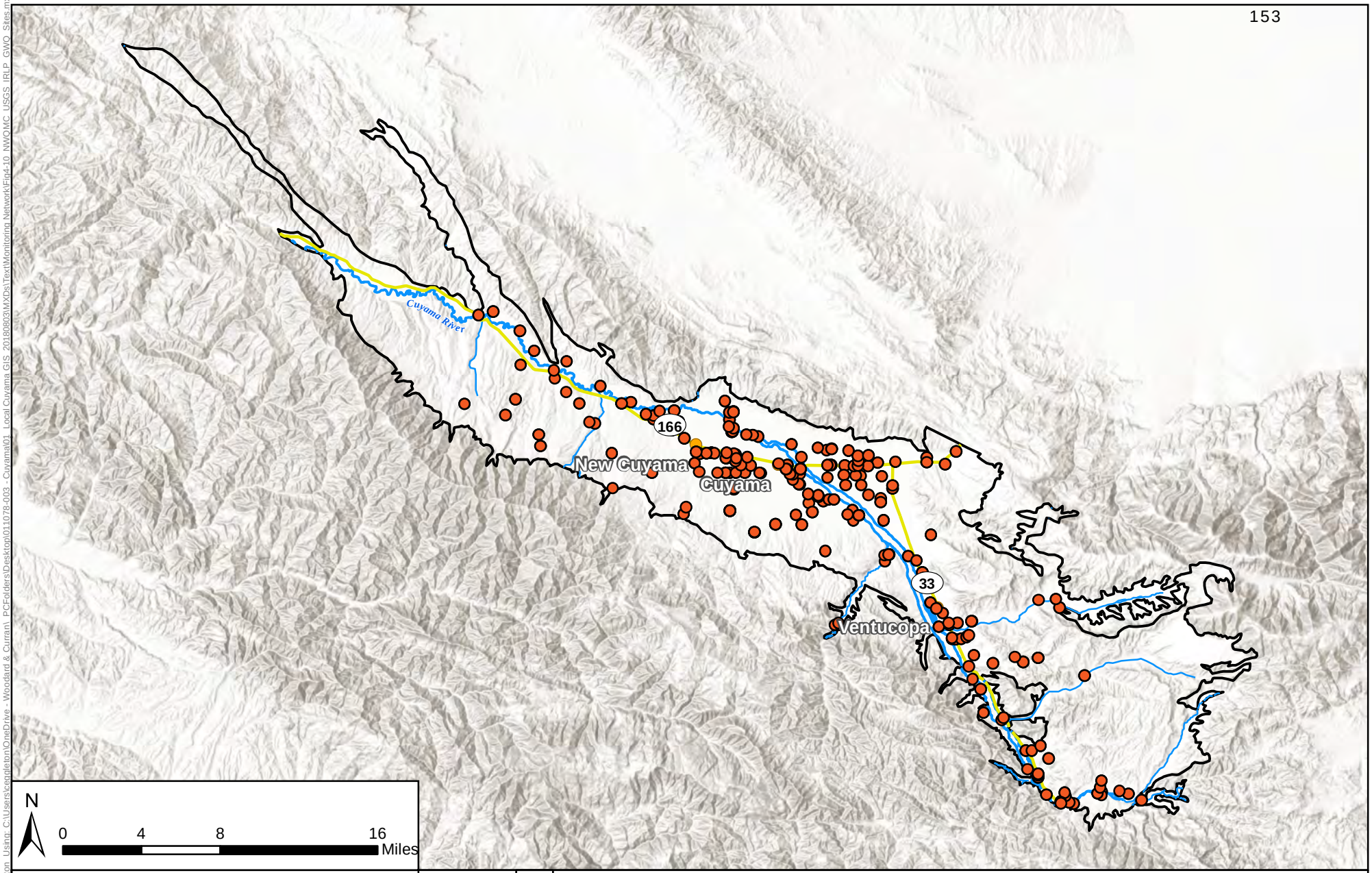

Figure 4-10: Cuyama GW Basin USGS/NWQMC/ IRLP Groundwater Quality Monitoring Sites

Cuyama Basin Groundwater Sustainability Agency

Cuyama Valley Groundwater Basin Groundwater Sustainability Plan

April 2019

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Legend

- Cuyama Basin
- USGS/NWQMC/IRLP Groundwater Quality Sites
- Towns
- Highways
- Cuyama River
- Streams

Groundwater Ambient Monitoring and Assessment (GAMA) Program/DWR

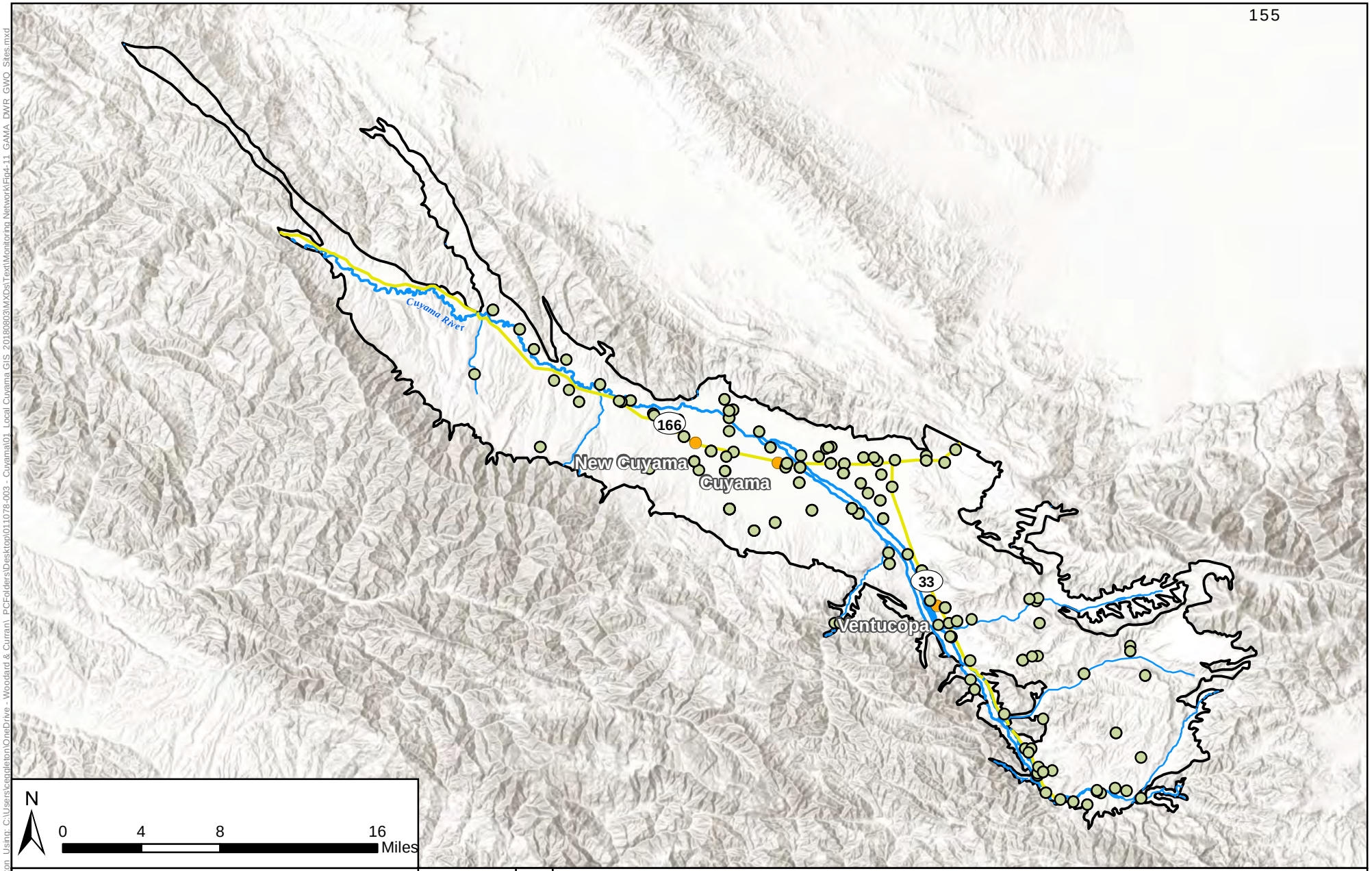
The GAMA Program is the State of California's groundwater quality monitoring program created by the State Water Resources Control Board in 2000. Assembly Bill 599 later expanded the Groundwater Quality Monitoring Act of 2001 (DWR GAMA, 2018). The purpose of GAMA is to improve statewide comprehensive groundwater monitoring and increase the availability of information to the general public about groundwater quality and contamination information. Additionally, the GAMA Program aims to establish groundwater quality on basin-wide scales, continue with groundwater quality sampling and studies, and centralize the information and data for the public and decision makers to enhance groundwater resource protection.

DWR also publishes statewide water quality data via the California Natural Resources Agency. Access to DWR and GAMA information and data are accessible through separate online portals.

There are 213 GAMA and DWR groundwater quality monitoring sites in the Basin. Summary statistics for these sites is shown below.

- Number of measurement sites: 213
- Earliest measurement date year: 1942
- Longest period of record: 41 years
- Median period of record: less than 1 year
- Median number of records for a single site: 2

The GAMA/DWR groundwater quality monitoring locations are spread throughout the Basin, loosely following the Cuyama River. There are 60 water quality monitoring sites per 100 square miles in the Basin. Figure 4-11 shows these locations.



N

0 4 8 16 Miles

Figure 4-11: Cuyama GW Basin GAMA/DWR Groundwater Quality Monitoring Sites

Cuyama Basin Groundwater Sustainability Agency

Cuyama Valley Groundwater Basin Groundwater Sustainability Plan

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Legend

- Cuyama Basin
- GAMA/DWR Groundwater Quality Sites
- Towns
- Highways
- Cuyama River
- Streams

Cuyama Community Services District

CCSD currently operates one production well for residential distribution in the Basin. Although some data for this well are included in the NWQMC dataset, annual Consumer Confidence Reports from 2011 to 2017 were processed for additional water quality data measurements. Summary statistics for the CCSD well are listed below and the well location is shown in Figure 4-12.

- Number of measurement sites: 1
- Earliest measurement date: 2008
- Period of record: 10 years
- Number of records: 21

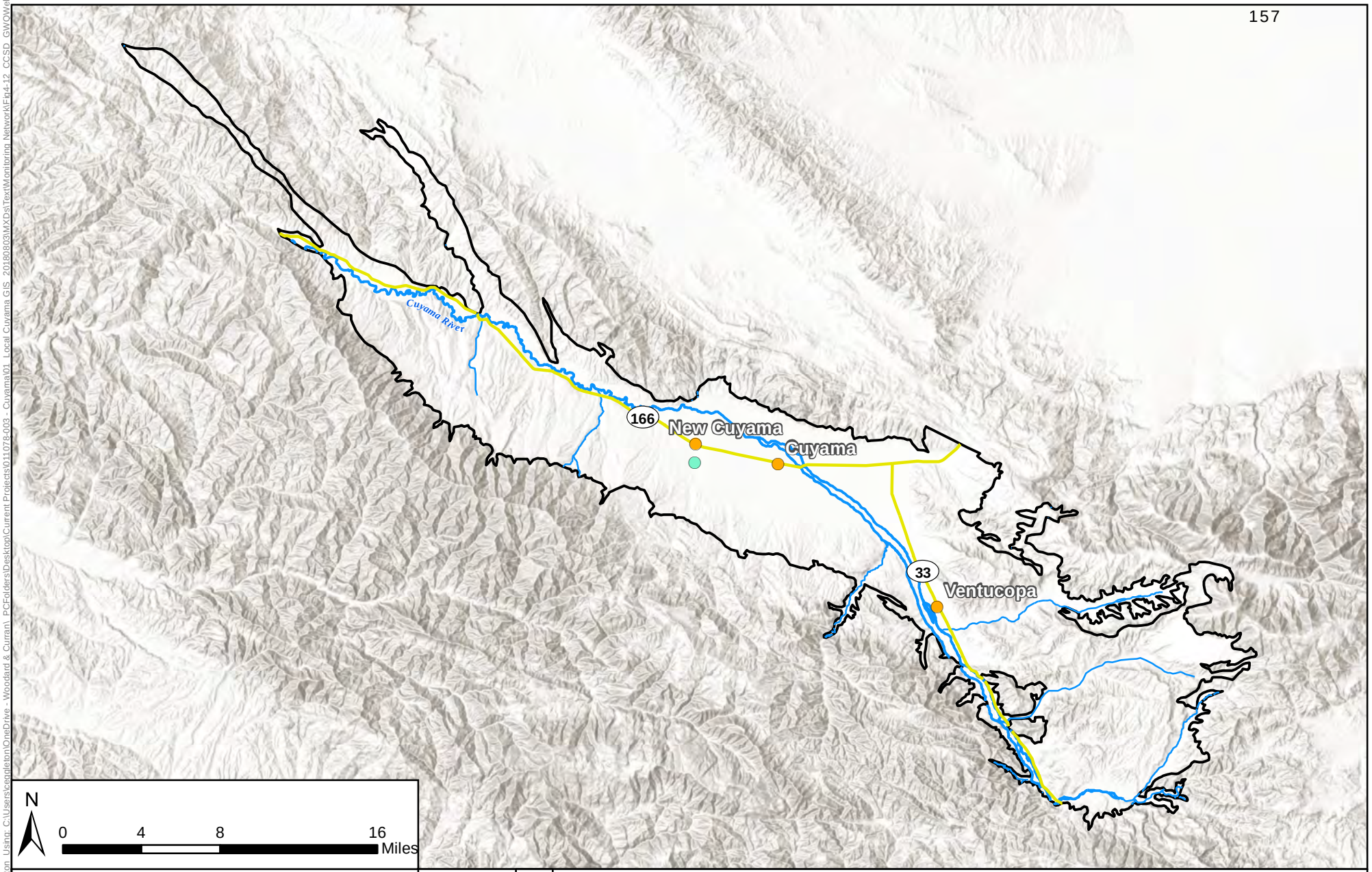

Figure 4-12: Cuyama GW Basin
CCSD Groundwater Quality Well

Cuyama Basin Groundwater Sustainability Agency

Cuyama Valley Groundwater Basin Groundwater Sustainability Plan

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Legend

- Cuyama Basin
- Towns
- Highways
- Cuyama River
- Streams
- Cumaya Community Services District Water Quality Monitoring Well

Ventura County Water Protection District

VCWPD has 51 groundwater wells that are used for groundwater quality monitoring in the Basin. All of the wells are incorporated into the DWR, GeoTracker, or USGS datasets. Sampling data include numerous water quality constituents; however, this GSP only addresses TDS. Summary statistics for the wells are listed below, and locations of these wells are included in Figure 4-13.

Number of measurement sites: 51

Earliest measurement date: 1957

Longest period of record: 45

Median period of record: 7

Median number of records for a single site: 5

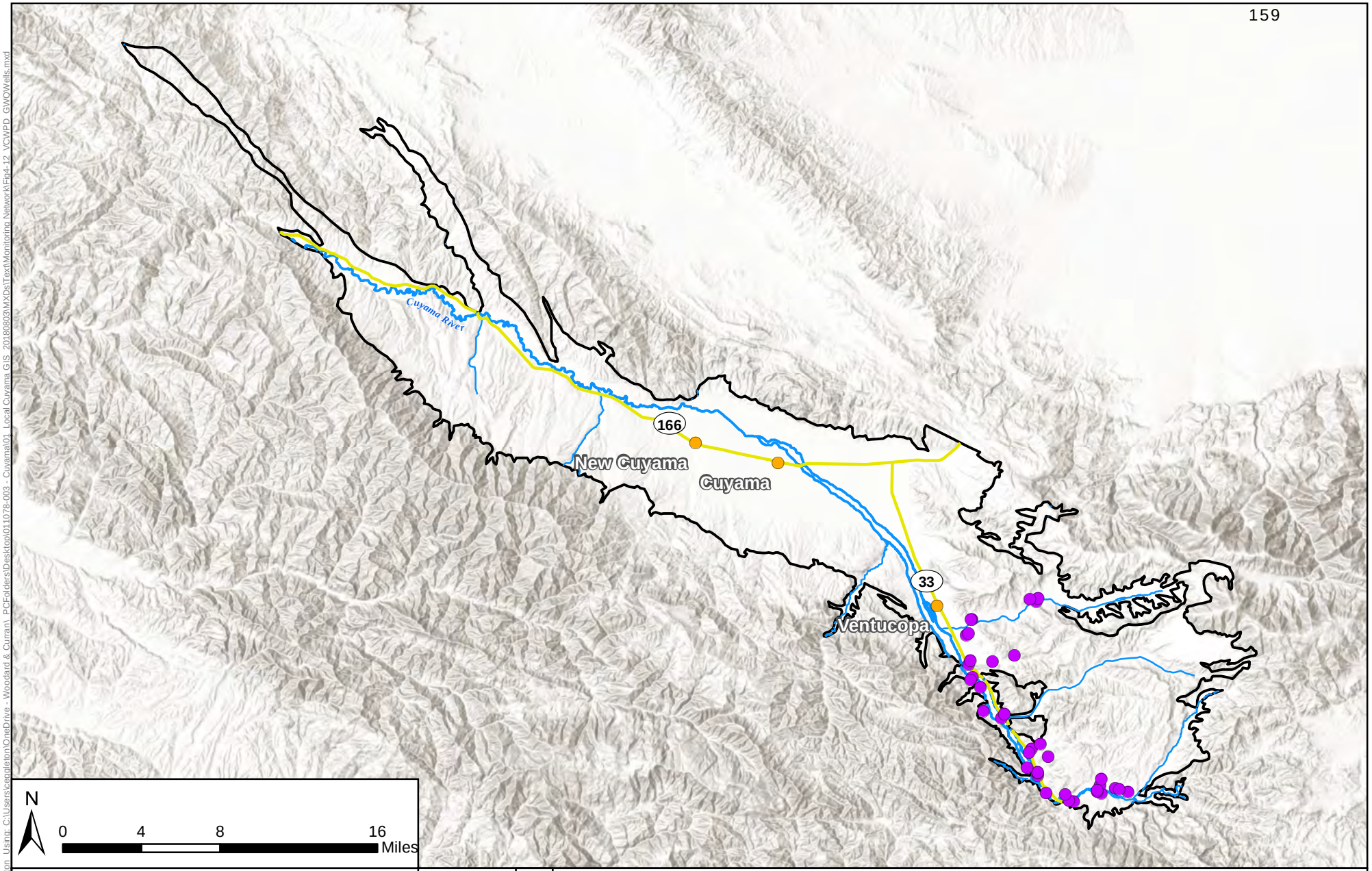

Figure 4-13: Cuyama GW Basin VCWPD Groundwater Quality Wells

Cuyama Basin Groundwater Sustainability Agency

Cuyama Valley Groundwater Basin Groundwater Sustainability Plan

April 2019

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Legend

- Cuyama Basin
- Towns
- Highways
- Cuyama River
- Streams
- Ventura County Watershed Protection District Groundwater Quality Monitoring Wells

Private Landowners

Private landowners in the Basin conducted groundwater quality testing, which has been incorporated into this document and associated analysis. In 2015, 11 wells measured for TDS. Summary statistics about these wells are listed below, and locations are shown in Figure 4-14.

- Number of measurement sites: 11
- Earliest measurement date: January 12, 2015
- Longest period of record: Not applicable
- Median period of record: Not applicable
- Median number of records for a single site: 1

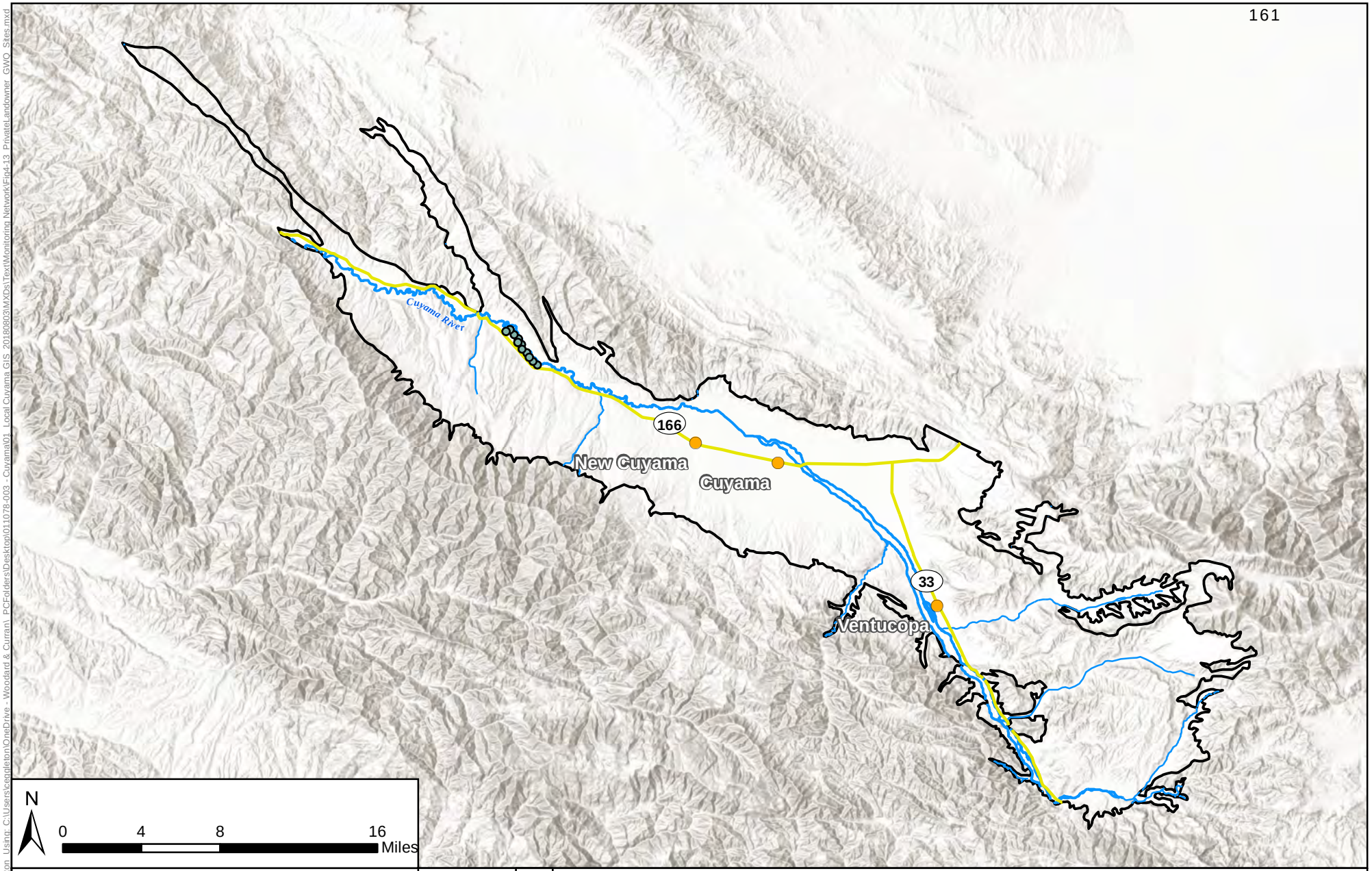

Figure 4-14: Cuyama GW Basin Private Land-owner Groundwater Quality Monitoring Sites

Cuyama Basin Groundwater Sustainability Agency

Cuyama Valley Groundwater Basin Groundwater Sustainability Plan

April 2019

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Legend

- Cuyama Basin
- Private Landowner Groundwater Quality Monitoring Sites
- Towns
- Highways
- Cuyama River
- Streams

4.3.4 Subsidence Monitoring

Subsidence is the sinking or downward settling of the earth's surface~~,~~ and is often the result of over-extraction of subsurface water. Subsidence can be directly measured using a few different methods, such as light detection and ranging (LiDAR), interferometric synthetic aperture radar (InSAR), continuous geographic positioning system (CGPS), extensometers, and spirit leveling. For more information, see Appendix B in Chapter 2, which contains further information about these methods and the physics behind land subsidence. The subsidence monitoring network described below assumes the use of extensometers to monitor subsidence in the Basin. However, the CBGSA should evaluate other methods, including LiDAR and InSAR during the implementation phase to identify an optimal approach.

The Basin hosts two CGPS stations, and three others are just outside the Basin's boundary~~, as shown in Figure 2-51.~~. CGPS stations measure surface movement in all three axis directions (i.e., up, down, east, west, north, and south). CGPS stations are in the center of the Cuyama Valley, and measure subsidence, while ~~other~~others are placed on ridges around the valley to also measure tectonic movement.

4.3.5 Surface Water Monitoring

Surface water monitoring in the Basin is conducted through stream and river gages placed along the Cuyama River or one of its tributaries. USGS manages most flow gages in California~~,~~ and currently operates one active stream gage along Santa Barbara Creek. There is ~~an additional~~a gage (1136800) along the Cuyama River downstream of the Basin before Twitchell Reservoir; however, this gage also receives water from non-Cuyama Basin watershed areas. In 2021, the CBGSA worked with USGS to reactivate a gage on the Cuyama River near Ventucopa (11136500), which had previously been active from 1945-1958 and from 2009-2014, and to install a new gage on the Cuyama River near New Cuyama (11136710). Data for surface flow gages are obtained through the NWIS Mapping portal (USGS NWIS, ~~2017~~2023). Existing and discontinued gages are shown in Figure 4-15.

USGS ~~has~~had previously operated ~~three~~two additional gages in the Basin; however, ~~two of~~ those gages were discontinued in the 1970s. ~~Gage 1136500 operated from 1945 to 1958 and was brought back into service from 2009 to 2014.~~

Figure 4-15: Rivers, Streams, and Surface Flow Gages

Cuyama Valley Groundwater Basin

Legend

- Cuyama Watershed
  - Contributes to Cuyama GW Basin
  - Does not Contribute to Cuyama GW Basin
- Active Flow Gages
- New Active Flow Gages
- Inactive
- Highway
- Local Road
- Town
- Cuyama River
- Creek
- Cuyama Basin

N

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0 1.75 3.5 7 Miles

Map Created: December 2023

4.4 Monitoring Rationales

This section discusses the reasoning behind monitoring network selection. Monitoring networks in the CBGSA area were developed to ensure they could detect changes in Basin conditions so CBGSA could manage the Basin and ensure sustainability goals were met. Additionally, monitoring can help assure that no undesirable results are present after 20 years of sustainable management.

The monitoring networks were selected specifically to detect short-term, seasonal, and long-term trends in groundwater levels and storage. The monitoring networks were also selected to include information about temporal frequency and spatial density so the CBGSA can evaluate information about groundwater conditions necessary to evaluate project effectiveness and the effectiveness of any management actions undertaken by the CBGSA.

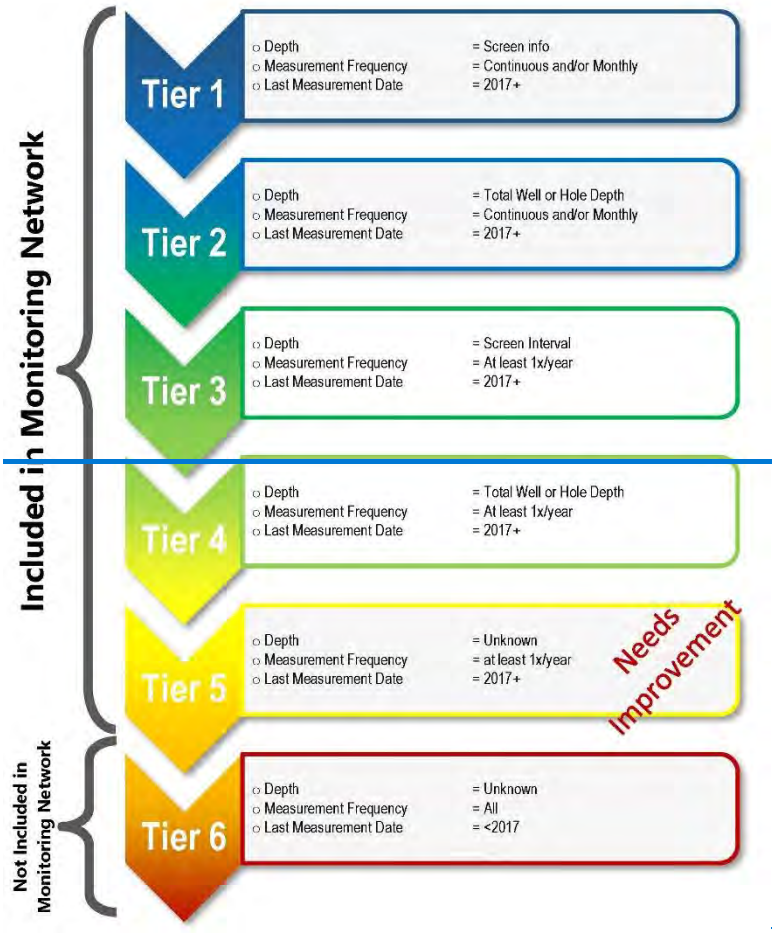
Chapter 8 describes how each monitoring network ~~will be~~is being developed and implemented as individual projects by the GSA ~~will undertake~~ as part of GSP implementation. The schedule and costs associated with developing and implementing each monitoring network are discussed in ~~the~~ Chapter 8.

4.5 Groundwater Level Monitoring Network

Groundwater level monitoring is conducted through a groundwater well monitoring network. This section will provide information about how the level monitoring network was developed for the 2020 GSP and subsequently revised for the 2025 GSP Update, the criteria for selecting representative wells, monitoring frequency, spatial density, summary protocols, and identification and strategies to fill data gaps.

4.5.1 Monitoring Wells Selected for Monitoring Network

~~A set of~~ The 2020 GSP utilized a tiering network to create the groundwater level monitoring well network. These well-tiering criteria were created to rank existing groundwater level measuring sites in the Basin, ~~and~~which were arranged into six different tiers~~, as shown in Figure 4-16.~~



that were defined based on

~~**Figure 4-16: Cuyama Well Tiering Criteria**~~

~~Tier 1 in the figure above shows wells with~~ the ~~most amount~~availability of metadata and consistent water elevation data that ~~are still operating~~were operational and functional. ~~As~~The tiering ~~levels increase,~~allowed for different thresholds and requirements around well metadata and frequency of monitoring ~~decrease; however, all~~. All wells ~~are still~~that were evaluated were active and functioning. ~~Tier 5 captures the remaining active wells, but the metadata and/or frequency of monitoring would benefit from improvement.~~

~~Tier 6 includes all other wells that are no longer operational, which are categorized as those who do not have recorded data from January 1, 2017 to August 1, 2018.~~ This ~~approximate two-year cut-off was determined as a reasonable amount of time for~~ tiering protocol resulted in a monitoring ~~agency or~~

~~organization to obtain, log, and report well information and measurements, and as an indicator of whether a well was currently monitored or not.~~

Table 4-2 shows the number of network of 101 wells from the monitoring wells selected from each existing monitoring data maintaining entity. Utilizationentities described earlier in this chapter. Utilizing these each wells for monitoring purposes will requirerequires consent agreements with each well owner, which will be sought during GSP implementation.

Table 4-2: Number of Wells Selected for Monitoring Network

Monitoring Data Maintaining Entity	Number of Wells Selected for Monitoring Network
CASGEM	28
USGS	43
SBCWA	36
SLOCFC&WCD	2
VCWPD	5
CCSD	1
Private Landowner	48
Total	**101**

Note: Total does not equal sum of rows due to duplicate entries in multiple databases

Figure 4-17 shows..Since 2020, the CBGSA has worked with local landowners and monitoring entities to reach consent agreements to sample the wells that were included in the Monitoring Network wells by their tier levelmonitoring network. The monitoring network from the 2020 GSP is shown in Figure 4-16.

Since the GSP adoption in 2020, the CBGSA has continued the process of refining and improving the groundwater monitoring network within the Basin. Monitoring has been ongoing in the Basin since August 2020, and the information gathered is continuously evaluated. Based on the information gathered to date, the CBGSA board determined at its January 2021 Board meeting to reduce the monitoring network to eliminate spatially redundant wells from the network. This revised the monitoring network to 62 wells at 50 locations, including six multi-completion wells. These included nine new wells at three multi-completion well locations installed as part of DWR's Technical Support Services (TSS) program. The refinement of the monitoring network decreased the spatial density to 16.4 wells per 100 square miles, still greater than the recommended threshold of 0.2-10 wells per 100 square miles. This monitoring network refinement is documented in the Annual Report for the 2019-2020 Water Year (CBGSA 2021).

To refine the monitoring network for the 2025 GSP Update, the CBGSA completed a comprehensive review of the groundwater levels network and the monitoring program for all representative and non-

representative wells. The review included identification of field sampling issues at each well. These included a lack of landowner agreement for monitoring, access issues due to issues at the well site, and access issues due to winter flooding. Other factors were also considered, such as if the well is projected to go dry between now and 2030, whether the well is an active pumping well and the magnitude of pumping, and whether a nearby or similar well shows similar groundwater level changes and therefore makes the well redundant. Figure 4-17 shows the results of this analysis and the sampling analysis for each well. The review concluded that all issues related to onsite access and weather at the wellsite were temporary and did not preclude the well from continued inclusion in the monitoring network. In addition, no wells were identified for removal due to redundancy. However, there were three wells (98, 121, and 124) where the GSA was unable to obtain an access agreement with the landowner; therefore, these three wells have been removed from the monitoring network. Furthermore, monitoring wells that have been identified as active pumping wells are recommended for long-term replacement; this is discussed in the data gaps section below.

In addition, the CBGSA has worked to address the spatial gaps identified in the 2020 GSP. The CBGSA is using funding available from a SGMA implementation grant agreement with DWR to install three piezometers in the vicinity of groundwater dependent ecosystems (GDEs) as well as multi-completion wells at seven other locations within the Basin. The multi-completion wells are expected to have 2 to 3 completions at each location. Two existing wells have also been offered to the CBGSA by landowners for monitoring and have been added to the groundwater levels monitoring network. These additional wells are allowing the CBGSA to fill many of the data gaps identified in the 2020 GSP.

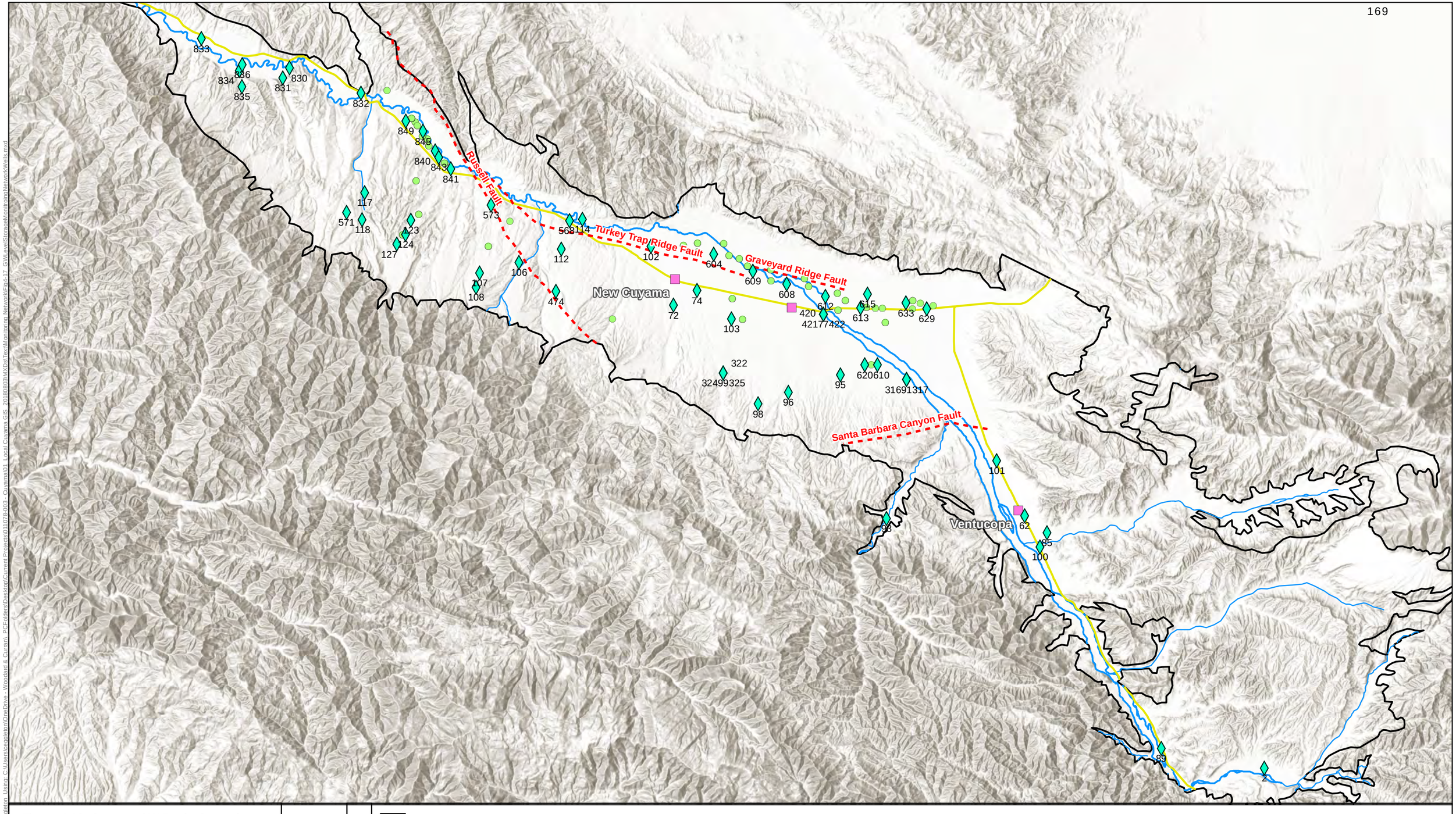


Figure 4-16: Cuyama GW Basin Groundwater Level Monitoring Network Wells (2020)

Cuyama Basin Groundwater Sustainability Agency

Cuyama Valley Groundwater Basin Groundwater Sustainability Plan

April 2019

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Legend

- Cuyama Basin
- Towns
- Faults
- Highways
- Cuyama River
- Streams

Monitoring Network Wells

- Representative Wells
- Monitoring Network Wells

N

0 1.75 3.5 7 Miles

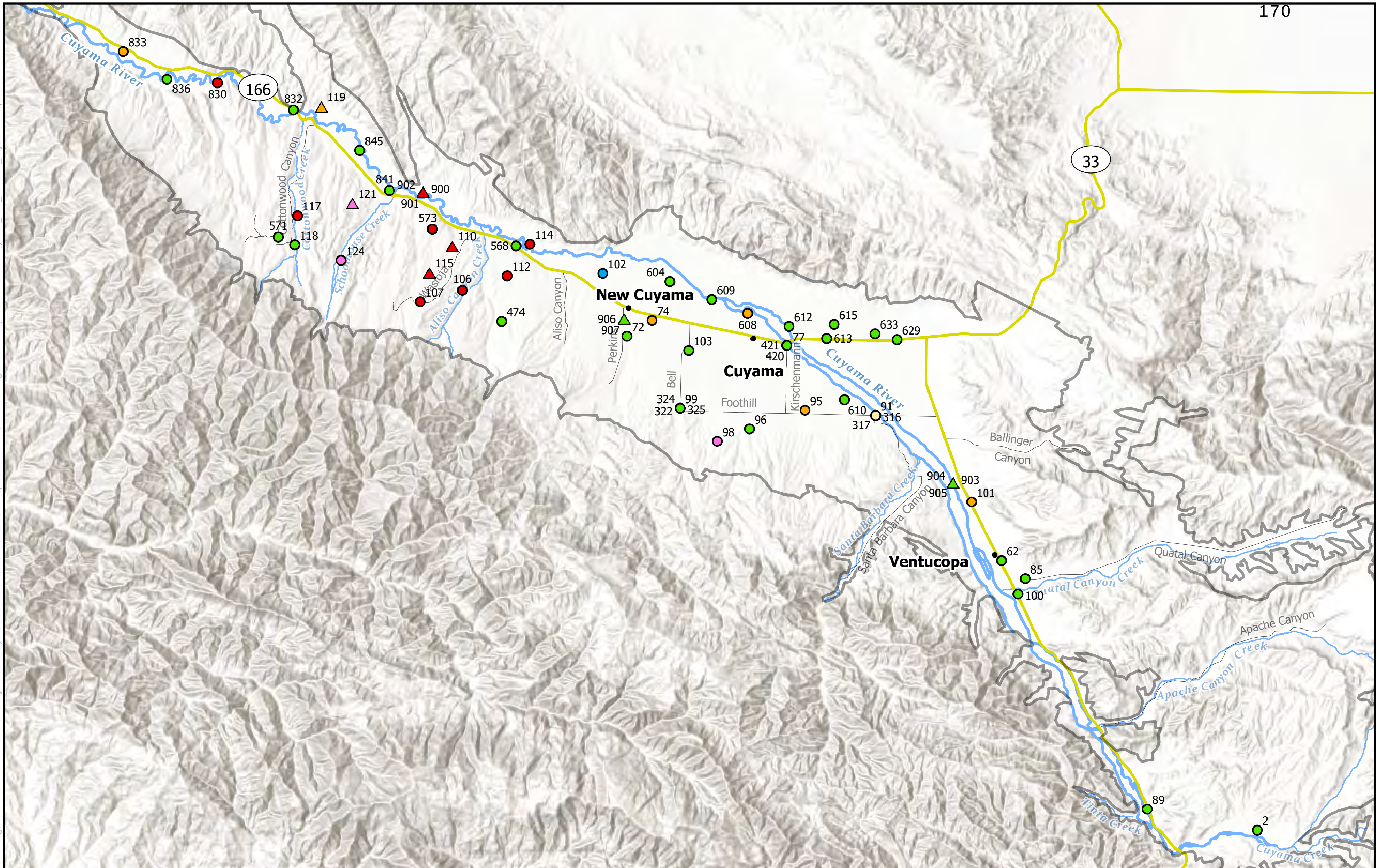

Figure 4-17: Groundwater Level Monitoring Network Review

Cuyama Valley Groundwater Basin

Legend

Representative
- No Issues
- Onsite Issues (Access)
- Onsite Issues (Flooding)
- Tranducer Issues
- Well Access Agreement
- At Risk of Going Dry

Non-Representative
- No Issues
- Onsite Issues (Access)
- Onsite Issues (Flooding)
- Well Access Agreement

- Highway
- Local Road
- Town
- Cuyama River
- Creek
- Cuyama Basin

N

0 1.25 2.5 5 Miles

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CUYAMA BASIN GROUNDWATER SUSTAINABILITY AGENCY

Map Created: December 2023

Figure Exported: 12/27/2023 By: DHunt Using: \\woodardcurran.net\shared\Projects\CA Cuyama Basin GSA\0011078.01 GSP\wip\Z. GIS\2. Maps\Monitoring Network Adjustments 2023\Cuyama_well_network_adjustment.aprx

Third Party GIS Disclaimer: This map is for reference and graphical purposes only and should not be relied upon by third parties for any legal decisions. Any reliance upon the map or data contained herein shall be at the users' sole risk. **Data sources: CA DWR, Esri, USGS**

4.5.2 Monitoring Frequency

A successful monitoring frequency and schedule should allow the monitoring network to adequately interpret fluctuations over time ~~of~~in the groundwater system based on shorter-term and longer-term trends and conditions. These changes may be the result of storm events, droughts, or other climatic variations, seasons, and anthropogenic activities such as pumping.

Monitoring frequency must, at a minimum, occur within the same designated time-period for all wells to ensure that measurements represent the same condition for the aquifer.

The *Monitoring Networks and Identification of Data Gaps Best Management Practices* (BMPs) published by DWR provides guidance for monitoring frequency based on the discussion presented in the *National Framework for Ground-water Monitoring in the United States* (Advisory Committee on Water Information, 2013). This analysis and discussion provide guidance on monitoring frequency based on aquifer properties and degree of use, as shown in Table 4~~-~~-2.

The BMP guidance recommends that initial characterization of monitoring locations use frequent measurements to establish the dynamic range at each monitoring site and to identify external stresses affecting groundwater levels. An understanding of these conditions based on professional judgement should be reached before normal monitoring frequencies are followed.

Table 4~~-3:~~-2: Monitoring ~~frequency~~Frequency Based on Aquifer Properties and Degree of Use

Aquifer Type	Nearby Long-Term Aquifer Withdrawals		
	Small Withdrawals	Moderate Withdrawals	Large Withdrawals
Unconfined Aquifer			
Low recharge (<5 inches/year)	Quarterly	Quarterly	Monthly
High recharge (>5 inches/year)	Quarterly	Monthly	Daily
Confined Aquifer			
Low hydraulic conductivity (<200 feet/day)	Quarterly	Quarterly	Monthly
High hydraulic conductivity (>200 feet/day)	Quarterly	Monthly	Daily

The Basin is an unconfined aquifer with large withdrawals, with a low recharge rate of less than 5 inches per year. According to the data in Table 4~~-, which is~~2, provided by DWR, the Basin's groundwater monitoring frequency should be monthly. ~~This~~The 2020 GSP ~~recommends~~ recommended monthly monitoring of the groundwater level network ~~monthly for the first three years of GSP~~

~~implementation~~initially and consideration of reducing monitoring frequency to quarterly measurements after ~~that. Ideally,~~allowing time for the monitoring ~~network would be monitored simultaneously~~program to ~~gain a snapshot of groundwater conditions. As this is not practical currently,~~be evaluated. Monthly monitoring ~~of the level network should be~~was conducted for two years from August 2020 through July 2022, with a quarterly monitoring schedule starting in October 2022. Each quarterly sampling event for groundwater levels is routinely completed within ~~one week for each measurement period~~2-3 days.

4.5.3 Spatial Density

Spatial density of the monitoring network was considered both for the selection of the entire monitoring network, and for the selection of representative wells (Section ~~4.5.5)~~4.5.4). The goal of the groundwater level monitoring network is to provide adequate coverage of the entire Basin aquifer. This includes the ability to monitor and identify groundwater changes across the Basin over time. Consideration of the spatial location of monitoring wells should include proximity to other monitoring wells and ensure adequate coverage near other prominent features, such as faults or production wells. Monitoring wells in close proximity to active pumping wells could be influenced by groundwater withdrawals, thus skewing static level monitoring.

The *Monitoring Networks and Identification of Data Gaps BMP* published by DWR provides different sources and condition dependent densities to guide monitoring network implementation (Table 4~~-~~).~~3).~~ This information was adapted from the *CASGEM Groundwater Elevation Monitoring Guidelines* (DWR, 2010). While these estimates provide guidance to monitoring well site spatial densities, monitoring points should primarily be influenced by local geology, groundwater use, and GSP-defined undesirable ~~rates~~results. Professional judgment is essential when determining final locations.

Table 4~~-4:-~~3: Monitoring Well Density Considerations

Reference	Monitoring Well Density (wells per 100 square miles)
Heath (1976)	0.2-10
Sophocleous (1983)	6.3
Hopkins (1994)	
Basins pumping more than 10,000 acre-feet per year per 100 square miles	4.0
Basins pumping between 1,000 and 10,000 acre-feet per 100 square miles	2.0
Basins pumping between 250 and 1,000 acre-feet per year per 100 square miles	1.0

Basins pumping between 100 and 250 acre-feet per year per 100 square miles	0.7

The Basin has 378 square miles of area. According to Hopkins (1994) well density estimate guidelines, the Basin should have four monitoring wells per 100 square miles. Sophocleous (1983) recommends 6.3 monitoring wells per 100 square miles. According to Heath (1976), the Basin should have between 0.2 and 10 monitoring wells per 100 square miles. Due to geologic and topographic variability in the Basin, the severity of groundwater declines, and hydrogeologic uncertainty in various portions of the Basin, this GSP recommends a density greater than the most conservative estimate of 10 wells per 100 square miles, which is over 38 monitoring wells. The current monitoring network is comprised of 79 wells equating to a well density of 20 wells per 100 square miles. This exceeds the GSP recommended density.

4.5.4 Representative Monitoring

There are two categories of wells identified within the monitoring network as follows:

- **Representative Wells.** These wells will be used to monitor sustainability in the Basin. Minimum thresholds and measurable objectives will also be calculated for these wells.
- ~~**Supplemental Wells.**~~**Non Representative wells.** Other wells are included in the monitoring network to provide redundancy for representative wells, and to maintain a robust network for evaluation as part of five-year GSP updates.

Representative monitoring wells were selected as part of monitoring network development. Representative monitoring wells are wells that represent conditions in the Basin~~,~~ and are in locations that allow monitoring to indicate long-term, regional changes in its vicinity.

Representative groundwater level and groundwater storage sites ~~within each management area~~ were selected by several different criteria. These criteria include the following:

- **Adequate Spatial Distribution –** Representative monitoring does not require the use of all wells that are spatially grouped together in a portion of the Basin. Adequately spaced wells will provide greater Basin coverage with fewer monitoring sites.
- **Robust and Extensive Historical Data –** representative monitoring sites with longer and more robust historical data provide insight into long-term trends that can provide information about groundwater conditions through varying climatic periods such as droughts and wet periods. Historical data may also show changes in groundwater conditions through anthropogenic effects. While some sites chosen may not have extensive historical data, they may still be selected because there are no wells nearby with longer records.

- **Increased Density in Heavily Pumped Areas –** Selection of additional wells in heavily pumped areas such as in the central portion of the Basin and other agriculturally intensive areas will provide additional data where the most groundwater change occurs.
- **Increased Density near Areas of Geologic, Hydrologic, or Topologic Uncertainty** – Having a greater density of representative wells in areas of uncertainty, such as around faults or large elevation gradients may provide insightful information about groundwater dynamics to improve management practices and strategies.
- **Wells with Multiple Depths** – The use of wells with different screen intervals is important for collecting data about groundwater conditions at different elevations in the aquifer. This can be achieved by using wells with different screen depths that are close to one another, or by using multi-completion wells.
- **Consistency with BMPs –** Using published BMPs provided by DWR will ensure consistency across all basins and ensure compliance with established regulations.
- **Adequate Well Construction Information –** Well information such as perforation depths, construction date, and well depth should be considered and encouraged when considering wells to be included.
- **Professional Judgment** – Professional judgment is used to make the final decision about each well, particularly when more than one suitable well exists in an area of interest.
- **Maximum Coverage** – Any monitoring network well that was suitable for use in the representative network was used to maximize spatial and vertical density of monitoring.

4.5.5 Groundwater Level Monitoring Network

~~The~~Figure 4-18 shows the updated groundwater level monitoring network ~~is comprised of 101 of wells in the Basin. A total of 61 of those wells are~~ , including representative ~~wells. Overall well density is 26.7 wells per 100 square miles. Figure 4-18 shows the locations of the groundwater level monitoring network monitoring wells~~ and non-representative wells. Existing wells are labeled with their Opti identification (ID) number. Locations of wells currently being installed with grant funding are labeled on the map either as a GDE well or as a multi-completion monitoring (MW) well.

~~Table 4-5~~Table 4-4 lists the wells in the updated groundwater level monitoring network. Representative wells, which include those with sufficient data and representative trends within the Basin to develop sustainability criteria, are identified with the asterisk (*) next to the OPTI ID and are sorted first. Metadata for the wells are also included. With the removal of the three wells identified above and the addition of the newly installed wells, the revised network includes 79 wells, 47 of which are representative wells. However, the table does not currently include the wells that will be installed with the DWR grant funding as Opti ID numbers have not been assigned for these wells.

~~The proposed monitoring frequency is monthly for~~This network of 79 wells, including the ~~first three years of GSP implementation, with an option~~wells that are planned to ~~reduce~~be drilled, equates to ~~quarterly monitoring if the CBGSA Board decides that is appropriate. This monitoring frequency captures short-term, seasonal, and long-term trends in groundwater levels. A~~a well density of ~~26.7~~20 wells per 100 square miles ~~in the~~. This monitoring network provides a spatial density that adequately covers the primary aquifer in the Basin~~,~~ and is useful for determining flow directions and hydraulic gradients, as well as changes in storage calculations for use in future water budgeting efforts in portions of the Basin with significant land use.

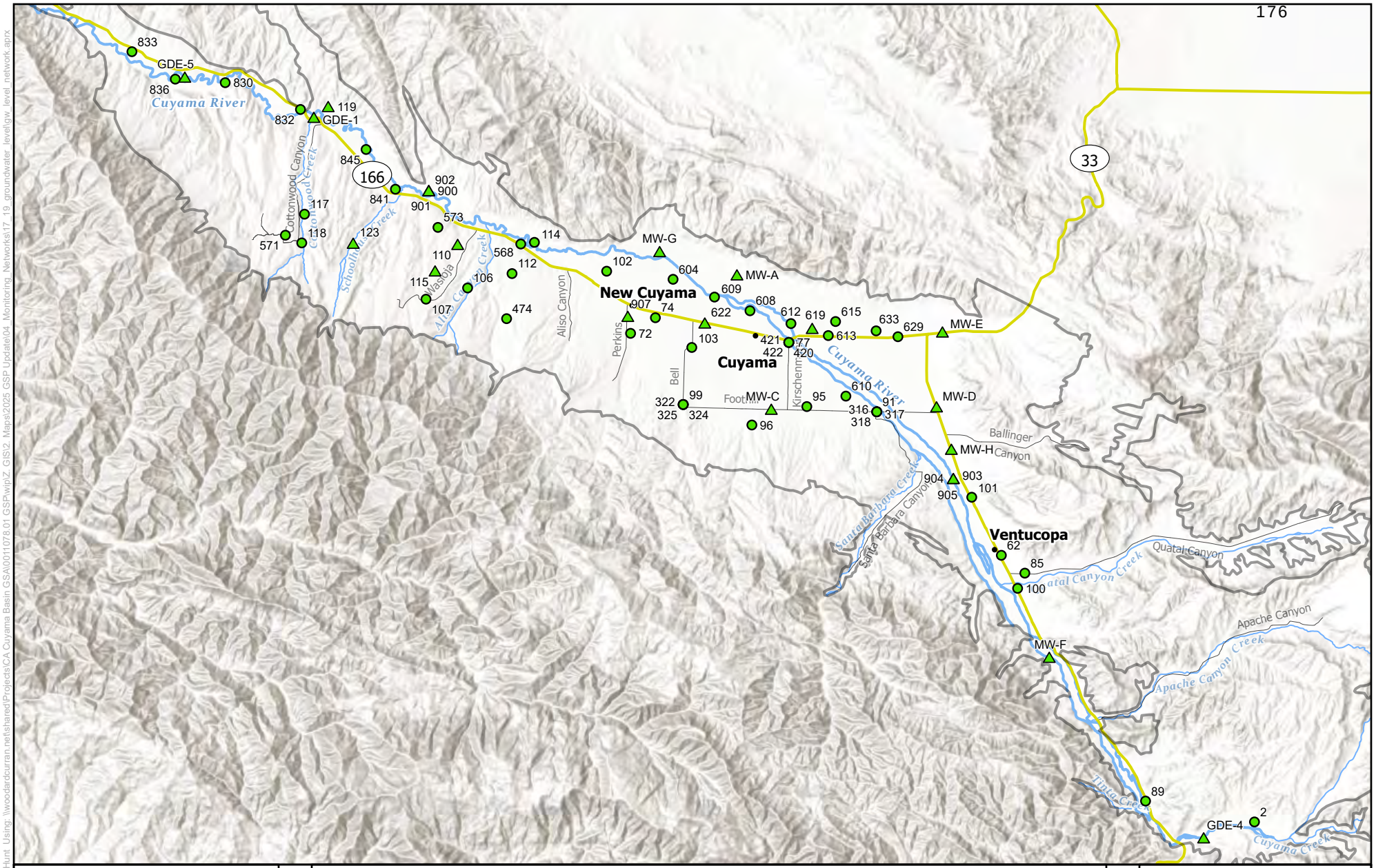

Figure 4-18: Updated Groundwater Level Monitoring Network

Cuyama Valley Groundwater Basin

Legend

Network Well
- Representative Monitoring
- Non-representative Monitoring

Highway
Local Road
Town
Cuyama River
Creek
Cuyama Basin

N

Woodard & Curran

0 1.25 2.5 5 Miles

Map Created: December 2023

Figure Exported: 12/27/2023 By: DHunt Using: \\woodardcurran.net\shared\Projects\CA Cuyama Basin GSA\001078.01 GSP\wip\Z. GIS\2. Maps\2025 GSP Update\04. Monitoring_Networks\17_19_groundwater_levelgw_level_network.aprx

Table 4-4: Groundwater Level and Storage Monitoring Network							
OPTI ID	**Well Construction Date**	**Well Depth (Feet)**	**Hole Depth (Feet)**	**Screen Interval (Feet)**	**Well Elevation (Feet above mean sea level)**	**Transducer**	
2*	-	73	-	-	3720	No	
62*	-	212	-	-	2920	Yes	
72*	1/1/1980	790	820	350-340	2172	No	
74*		-	-	-	2193	No	
77*	12/4/2008	980	1003	980-960	2283	Yes	
85*	1947	233	-		-	3049	No
89*	1/1/1965	125	-		-	3456	No
91*	9/29/2009	980	1000		980-960	2478	Yes
95*	4/9/2009	805	825	-	2458	No	
96*	2/1/1980	500	-	-	2609	No	
99*	9/10/2009	750	906	750-730	2503	No	
100*	11/1/1988	284	302	-	3009	No	
101*	-	200	220	-	2749	No	
102*	-	-	-	-	2044	No	
103*	7/23/2010	1030	1040	-	2288	Yes	

Table 4-4: Groundwater Level and Storage Monitoring Network						
OPTI ID	**Well Construction Date**	**Well Depth (Feet)**	**Hole Depth (Feet)**	**Screen Interval (Feet)**	**Well Elevation (Feet above mean sea level)**	**Transducer**
106*	-	228	-	-	2319	No
107*	1/1/1950	200	-	-	2494	No
112*	-	441	-	-	2131	No
114*	1/1/1947	58	-	-	1927	No
117*	-	212	-	-	2,098	No
118*	-	500	-	-	2264	No
316*	9/29/2009	830	1000	-	2478	Yes
317*	9/29/2009	700	1000	-	2478	Yes
322*	4/9/2009	850	906	-	2503	No
324*	9/10/2009	560	906	-	2503	No
325*	9/10/2009	380	906	-	2503	No
420*	12/4/2008	780	1003	-	2283	Yes
421*	12/4/2008	620	1003	-	2283	Yes
474*	-	213	-	-	2367	No
568*	1/1/1948	188	188	-	1914	No
571*	1/1/1951	280	-	-	2317	Yes

Table 4-4: Groundwater Level and Storage Monitoring Network						
OPTI ID	**Well Construction Date**	**Well Depth (Feet)**	**Hole Depth (Feet)**	**Screen Interval (Feet)**	**Well Elevation (Feet above mean sea level)**	**Transducer**
573*	-	404	-	404-100	2084	No
604*	-	924	-	924-470	2118	No
608*	6/10/1905	745	-	745-305	2215	No
609*	6/15/1905	970	-	970-494	2168	No
610*	-	780	--	780-352	2442	No
612*	-	1070	-	1070-413	2273	No
613*	-	830	-	830-500	2329	No
615*	-	865	-	865-385	2324	No
629*	-	1000	-	1000-500	2380	No
633*	-	1000	-	1000-500	2365	No
830*	-	77	-	-	1562	No
832*	-	132	-	-	1641	No
833*	-	504	-	-	1457	No
836*	-	325	-	-	1510	No
841*	11/21/2014	600		580-170	1764	Yes
845*	7/17/2015	380		360-100	1713	Yes

Table 4-4: Groundwater Level and Storage Monitoring Network						
OPTI ID	**Well Construction Date**	**Well Depth (Feet)**	**Hole Depth (Feet)**	**Screen Interval (Feet)**	**Well Elevation (Feet above mean sea level)**	**Transducer**
110	1/1/1948	603	-	560-224	2052	No
115	-	1200	-	-	2278	No
119	1949	92	-	-	1702	No
123	7/10/1976	138	-	-	2165	No
619	1920	1040	-	1040-471	2306	No
622	1947	1200	-	1200-400	-	No
900	7/15/2021	605	-	60-50	-	Yes
901	7/15/2021	605	-	205-165	-	Yes
902	7/15/2021	605	-	365-325	-	Yes
903	7/23/2021	587	-	305-265	-	Yes
904	7/23/2021	587	-	400-360	-	Yes
905	7/23/2021	587	-	570-540	-	Yes
906	8/27/2021	670	-	150-130	-	Yes
907	8/27/2021	670	-	525-515	-	Yes
908	8/27/2021	670	-	60-650	-	Yes

4.5.6 Monitoring Protocols

~~For additional monitoring recommended in Section 4.5.8, the monitoring~~Monitoring protocols will use DWR's *Monitoring Networks and Identification of Data Gaps BMP,* which sites the DWR's 2010 publication *California Statewide Groundwater Elevation Monitoring (CASGEM) Program Procedures for ~~-~~Monitoring Entity Reporting* (Appendix A) for the groundwater level sampling protocols. This publication includes protocols for equipment selection, setup, use, field evaluation, and sample collection techniques~~.~~.

4.5.7 Data Gaps

~~Groundwater level monitoring~~ The 2020 GSP identified data gaps ~~are the result of poor spatial distribution among available wells~~ in the ~~Basin, and a lack of well construction information.~~

~~The spatial distribution of~~ groundwater level monitoring network. As noted above, the CBGSA has installed new wells to address many of these data gaps using funding from DWR's TSS and SGMA grant programs. These new wells ~~provides coverage~~have filled all of the ~~majority of~~ spatial data gaps identified in the ~~Basin.~~2020 GSP. However, there ~~are several areas, identified by the red ovals in Figure 4-19, that do not have adequate monitoring. If additional monitoring wells were added in these areas, they may provide more information that could be used to detect changes in Basin conditions,~~continue to be some data gaps that should be addressed by the CBGSA in the future:

- Several wells that are currently included in the monitoring network are active pumping wells, some of which are used for a significant level of pumping each year; these wells should be replace with dedicated monitoring wells

- Well construction information is not available for many wells in the Basin. Monitoring wells with construction information featuring total depth and screened interval are preferred for inclusion in the monitoring network, because that information is useful in understanding what monitoring measurements mean in terms of Basin conditions at different depths.

4.5.8 Plan to Fill Data Gaps

This GSP identifies ~~a number of~~some ways to refine the ~~the~~ groundwater level monitoring network and improve reporting~~.~~:

~~The CBGSA has been awarded a Proposition 1 Category 1 Grant, which includes a task to expand the groundwater level monitoring network. This task includes identification of additional monitoring wells for hand measurements and installation of continuous monitoring equipment into 10 existing wells, which could be used to augment the existing monitoring network. This task would both increase the spatial~~

~~distribution of the monitoring network and temporal coverage in the wells with additional continuous monitoring.~~

- ~~The CBGSA has applied for~~Seek additional grant funding to install monitoring wells to replace active pumping wells that are currently included in the monitoring network. Alternatively, transducers could be installed in these wells to better understand the temporal effects of pumping on groundwater levels.

- Apply for additional assistance from DWR's Technical Support Services (TSS), which provides support to GSAs as they develop GSPs. TSS opportunities include help installing new monitoring wells, and downhole video logging services. ~~New wells drilled by DWR's TSS will improve the density and sampling frequency for level monitoring in the Basin. Downhole video logging will provide more well construction information to better utilize well data in the Basin. As of Draft GSP publication, the DWR TSS program has not provided any TSS services for the Cuyama Basin.~~

- Improve understanding of well construction information through digital entry of data from well completion reports into the data management system.

4.6 Groundwater Storage Monitoring Network

Groundwater in storage is monitored through the measurement of groundwater levels. Therefore, the groundwater storage monitoring network will use the groundwater level monitoring network. Thresholds for groundwater storage are ~~be~~ discussed in Chapter 5.

4.7 Seawater Intrusion Monitoring Network

The Basin is geographically and geologically isolated from the Pacific Ocean and any other large source of saline water. As a result, the Basin is not at risk for seawater intrusion. Salinity (i.e., total dissolved solids, or TDS) is monitored as part of the groundwater quality network, but seawater intrusion is not a concern for the Basin.

~~Degraded~~

4.8 Groundwater Quality Monitoring Network

Salinity (measured as TDS), arsenic, and nitrates have all been identified by local stakeholders as potentially being of concern for water quality in the Basin. ~~However, as noted in the Groundwater Conditions chapter, there have only been two nitrate measurements and fewer than 10 arsenic measurements in recent years that exceeded maximum contaminant levels. Furthermore, and~~However, in contrast to salinity, there is no evidence to suggest a causal nexus between potential actions under the CBGSA's authority and arsenic or nitrates. In the case of arsenic, the high concentration measurements have been taken either at CCSD Well 2, which is no longer in operation, or at groundwater depths of greater than 700 feet, which is outside of the range of pumping for drinking water. Because arsenic occurs in the subsurface at different elevations and densities throughout the Basin, arsenic issues are localized and different at each well location. Since the CBGSA is only granted authority to affect the amount of water pumped across portions of the Basin, it is not possible for the CBGSA to successfully manage arsenic levels, and setting thresholds on an unmanageable constituent could cause unnecessary intervention by the California State Water Resources Control Board (SWRCB~~.~~). Therefore, the groundwater quality network ~~has been~~included in the 2020 GSP was established to monitor for salinity but ~~does~~did not consider arsenic or nitrates at ~~this~~that time.

The CBGSA began collecting groundwater quality data in early 2021 and collects TDS measurements once a year. In addition, nitrate and arsenic measurements were also collected in 2022 to establish a

baseline understanding of nitrate and arsenic concentrations in the Basin. It is the intent of the CBGSA to continue to collect TDS measurements in monitoring network wells on an annual basis. For nitrate and arsenic, the CBGSA intends to download and utilize data that is collected by other monitoring entities on an ongoing basis. The CBGSA will cooperate with other agencies that may perform monitoring of other constituents to the extent possible. In addition, the CBGSA will collect nitrate and arsenic data in conjunction with the collection of TDS measurements once every five years.

4.8.1 Management Areas

Management Areas ~~have~~were not ~~been selected at~~used for the ~~time of publishing the Draft~~2025 GSP~~.~~ update. Management Areas ~~may~~could allow flexibility in establishing monitoring networks both spatially and temporally to match conditions and use in the Management Area. ~~Given the scarcity of monitored sites, the~~The CBGSA ~~should use~~will utilize the same monitoring network selection criteria across ~~all management areas in the~~the entire groundwater Basin. This allows the Basin to be managed together to meet Basin-wide sustainability thresholds.

4.8.2 Monitoring Sites Selected for Monitoring Network

~~Table 4-6 lists~~ Salinity (Measured as TDS)

As part of the ~~monitoring sites selected for~~2020 GSP, the ~~groundwater quality~~ CBGSA created a TDS monitoring network ~~by monitoring group. Monitoring sites selected for inclusion in the network were~~ using wells that other entities had monitored from 2008~~ to 2018.~~-2018. These entities included NWQC, USGS, IRLP, GAMA, DWR, BCWPD, and private landowners. It was assumed that wells that had previously been monitored for salinity prior to 2008 ~~are~~were unlikely to be monitored again by that monitoring agency. ~~Due to the overlap of wells in both the USGS and DWR networks, the~~ There were 64 selected groundwater~~ ~~quality ~~networks~~network wells~~ is less than the sum~~. The utilization of ~~wells shown in Table 4-6. Utilization~~ these ~~each~~ wells for monitoring purposes ~~will require~~requires consent agreements with each landowner. Since the 2020 GSP, the CBGSA has dedicated significant time reaching out to landowners via emails, phone conversations, and site visits to reach agreements to conduct sampling. The 2020 water quality monitoring network is shown on Figure 4-19.

The CBGSA has collected three years of annual sampling data and conducted an evaluation of the existing network to see if any refinement or improvements could be made as part of this GSP 2025 update. A comprehensive review was conducted on the monitoring network with respect to the following issues: lack of landowner agreements for monitoring, access issues at the well ~~owner~~sites, access issues due to weather. Furthermore, analysis was conducted to determine if the wells were projected to go dry between now and 2030 and if any wells are spatially redundant with other wells in the network. The result of this analysis is shown on Figure 4-20, which shows the sampling flags for each well. Based on this analysis, 32 wells were removed from the network; in most cases because the CBGSA had been unable to secure an agreement with the landowner. In November of 2023, the CBGSA board approved a revised monitoring network, which will include 58 wells, 27 of which are representative wells. This includes nine new TSS wells that were installed under the DWR's Technical Support Services (TSS) program and will be ~~sought during GSP implementation.~~equipped by DWR with permeant transducers to provide electroconductivity measurements for TDS. In addition, new monitoring wells are currently being installed at 10 locations using grant funding from DWR with 1-3 completions per well. These wells will also be equipped with transducers and be included in the TDS water quality network as non-representative wells.

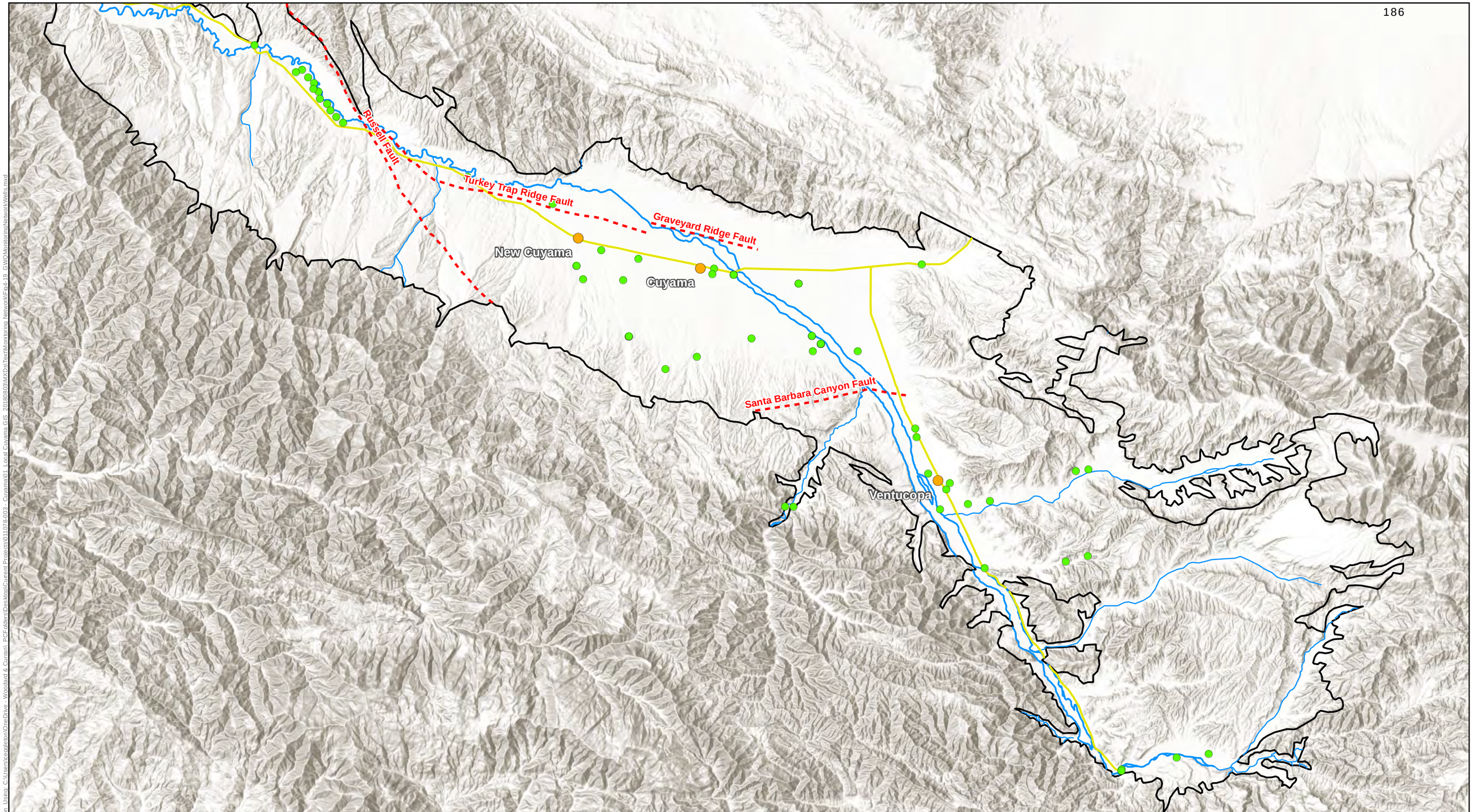

Figure 4-19: Cuyama GW Basin Groundwater Quality Monitoring Network Wells (2020)

Cuyama Basin Groundwater Sustainability Agency

Cuyama Valley Groundwater Basin Groundwater Sustainability Plan

April 2019

WOODARD &CURRAN

Legend

- Cuyama Basin
- Towns
- Highways
- Cuyama River
- Streams
- Faults
- Representative Wells and Groundwater Quality Monitoring Network Wells

All wells included in the Groundwater Quality Monitoiring Network have been measured since 1/1/2008. Wells measured prior to 2008 are not included.

N

0 1.75 3.5 7 Miles

Figure Exported 7/1/2019 By: seinglen Using: C:\Users\seinglen\OneDrive - Woodard & Curran\PCFolders\Desktop\Current Projects\011073.003 - Cuyama\01 Local Cuyama GIS\2019\03\MXDs\Text\Monitoring Network\Fig 4-19_GWQMonitoringNetworkWells.mxd

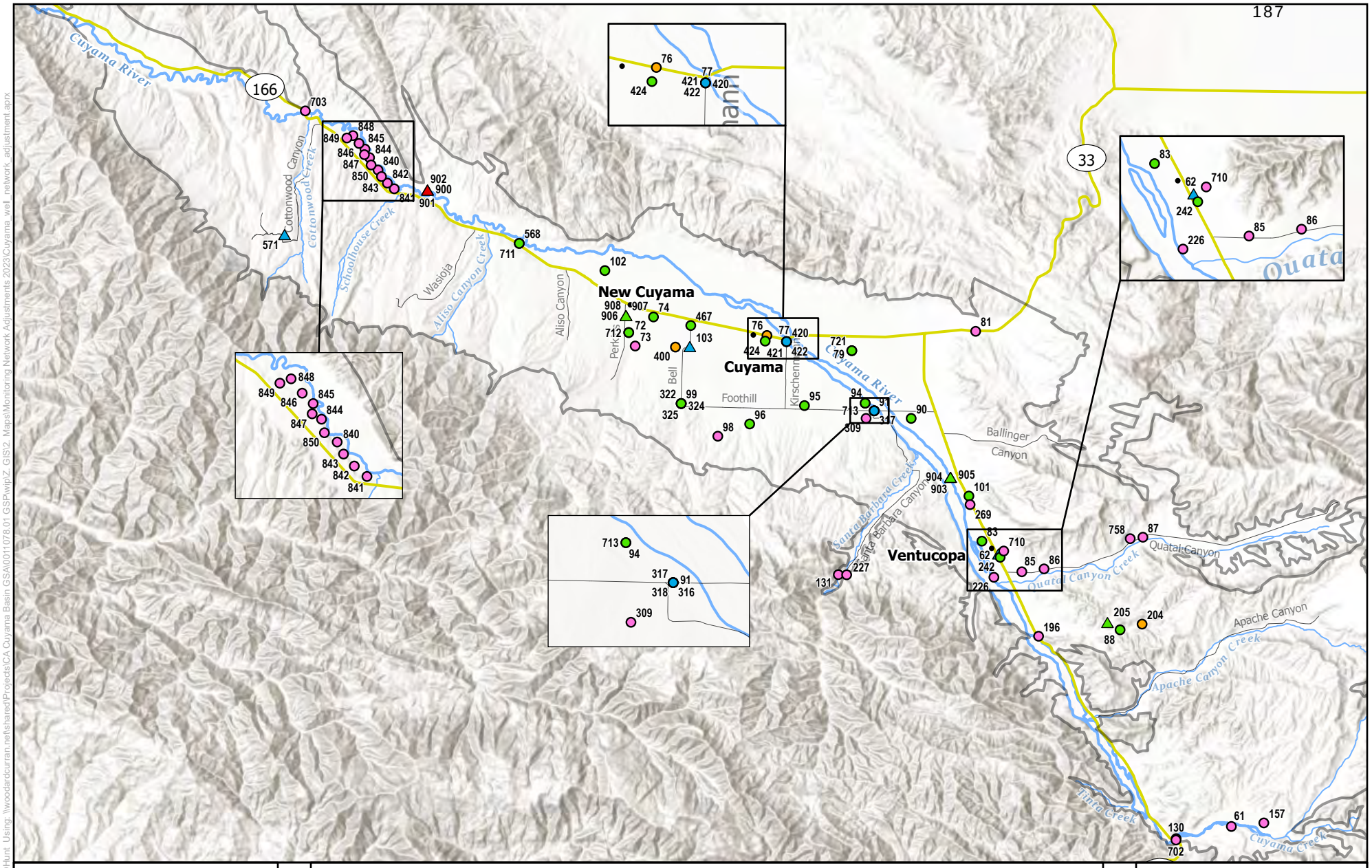

Figure 4-20: Groundwater Quality Monitoring Network Review

Cuyama Valley Groundwater Basin

Legend

Representative	Monitoring		
No Access Agreement	Access Issue (weather)	Highway	Cuyama River
No Issues	No Issues	Local Road	Creek
Onsite Access Issue	Transducer	Town	Cuyama Basin
Transducer			

N

Woodard & Curran

0 1.25 2.5 5 Miles

Map Created: December 2023

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Nitrate

Nitrate measurements will be taken by the CBGSA at water quality monitoring network wells once every five years.

In addition, to gain a better understanding of nitrate in the Basin, the CBGSA will download arsenic monitoring measurements collected by third party sources, especially SWRCB GAMA Database, on an annual basis. The GAMA database includes data collected by USGS, California Natural Resources Agency, National Quality Monitoring Council Water Quality Portal, as well as other sources as shown in Table 4-5.

Table 4-5: GAMA Databases and Frequency of Updates

Data Set Name	Dataset Abbreviation	Update Frequency (Approximate)
Department of Pesticide Regulation	DPR	Yearly
Department of Water Resources	DWR	Yearly
Division of Drinking Water	DDW	Quarterly
GAMA Domestic Well	GAMA_DOM	No longer updated
GAMA Local Groundwater Projects	GAMA_LOCALGW	Various
GAMA Special Studies	GAMA_SP-STUDY	No longer updated
GAMA US Geological Survey	GAMA_USGS	Quarterly
Local Groundwater Projects	LOCALGW	Monthly
US Geological Survey - National Water Information System	USGS_NWIS	Quarterly
Water Board Cleanup and Permitted Sites	WB_CLEANUP	Monthly
Water Board Irrigated Lands Regulatory Programs	WB_ILRP	Monthly
Water Replenishment District	WRD	Yearly

~~4.8.34.1.1~~ Figure 4-21 shows~~Monitoring Frequency~~

~~The Basin, in coordination with partnering agencies, will compile salinity samples once a year. Monitoring agencies such as USGS and DWR were contacted to inquire about when they would monitor~~

~~their sites for groundwater quality, including salinity. These agencies stated they usually monitor annually, but the timing of that monitoring was not set, and changes from year to year. Additionally, depending on funding and staff availability, there may be years where no groundwater quality monitoring is conducted by an agency.~~

the locations where nitrate monitoring has occurred over the past 10- and 5-year Periods. A total of 104 wells were sampled over the 10-year period from 2013-2023. The majority of Nitrate data is collected through the California Central Coast Water Board Irrigated Lands Regulatory Program (ILRP). The Central Coast Water Board regulates discharges from irrigated agricultural lands to protect surface water and groundwater through Order 4.0 (RE-2021-0040). In 2023, in the Cuyama Basin, the ILRP program had 16 operations and 88 ranches enrolled in the program reporting Nitrate data. Parties enrolled in the program are required to monitor and report results for the primary irrigation wells to GeoTracker annually, which is updated to GAMA.

Arsenic

Arsenic measurements will be taken by the CBGSA at water quality monitoring network wells once every five years.

In addition, to gain a better understanding of arsenic in the Basin, the CBGSA will download arsenic monitoring measurements collected by third party sources, especially SWRCB GAMA Database, on an annual basis. The GAMA database includes data collected by USGS, California Natural Resources Agency, National Quality Monitoring Council Water Quality Portal, as well as other sources as shown in Table 4-5 above. Most arsenic monitoring is conducted by public water systems on municipal supply wells. Arsenic is a regulated chemical for drinking water sources with monitoring and compliance requirements under Title 22 Section 64431.

The CBGSA will utilize the GAMA database to monitor arsenic water quality in the Basin. Arsenic samples are taken at 7 wells, all municipal and domestic. These samples are from DDW, GAMA USGS, and USGS NWIS. The Cuyama Groundwater Basin has two public water systems according to the System Area Boundary Layer (SABL) tool developed by the SWRCB. The first public water system is called the Cuyama Community Services District water system number CA4210009, which serves a population of 700. This public water system is classified as a community water system. The second is Cuyama Mutual Water Company water system number CA4200514, which serves a population of 48 and is classified as a transient noncommunity water system. All wells were sampled in the past five years. These two water systems provide 87% of the sampling results for arsenic in the Basin taken over the 10-year period from 2013-2023. There have been 87 samples from these 7 wells taken over the past 10 years. These locations are shown in Figure 4-22.

4.8.3 Monitoring Frequency

The CBGSA will collect salinity samples once a year and nitrate and arsenic samples once every five years. In addition, nitrate and arsenic data will be downloaded from GAMA on an annual basis.

Although DWR does not provide specific recommendations on the frequency of monitoring in relationship to the described groundwater characteristics, concentrations of groundwater quality, especially salinity, do not fluctuate significantly over a year to require multiple samples per year. CBGSA will therefore continue to monitor its water quality network at the same frequency.

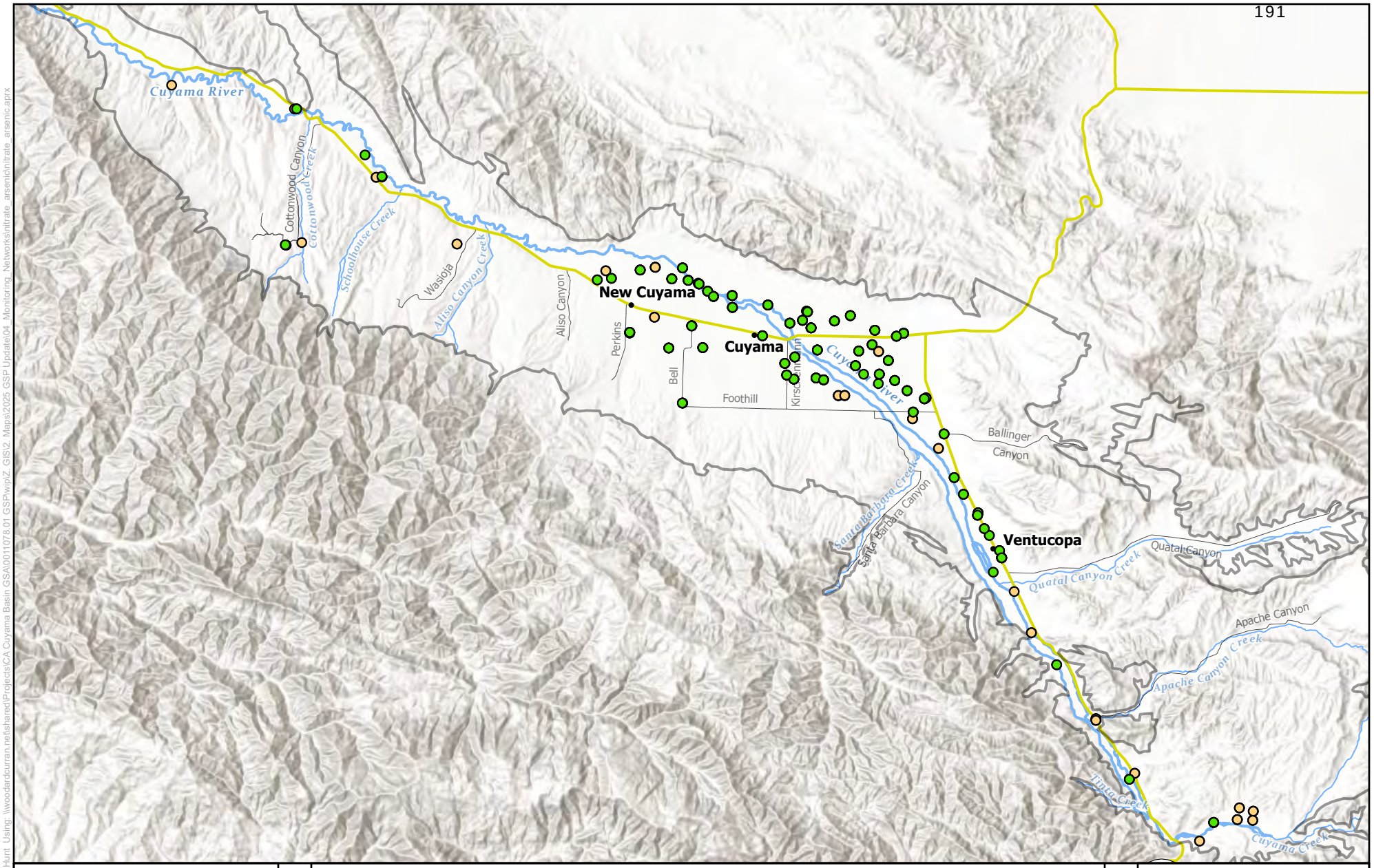

Figure 4-21: Nitrate Monitoring Locations

Years 2013 - 2023

Cuyama Valley Groundwater Basin

Legend

Well Record
- Sampled since 2022
- Sampled in the last 10 years

Highway
Local Road
Town
Cuyama River
Creek
Cuyama Basin

N

Woodard & Curran

0 1.25 2.5 5 Miles

Map Created: December 2023

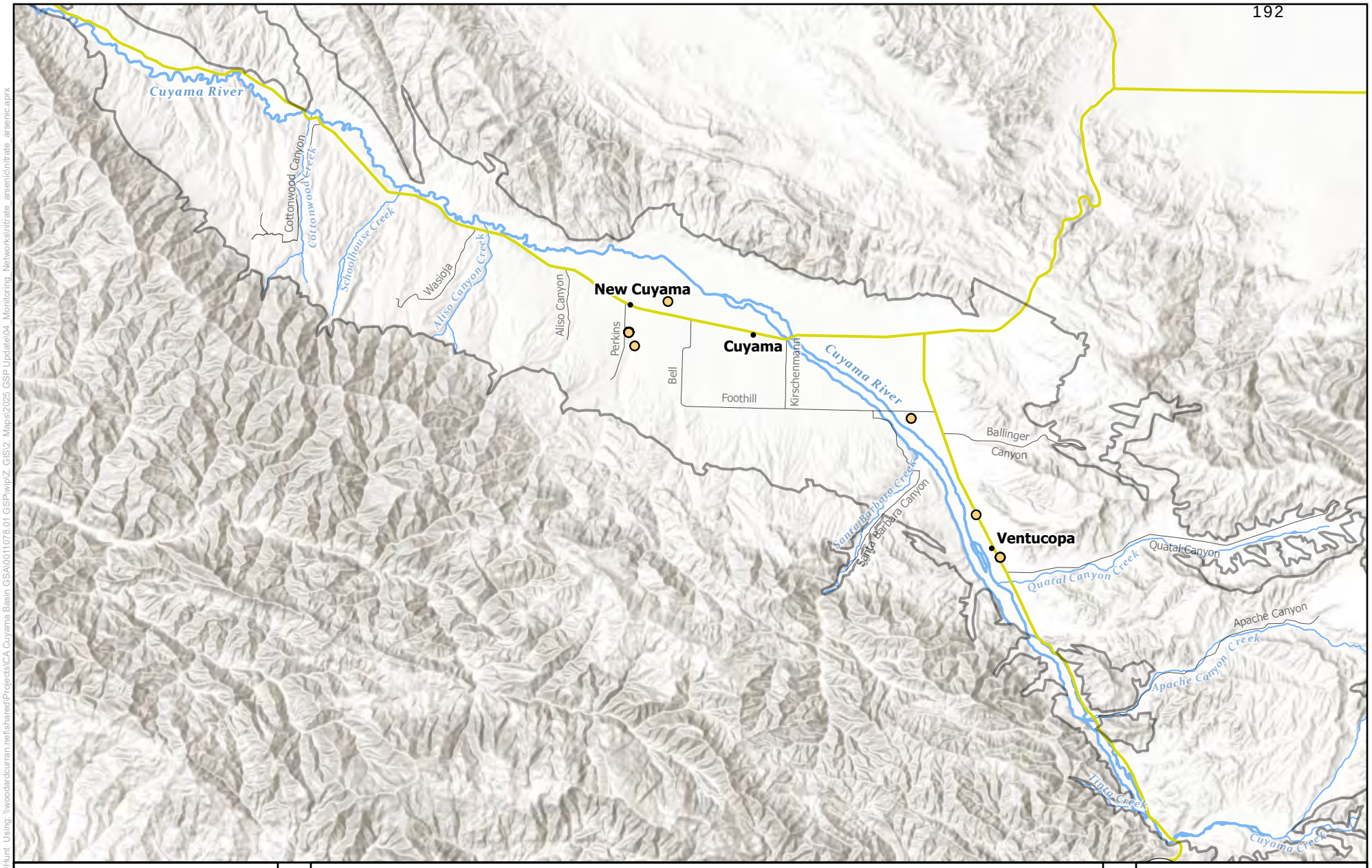

Figure 4-22: Arsenic Monitoring Locations

Years 2013 - 2023

Cuyama Valley Groundwater Basin

Legend

Well Record
- Sampled since 2013

Highway
Local Road
Town

Cuyama River
Creek
Cuyama Basin

N

Woodard & Curran

0 1.25 2.5 5 Miles

Map Created: December 2023

4.8.4 Spatial Density

DWR's *Monitoring Networks and Identification of Data Gaps BMP* states "The spatial distribution must be adequate to map or supplement mapping of known contaminants." Using this guidance, professional judgment was used to identify representative wells in each management area. Heavily pumped areas, such as the central portion of the Basin, require additional monitoring sites, while areas of lower pumping or less agricultural or municipal groundwater use need less monitoring.

~~Any well measured from 2008 to June 2018 was included in the monitoring network. The overall monitoring network was selected as representative monitoring.~~ The selected groundwater quality representative and monitoring wells provide adequate coverage of the Basin's aquifer. The TDS groundwater quality monitoring network is composed of ~~64 of~~58 wells in the Basin, which ~~providing~~provides a monitoring site density of 17 sites per 100 square miles. This exceeds the density recommended by reference materials for groundwater level density shown in Table 4-~~.~~2.

4.8.5 Representative Monitoring

Representative monitoring sites were selected in the 2020 GSP for groundwater quality using the criteria used to select representative groundwater level monitoring wells (Section ~~4.5.5).~~4.5.4). Due to the uncertainty of monitoring frequency, all monitoring network wells were selected as representative wells in the monitoring network. For the 2025 GSP Update, existing representative monitoring sites continue to be representative; newly installed sites are considered non-representative because they do not include enough historical data to reliably develop sustainability criteria.

4.8.6 Groundwater Quality Monitoring Network

~~Figure 4-20~~Figure 4-23 shows the monitoring network, and representative and monitoring sites. ~~The monitoring network is comprised of 64 wells, all of which are representative wells.~~

Table 4-~~7~~6 shows the wells in the groundwater quality monitoring network. Representative wells, which include those with sufficient data and representative trends within the Basin to develop sustainability criteria, are identified with the asterisk (*) next to the OPTI ID and are sorted first. Metadata for the wells ~~is~~are also included.

The revised network includes 58 wells, 27 of which are representative wells. However, the table does not currently include the wells that are currently being installed with the DWR grant funding as Opti ID numbers have not been assigned for these well

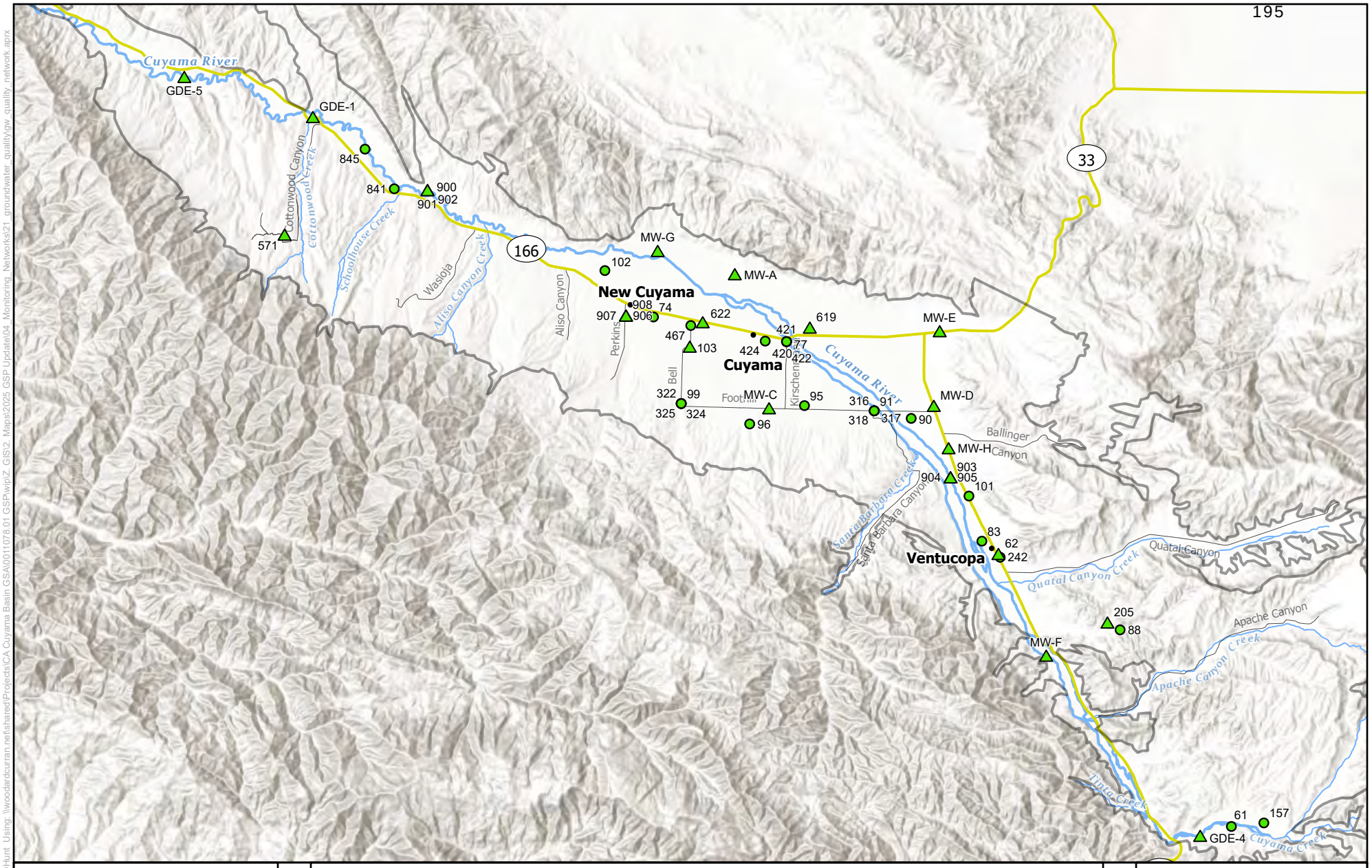

Figure 4-23: Updated Groundwater Quality Monitoring Network

Cuyama Valley Groundwater Basin

Legend

- Network Well
  - Representative Monitoring
  - Non-representative Monitoring
- Highway
- Local Road
- Town
- Cuyama River
- Creek
- Cuyama Basin

N

Woodard & Curran

0 1.25 2.5 5 Miles

Map Created: December 2023

Table 4-6: Groundwater Water Quality Monitoring Network							
OPTI ID	**Well Construction Date**		**Well Depth (Feet)**	**Hole Depth (Feet)**	**Screen Interval (Feet)**	**Well Elevation (Feet above mean sea level)**	**Transducer**
61*	-		357	-	-	3681	No
62*	-		212	-	-	2920	Yes
74*	-	-	-	-	2193		No
77*	12/4/2008	980	1003	980-960	2283		Yes
83*	1/1/1972	198	-	-	2,858		No
88*	9/4/2007	400	400	-	3549		No
90*	8/8/2006	800	800	-	2552		No
91*	9/29/2009	980	1000	980-960	2478		Yes
96*	2/1/1980	500	500	-	2609		No
99*	9/10/2009	750	906	750-73	2503		No
101*	-	200	220	-	2749		No
102*	-	-	-	-	2044		No
157*	-	71	-	-	3755		Yes
242*	-	155	187	-	2933		No
316*	9/29/2009		830	1000	-	2478	Yes

Table 4-6: Groundwater Water Quality Monitoring Network							
OPTI ID	**Well Construction Date**		**Well Depth (Feet)**	**Hole Depth (Feet)**	**Screen Interval (Feet)**	**Well Elevation (Feet above mean sea level)**	**Transducer**
317*	9/29/2009		700	1000	-	2478	Yes
318*	9/29/2009		610	1000	-	2474	No
322*	4/9/2009		850	906	-	2503	No
324*	9/10/2009		560	906	-	2503	No
325*	1947		380	906	-	2503	No
420*	12/4/2008	780	1003	-	2283		Yes
421*	12/4/2008	620	1003	-	2283		Yes
422*	12/4/2008	460	1003	-	2286		No
467*	1/1/1948	1140	1215	-	2229		No
619*	-	1040	-	1040-471	2306		No
622*	-	1200	-	1200-400	-		No
841*	12/12/2014	600	-	580-170	1764		Yes
845*	7/12/2015	380	-	360-100	1713		Yes
103	-	1030	1040	-	2288		Yes
205	-	435	440	-	-		No
571	-	280	-	-	2317		Yes

Table 4-6: Groundwater Water Quality Monitoring Network							
OPTI ID	Well Construction Date		Well Depth (Feet)	Hole Depth (Feet)	Screen Interval (Feet)	Well Elevation (Feet above mean sea level)	Transducer
900	7/15/2021	605	-	50-60	-		Yes
901	7/15/2021	605	-	165-205	-		Yes
902	7/15/2021	605	-	325-365	-		Yes
903	7/23/2021	587	-	265-305	-		Yes
904	7/23/2021	587	-	360-400	-		Yes
905	7/23/2021	587	-	540-570	-		Yes
906	8/27/2021	670	-	130-150	-		Yes
907	8/27/2021	670	-	515-525	-		Yes
908	8/27/2021	670		650-660	-		Yes

4.8.7 ~~Figure~~ Monitoring Protocols

~~For additional monitoring recommended in Section 4.8.9, the~~The monitoring protocols will use DWR's *Monitoring Networks and Identification of Data Gaps BMP,* which sites the USGS's 1995 publication *Ground-Water Data-Collection Protocols and Procedures for the National Water-Quality Assessment Program: Collection and Documentation of Water-Quality Samples and Related Data* (Appendix B) for the groundwater quality sampling protocols. This publication includes protocols for equipment selection, setup, use, field evaluation, sample collection techniques, sample handling, and sample testing.

4.8.8 Data Gaps

Groundwater quality monitoring data gaps have three components as follows:

- Spatial distribution of the wells
- Well/measurement depths for three-dimensional constituent mapping
- Temporal sampling

~~The~~With the addition of new wells installed through DWR's TSS program and with grant funding, the spatial distribution of the groundwater quality monitoring network now provides coverage of ~~several portions~~all of the ~~Basin. There are several areas,~~spatial data gaps that were identified ~~by the red ovals~~ in ~~Figure 4-21, that do not have adequate monitoring. Additional samples taken in these identified areas will provide more information about salinity in the indicated~~the 2020 GSP.

With the newly constructed wells, there will now be multiple locations~~.~~

~~Well construction for existing salinity sampling efforts is mostly unknown, and the depth of~~ within the Basin that can provide water ~~used for sampling is not known~~ quality information at ~~most monitoring sites. The~~ multiple depths. This will allow the monitoring network ~~will~~to collect additional information about how salinity may change at different depths in the aquifer~~, which will require taking samples from wells that have more detailed construction~~. This information~~.~~ needs to be evaluated to determine if additional multi-completion wells will be required to adequately understand three-dimensional constituent mapping within the Basin.

Water quality sampling ~~is~~historically has been inconsistently performed throughout the Basin; as a result, the Basin itself ~~is~~was identified in the 2020 GSP as a groundwater quality monitoring temporal data gap. ~~In September 2018, a CBGSA representative contacted management entities in the Basin responsible for groundwater quality sampling, to help understand the timing~~Since adoption of ~~current monitoring schedules, and to determine whether those management entities intended to continue quality monitoring~~

~~in the future. This GSP assumes all management entities anticipate continuing groundwater quality sampling in the Basin; however,~~the GSP, the CBGSP has undertaken its own annual sampling effort, which addressed this ~~will need to be confirmed, and the anticipated schedule of sampling by each entity will also need to be confirmed.~~previously identified data gap.

4.8.9 Plan to Fill Data Gaps

The CBGSA ~~will fill~~has filled the temporal and spatial data gaps identified in the 2020 GSP by implementing its own salinity sampling program~~,~~ and ~~will fill the well construction~~has filled the three-dimensional constituent mapping knowledge gap at least partially ~~by using DWR's TSS program to perform downhole logging~~through installation of ~~a subset of wells.~~

~~The CBGSA will develop and perform a project to perform annual~~new multi-completion monitoring ~~of salinity in the Basin. This new monitoring program will focus on using wells that have both construction information and pumps installed. Details of the new monitoring program, such as the targeted number and distribution of sampling sites will be detailed as a project in the projects and management actions section of this GSP (Chapter 6).~~wells.

~~DWR's TSS supports GSAs as they develop GSPs. Downhole video logging performed by TSS in existing salinity monitoring wells could provide more well construction information, which may help to better use well data in the Basin.~~

The CBGSA will evaluate the data collected by the monitoring program going forward to assess whether additional three-dimensional monitoring is needed. This includes an assessment of nitrate and arsenic data collected from GAMA and other data sources.

4.9 Land Subsidence Monitoring Network

4.9.1 Management Areas

Subsidence is managed ~~basin~~Basin-wide; as a result, no management areas are used.

4.9.2 Monitoring Sites Selected for Monitoring Network

There are two subsidence monitoring stations in the Basin~~,~~ and three outside of the Basin. ~~Figure 4-22 shows~~24shows the locations of existing subsidence monitoring stations, which make up the current subsidence monitoring network. The two stations in the Basin, sites CUHS and VCST, are both included in the monitoring network because they are active and provide Basin-specific data. The three stations located outside of the Basin, sites P521, BCWR, and OZST, are also included in the monitoring network. These stations are important for understanding general dynamic movement trends in the Basin because they detect tectonic movement in the Basin.

4.9.3 Monitoring Frequency

Subsidence monitoring frequencies should capture long-term and seasonal fluctuations in ground level changes. DWR's *Monitoring Networks and Identification of Data Gaps BMP* does not provide specific monitoring frequency or interval guidance. However, CGPS stations allow for data sampling several times a minute, which is sufficient for seasonal fluctuations to be captured in the data. Long-term trends are compiled from continuous data. Therefore, the CBGSA will use the same monitoring frequency currently used by the CGPS stations.

4.9.4 Spatial Density

Because there are only two monitoring stations, the current spatial density of subsidence monitoring in the Basin is 0.5 stations per 100 square miles. ~~These stations are included in Figure 4-22.~~ DWR's *Monitoring Networks and Identification of Data Gaps BMP* does not provide specific spatial density guidelines for subsidence monitoring networks, and thus relies on professional judgment for site identification. Current stations, both in and outside of the Basin, do not adequately cover the Basin for capturing subsidence variations. Potential areas for new stations are discussed below.

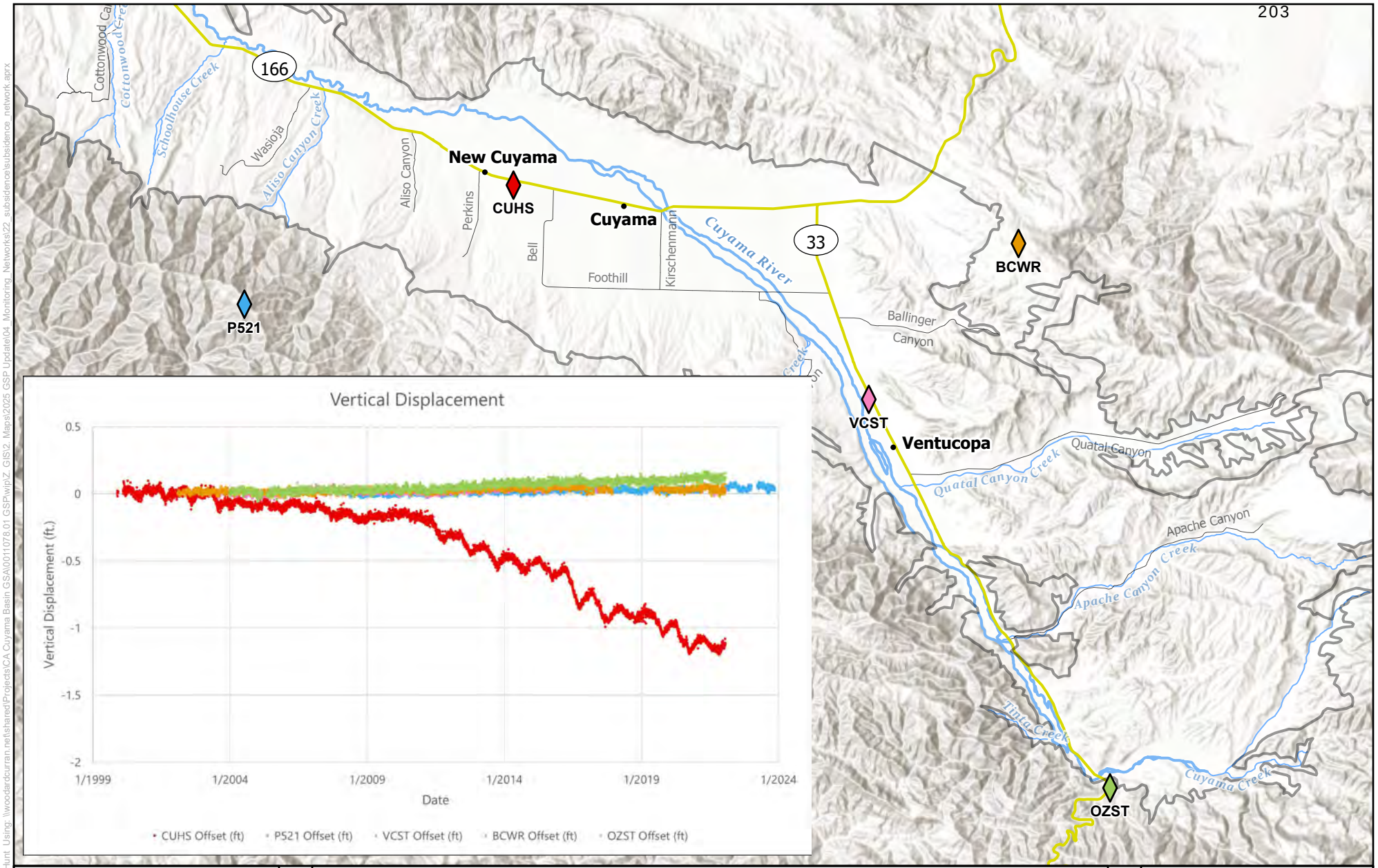

Figure 4-24: Subsidence Monitoring Network

Cuyama Valley Groundwater Basin

Legend

- Plate Boundary Observatory GPS Station
- Town
- Cuyama Basin
- Highway
- Cuyama River
- Local Road
- Creek

N

Woodard & Curran

0 1 2 4 Miles

Map Created: December 2023

4.9.5 Monitoring Protocols

DWR's provided *Monitoring Networks and Identification of Data Gaps BMP* does not provide specific monitoring protocols for subsidence monitoring networks. CGPS station measurements are logged digitally, and depending on the station and network setup, either require downloading at the physical station site or are uploaded automatically to a server. Data management will also depend on the monitoring agency. Current operating stations will continue to be managed by their current entity, and the CBGSA will be responsible for downloading data on a fixed schedule. The addition of new stations will require developing procedures for downloading and storing data, and for a quality assurance review of the data.

Data should be saved in the Cuyama Basin data management system on a regular annual schedule. All data should be reviewed for quality and logged appropriately.

4.9.6 Data Gaps

New subsidence monitoring sites should be chosen to provide data on areas most at risk for land subsidence. Six potential new locations were identified in the Basin, as shown in ~~Figure 4-23.~~Figure 4-25. These locations were identified by focusing on areas with significant or new groundwater pumping that did not have subsidence monitoring nearby. Criteria for selection are as follows:

- Identified as an area with relatively new and increased agricultural activity and pumping with no nearby stations.
- Identified because there are currently no nearby stations and the Russell Fault bisects this area
- Identified because of the CCSD and proximity to the heavily pumped central portion of the Basin
- Identified because this is the most heavily pumped portion of the Basin and there are currently no nearby stations
- Identified because of its proximity to the heavily pumped portion of the Basin, on the north facing slop of the valley; additionally, there are currently no stations nearby
- Identified because this is the transition into the heavily pumped central portion of the Basin near current agricultural pumping; this is also an area with faults

4.9.7 Plan to Fill Data Gaps

New monitoring sites should be located near areas with the greatest groundwater pumping, or where pumping is new. This is because pumping is the driving force for subsidence in the Basin. Although there are multiple ways to measure subsidence, CGPS stations are likely the best option for the Basin. CGPS stations are relatively low cost when compared to gathering data via labor-intensive land surveys, construction of borehole extensometers, and frequent satellite data processing. CGPS stations require

comparatively little maintenance and provide continuous information allowing detailed land subsidence analysis.

Increasing data collection about subsidence for the Basin requires addition of several new CGPS stations. These stations could be managed solely by the CBGSA~~,~~ or could be incorporated into the Continuously Operating Reference Station (CORS) via coordination with USGS. Site selection, equipment, and management will require coordination with USGS.

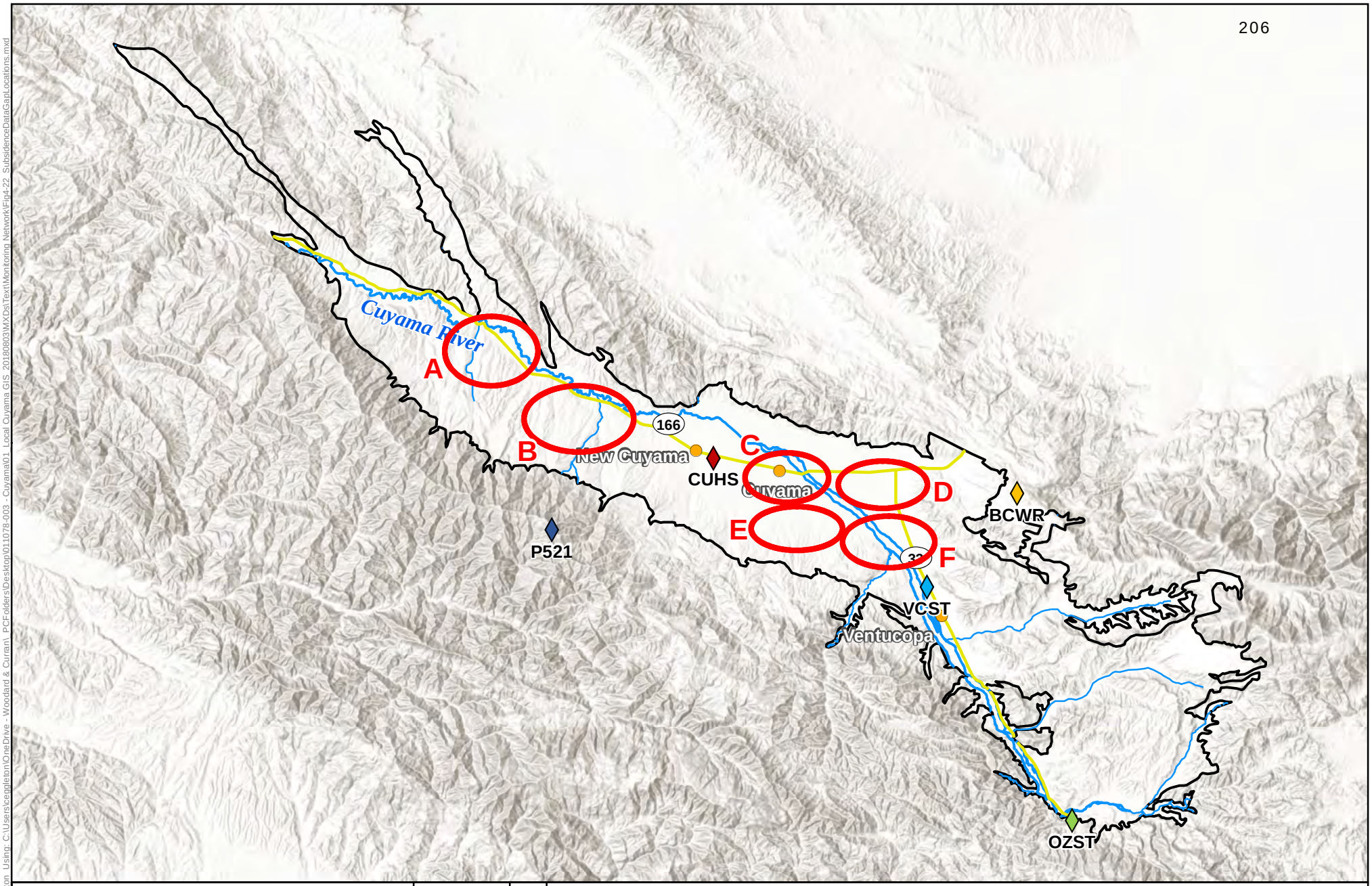

Figure 4-25: Subsidence Monitoring Location Data Gap Areas

Cuyama Basin Groundwater Sustainability Agency

Cuyama Valley Groundwater Basin Groundwater Sustainability Plan

April 2019

WOODARD &CURRAN

Legend

- Cuyama Basin
- Towns
- Highways
- Cuyama River
- Streams

0 3.5 7 14 Miles

N

4.10 Depletions of Interconnected Surface Water Monitoring Network

~~DWR's emergency regulations Section 354.28 (c)(6) states that "The minimum threshold for depletions of interconnected surface water shall be the rate or volume of surface water depletions caused by groundwater use that has adverse impacts on beneficial uses of the surface water and may lead to undesirable results. The minimum threshold established for depletions of interconnected surface water shall be supported by the following: (A) The location, quantity, and timing of depletions of interconnected surface water, and (B) A description of the groundwater and surface water model used to quantify surface water depletion."~~

~~Since the emergency regulations require a numerical model to estimate the depletions of interconnected surface water, there is no functional monitoring network that can be used to measure depletions of interconnected surface water. Therefore, the monitoring networks for depletions of interconnected surface water will include two components as follows:~~

- ~~Groundwater level monitoring to serve as monitoring by proxy of depletions of interconnected surface water~~
- ~~Pursuit of additional surface water gage stations to improve numerical model accuracy~~

~~Because there are currently no operating stream gage stations on the Cuyama River in the Basin, the CBGSA is pursuing installation of three stream gages to assist in filling the data gap.~~

The ISW monitoring network will be developed once guidance documents are available from DWR.

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TO: Standing Advisory Committee
Agenda Item No. 7d

FROM: Jim Beck / Brian Van Lienden

DATE: January 4, 2024

SUBJECT: Discussion and Take Appropriate Action on Allocation Program Components

Recommended Motion
Standing Advisory Committee feedback requested.

Discussion
Options for an allocation program continuing beyond 2024 are provided as Attachment 1. Final discussion on this topic is expected to occur in May 2024.

Cuyama Basin Groundwater Sustainability Agency

7d. Discuss and Take Appropriate Action on Allocation Program Components

January 4, 2024

HALLMARK GROUP Woodard & Curran

The CBGSA Board Approved the Existing Allocation Methodology for 2023 and 2024

- Allocation Implementation: Calendar years 2023 and 2024
- Applies to: Central Management Area (CMA) + Farming Units
- Baseline Allocation Amount: 2021 modeled water use plus Farming Units in the CMA excluding CCSD metered use and residential pumping (estimated by model)
- Sustainable Yield: Calculated by the model for the CMA (including Farm Units)
- Allocation Methodology: estimated historic water use averaged from the 1998-2017 Water Year period for each parcel in the CMA

Discussion of Pumping Allocation Components

Components to be discussed/decided at January 2024 Board meeting:

- Methodology for Baseline allocation amount
- Allocation methodology
- Water market
- Carryover
- Water accounting approach

Components to be discussed/decided at a future Board meeting:

- Central Management Area boundary
- Managing pumping outside of the Central Management Area
- Approach for calculating Sustainable Yield
- Changes to Glide Path

Options for Baseline Allocation Amount

Current Approach: 2021 modeled water use in the CMA plus Farming Units excluding CCSD metered use and residential pumping (estimated by model)

Options:

1. Continue to use current approach
2. Same as current approach but use 2023 modeled water use
3. Use 2023 metered pumping as reported by water users

Allocation Methodologies to Consider

HISTORICAL USE

GROSS ACREAGE

IRRIGATED ACREAGE

Historical Use (Current Methodology)

- **HOW DOES IT WORK**: The GSA establishes allocations based on historical groundwater use over a base period (e.g., 1998 – 2017).

PROS	CONS
Acknowledges historical uses	Excludes landowners who have not developed groundwater resources
May reduce conflict among users	GSA may not have sufficient data

Gross Acreage

- **HOW DOES IT WORK**: The GSA establishes allocations among overlying landowners proportionate to acreage.

PROS	CONS
Treats all landowners equally	Ignores current and historical uses
Simple calculation	

Irrigated Acreage

- **HOW DOES IT WORK**: The GSA certifies all existing irrigated acreage and establishes allocations proportionate to that acreage.

PROS	CONS
Reduction in use would be felt proportionately across all current users	Does not give differential allocations based on historical use
	Potentially favors certain land uses
	Potentially discourages water conservation

Options for Allocation Methodology

Current Approach: estimated historic water use averaged from the 1998-2017 Water Year period for each parcel in the CMA plus Farming Units

Options:

1. Continue to use current approach (historical use)
2. Use gross acreage
3. Use irrigated acreage
4. Hybrid between historical and current use

Options for Water Market

A “water market” allows landowners to (1) transfer their unused allocations; and/or (2) purchase unused water allocations.

The GSA may authorize temporary or permanent transfers of allocations within GSA boundaries “if the total quantity of groundwater extracted in any water year is consistent with the provisions of the [GSP].” (Wat. Code, §10726.4, subd. (a)(3).)

Options:

1. Should a water market be included as part of pumping allocations?
    a) When would transfers be permitted? (2025? 2030?)
    b) Would both one-year and permanent transfers be allowed?
    c) Would there be any limitations on transfers between different sub-regions (if defined)?

Options for Carryover

The GSA may establish accounting rules to allow unused allocations to be carried over from one year to another and voluntarily transferred "if the total quantity of groundwater extracted in any five-year period is consistent with the provisions of the [GSP]." (Wat. Code, §10726.4, subd. (a)(4).)

Options:

1. Should carryover as part of pumping allocations?
   a) Should any limit be placed on how much can be carried over?
   b) Would multi-year carryover be allowed?

Options for Water Accounting Approach

Current Approach: Operators are required to report pumping by January 31 for the previous year; staff uses a spreadsheet to track pumping and confirm compliance

Options:

1. Should the GSA implement a more sophisticated accounting system?
   a) Use a database-based tracking and reporting system?
   b) Allow for landowners to view and enter pumping data directly?
   c) Have an online portal that is viewable by the public?

TO: Standing Advisory Committee
Agenda Item No. 8a

FROM: Brian Van Lienden, Woodard & Curran

DATE: January 4, 2024

SUBJECT: Update on Groundwater Sustainability Plan Activities

Recommended Motion
None – information only.

Discussion
Cuyama Basin Groundwater Sustainability Agency (CBGSA) Groundwater Sustainability Plan (GSP) activities and consultant Woodard & Curran's (W&C) accomplishments are provided as Attachment 1.

Cuyama Basin Groundwater Sustainability Agency

8a. Update on Groundwater Sustainability Plan Activities

January 4, 2024

HALLMARK GROUP Woodard & Curran

November-December Accomplishments

- ✓ Completed installation of first multi-completion monitoring well
- ✓ Developed updated GSP chapters for Board consideration
- ✓ Developed approaches for sustainability criteria for Board consideration
- ✓ Completed river channel survey data processing
- ✓ Completed land use data for water year 2023
- ✓ Performed ongoing updates to Cuyama Basin groundwater model
- ✓ Developed quarterly groundwater conditions report

TO: Standing Advisory Committee
Agenda Item No. 8b

FROM: Brian Van Lienden, Woodard & Curran

DATE: January 4, 2024

SUBJECT: Update on Grant-Funded Projects

Recommended Motion
None – information only.

Discussion
An update on Cuyama Basin Groundwater Sustainability Agency (CBGSA) grant-funded projects is provided as Attachment 1.

Cuyama Basin Groundwater Sustainability Agency

8b. Update on Grant Funded Projects

January 4, 2024

HALLMARK GROUP Woodard & Curran

Schedule for Technical Work Required for GSP Amendment and Periodic Evaluation

Model Update to Incorporate:

- *AEM*
- *River Channel Survey*
- *Updated pumping well locations*
- *GW lvl, streamflow and precip measurements*
- *Land use (Land IQ)*
- *Measured pumping data*

HALLMARK GROUP Woodard & Curran

Schedule for Technical Work Required for GSP Amendment and Periodic Evaluation

Model Update to Incorporate:

- *AEM*
- *River Channel Survey*
- *Updated pumping well locations*
- *GW lvl, streamflow and precip measurements*
- *Land use (Land IQ)*
- *Measured pumping data*

Update on River Channel Survey

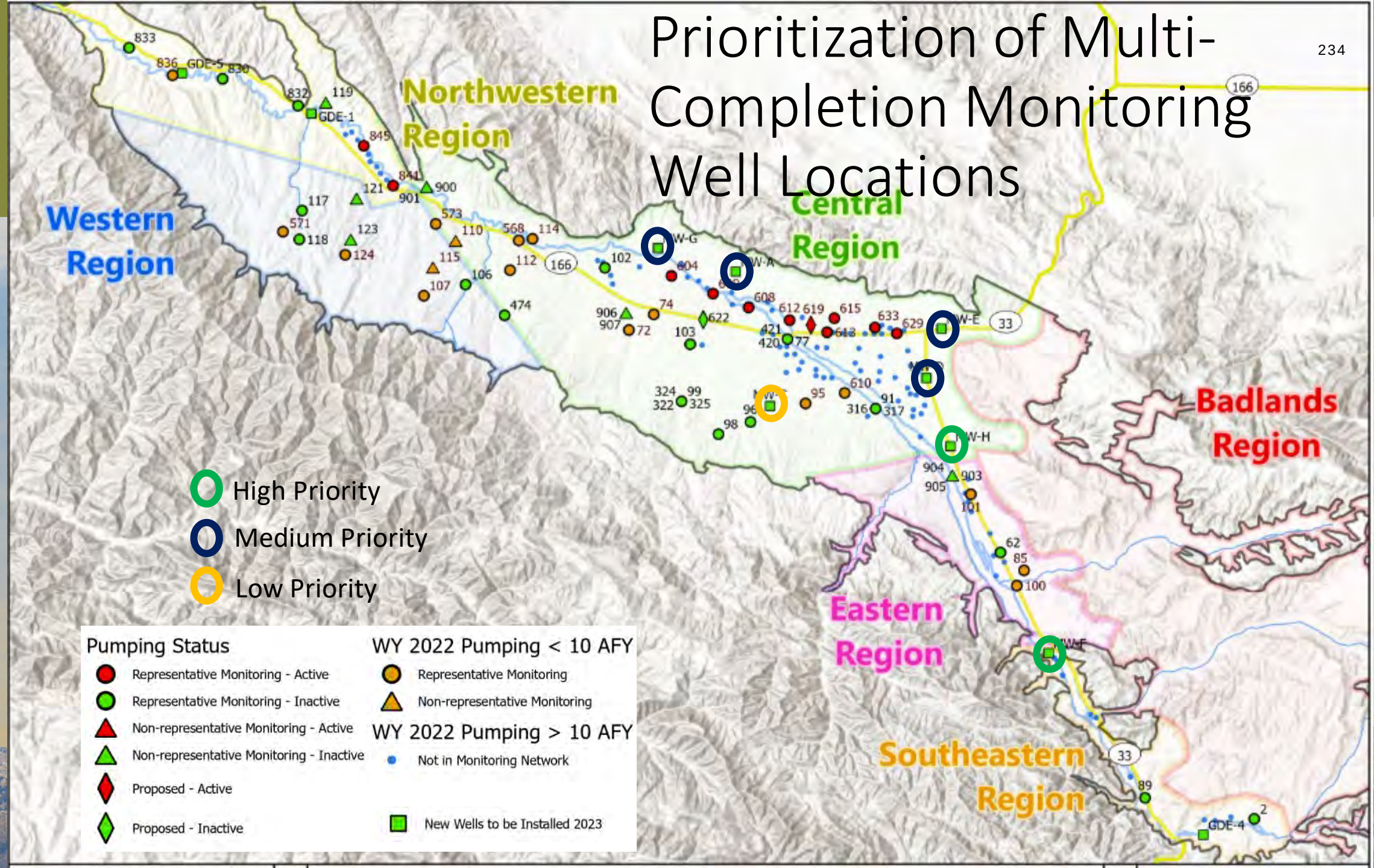
- River channel survey has been completed using DWR grant funding
- Project timeline:
  - Sep 2023: flight was performed using LIDAR aerial scanner along the full length of the Cuyama River within the Cuyama Basin
  - Nov 2023: Access Geographic provided 1-foot contours of the river channel extending 0.25 miles outward in each direction

HALLMARK GROUP Woodard & Curran

Status of Monitoring Well and Piezometer Installation

- Piezometer (GDE) Wells:
  - Wells have been constructed at all 3 locations (GDE-1, GDE-4 and GDE-5)
- Multi-Completion Nested Monitoring Wells:
  - Drilling and well construction at MW-F conducted from October 23 to November 30. Well screen intervals are 180-200 feet and 350-370 feet
  - Well permit obtained for 1 additional well - MW-C
  - Permits/agreements are in process for 5 wells
    - Well permits obtained for MW-D and MW-H. Encroachment permit expected from Caltrans by end of December
    - Access agreements in place for MW-A, MW-E and MW-G. Well permits in progress

Prioritization of Multi-Completion Monitoring Well Locations



Plan and Prioritization for Multi-Completion Monitoring Wells

- The objective is to install at least 1 well at each of the 7 locations
  - Installation at 7 locations may be achievable within the budget by constructing 1 or 2 nested wells instead of 3 wells at most locations; this should be acceptable because of the deep depth to water at some locations
- Recommendation:

Location	Approximate Depth to Water (Spring 2022)	Recommended # of Completions
MW-A	400-600	2
MW-C	500-600	1
MW-D	600-650	2
MW-E	400-600	2
MW-F	30-80	2
MW-G	400-600	2
MW-H	400-450	3

Approach for Groundwater-Fault Interaction Investigation

- Investigation will include the Russell and Santa Barbara Canyon Faults
- Investigation Components Include:
  - Evaluate available groundwater data in investigation areas
  - Interpret AEM data and oil & gas geophysical logs, if available
  - Conduct surface geophysical surveys
  - Construct a new monitoring well near SBC Fault (i.e., MW-H with funding covered by current grant agreement)
  - Sample groundwater and conduct geochemical analyses
  - Groundwater flow calculations and modelling

Status of Planning for Groundwater-Fault Investigation

- Both transects for the Russell Fault approved by landowners. No permits required
- Encroachment permit received from Caltrans for one transect for the SBC Fault
- Permit in process from BLM for second transect. Required field wildlife survey conducted on November 28. Report to be submitted by end of December. Permit expected in January 2024

Status of Monitoring Well and Piezometer Installation

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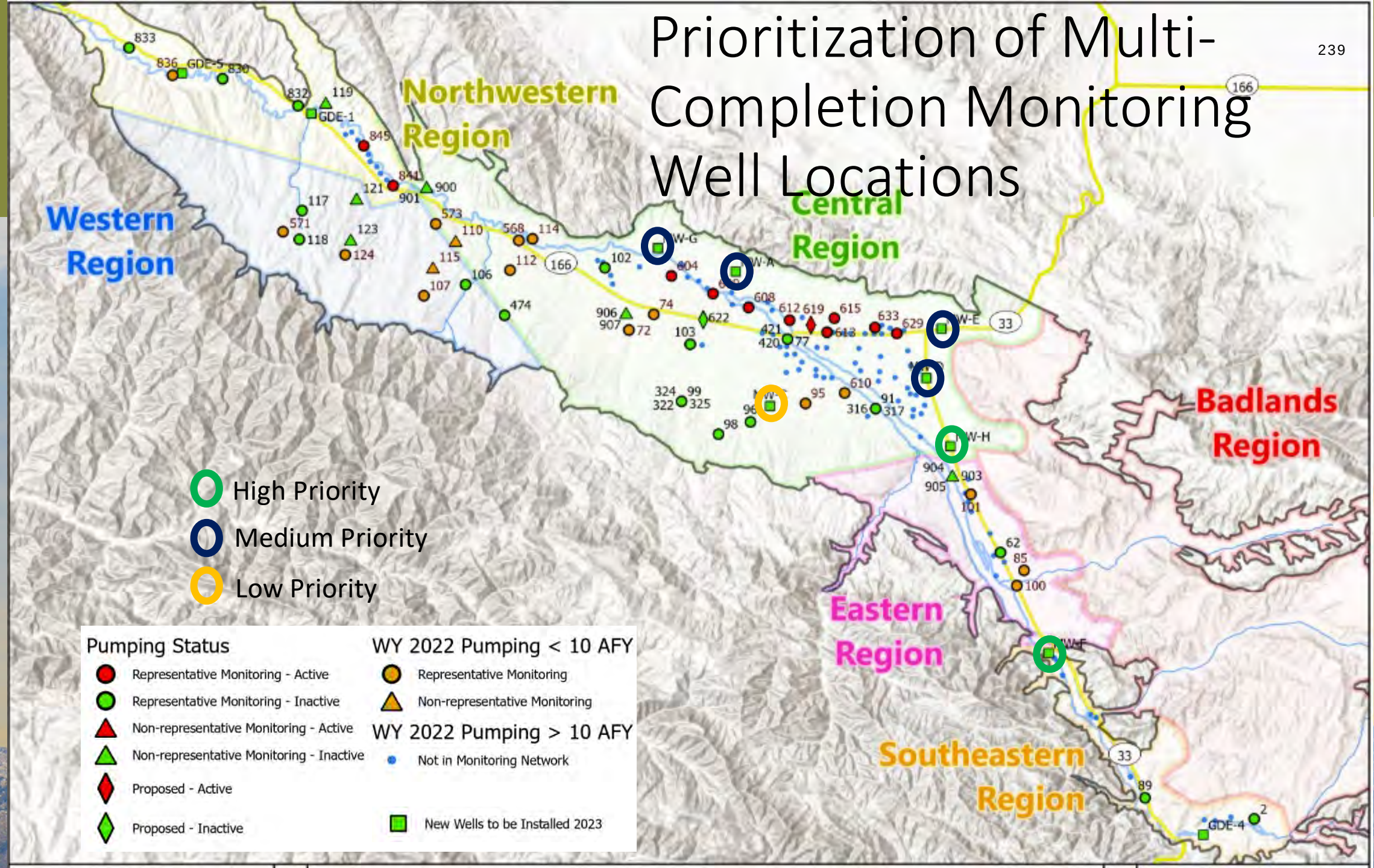
Prioritization of Multi-Completion Monitoring Well Locations



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  - Construct a new monitoring well near SBC Fault (i.e., MW-H with funding covered by current grant agreement)
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TO: Standing Advisory Committee
Agenda Item No. 8c

FROM: Brian Van Lienden, Woodard & Curran

DATE: January 4, 2024

SUBJECT: Update on October 2023 Groundwater Conditions Report

Recommended Motion
None – information only.

Discussion
The quarterly Groundwater Conditions Report for October 2023 is summarized as Attachment 1. The detailed report is provided as Attachment 2.

Cuyama Basin Groundwater Sustainability Agency

8c. Update on Quarterly Groundwater Conditions Report

January 4, 2024

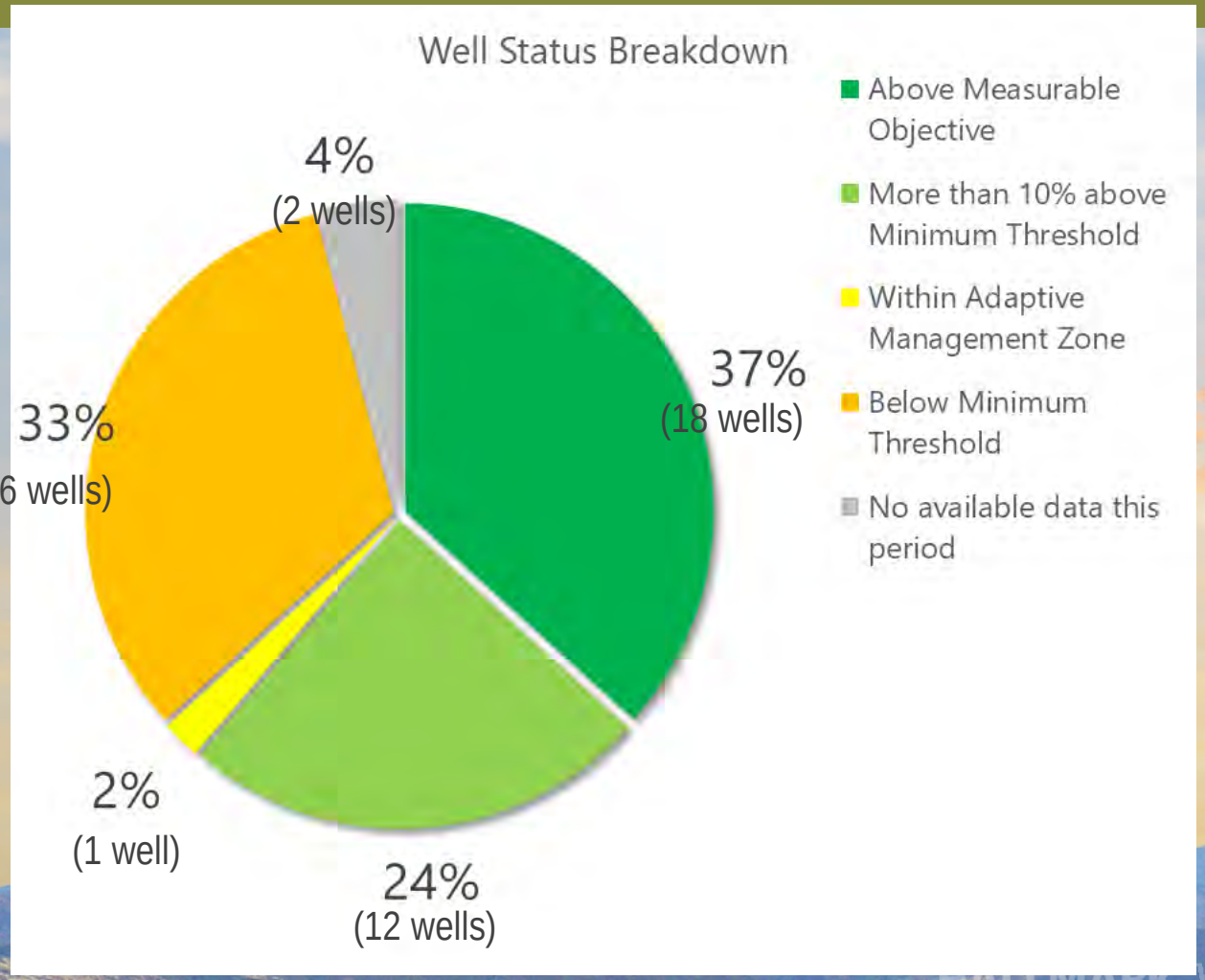
HALLMARK GROUP Woodard & Curran

Groundwater Levels Monitoring Network – Summary of Current Conditions

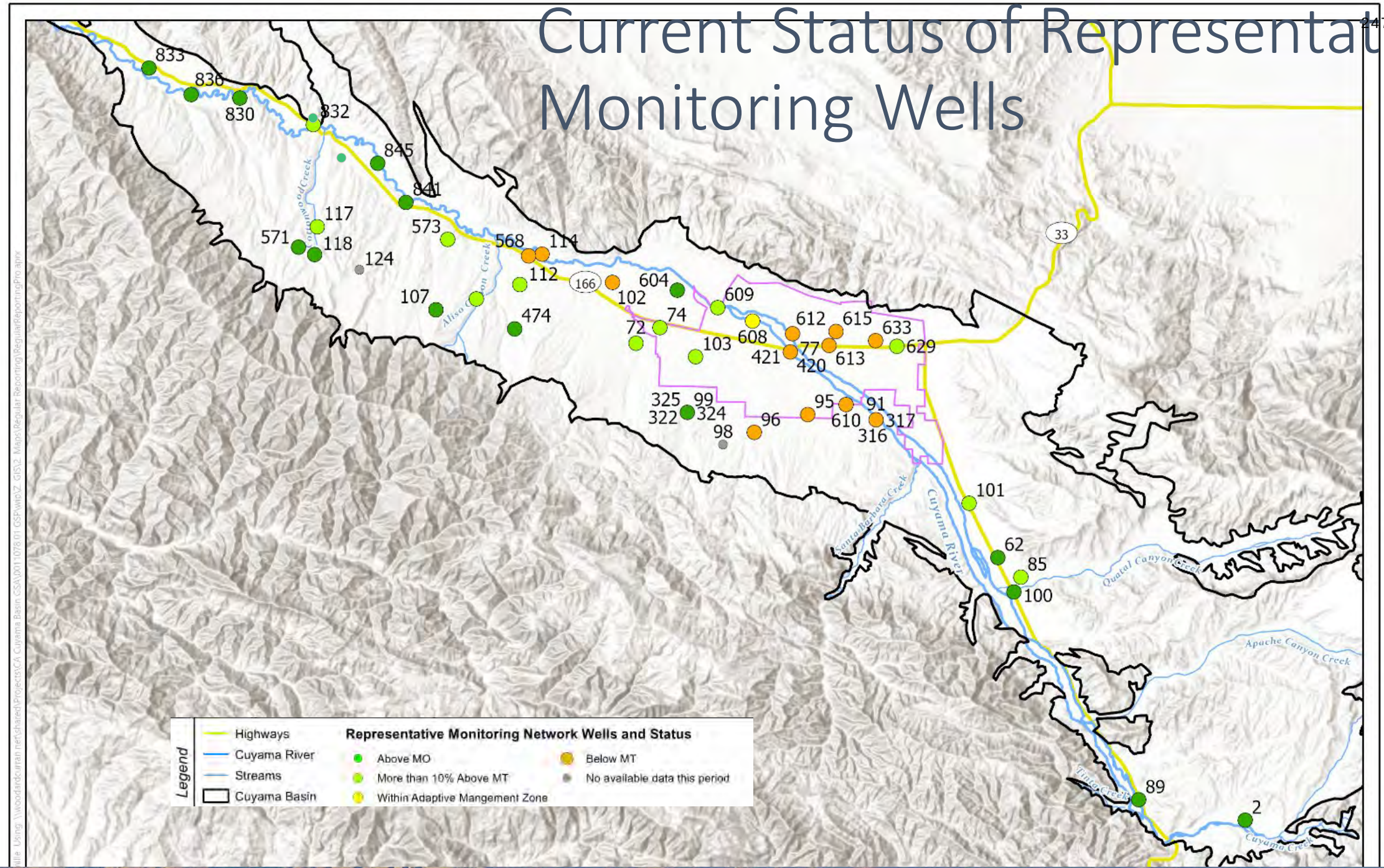
- Monitoring data from April 2023, July 2023, and October 2023 for representative wells is included in the Groundwater Conditions report
- 47 of 49 representative monitoring wells have levels data in at least one out of the previous 12 months
- 16 wells were below the minimum threshold based on latest measurement since October 2022

Summary of Groundwater Well Levels as Compared To Sustainability Criteria

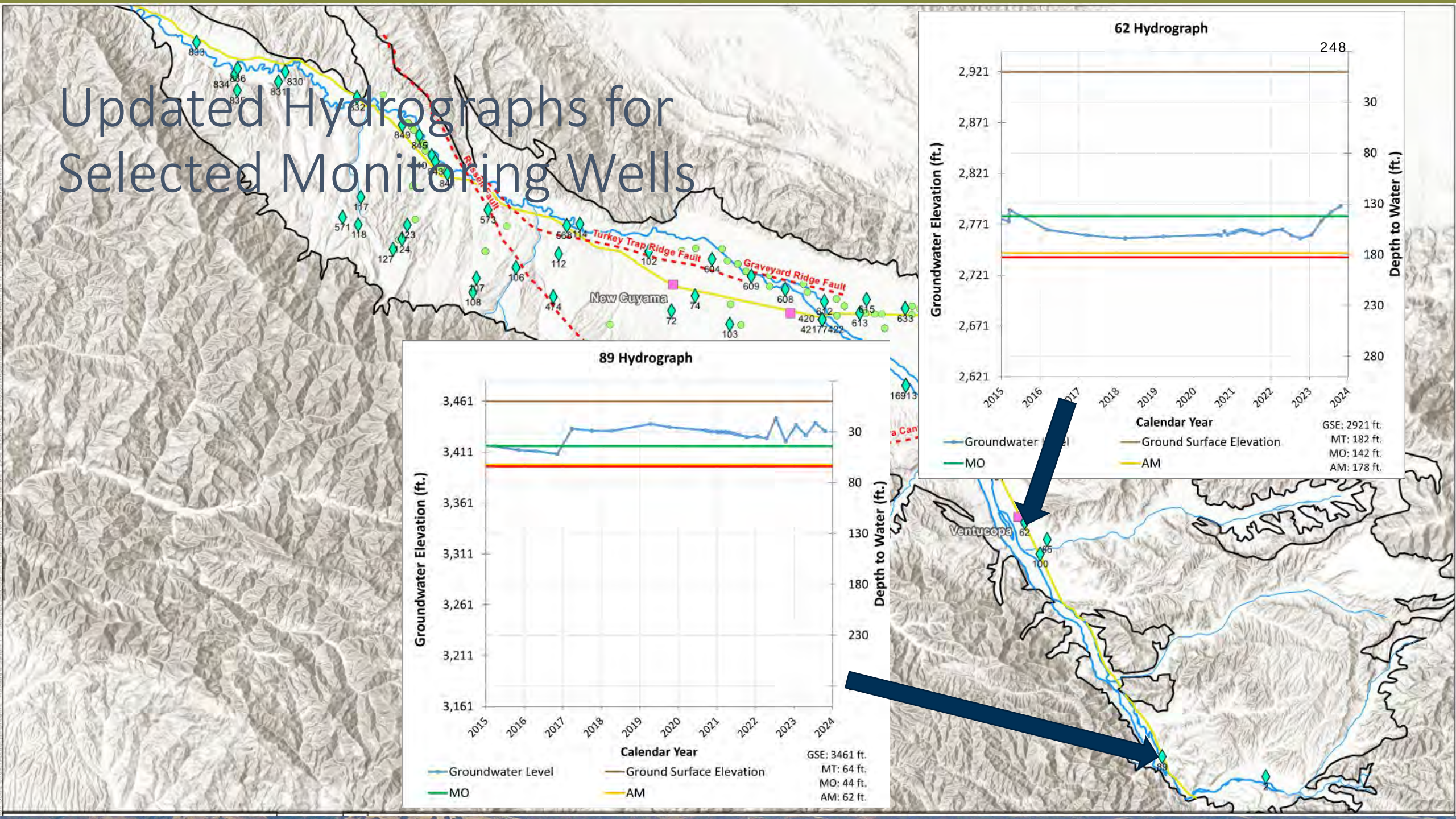
- 16 wells are currently below minimum threshold (MT)
  - 11 wells (22%) have been below the MT for at least 24 months
  - 2 wells dropped below the MT this month



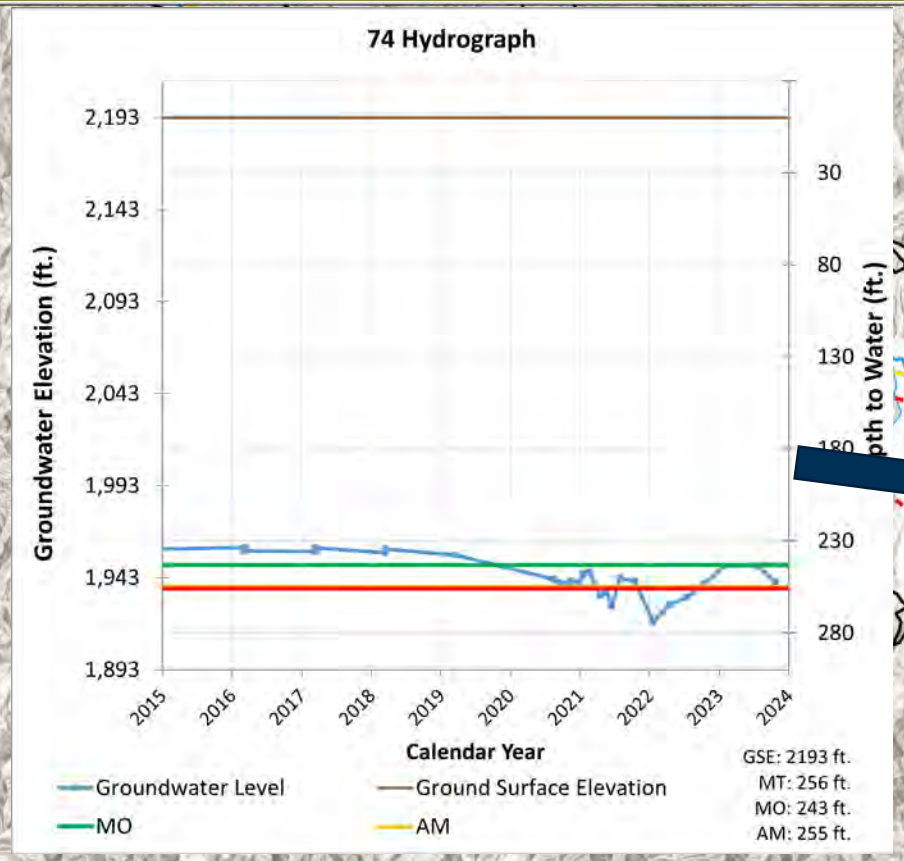
Current Status of Representative Monitoring Wells

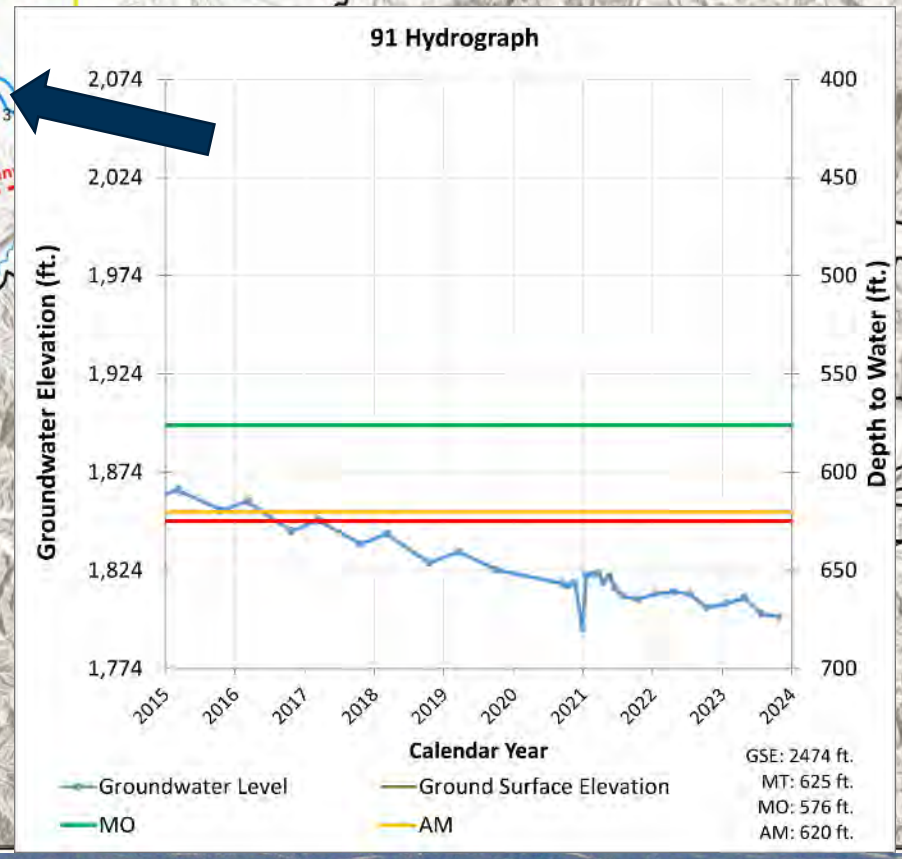


Updated Hydrographs for Selected Monitoring Wells

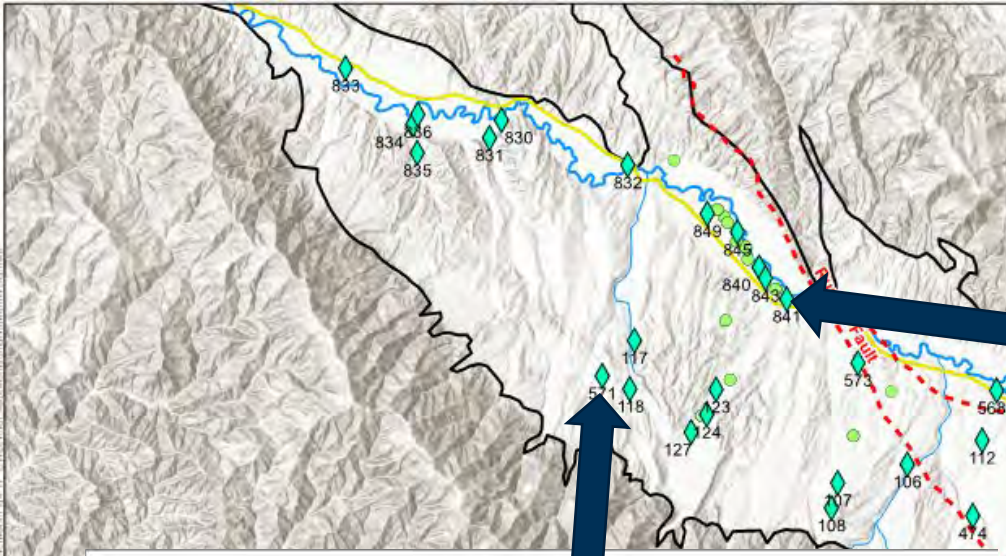


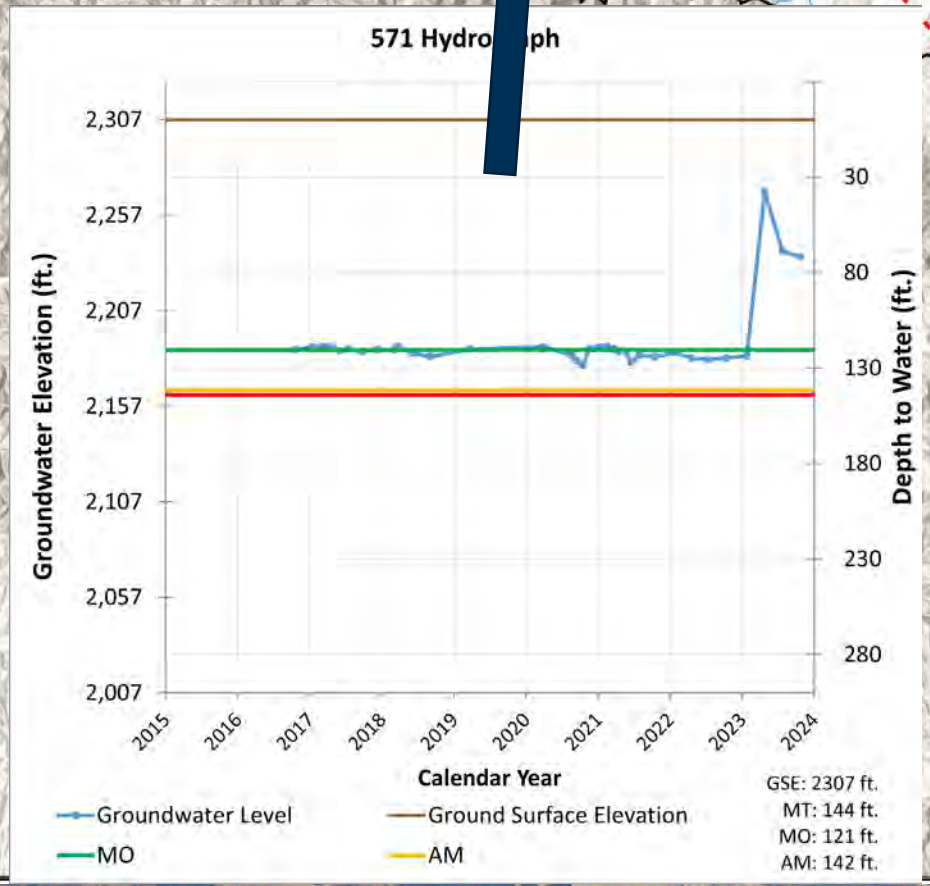
Updated Hydrographs for Selected Monitoring Wells

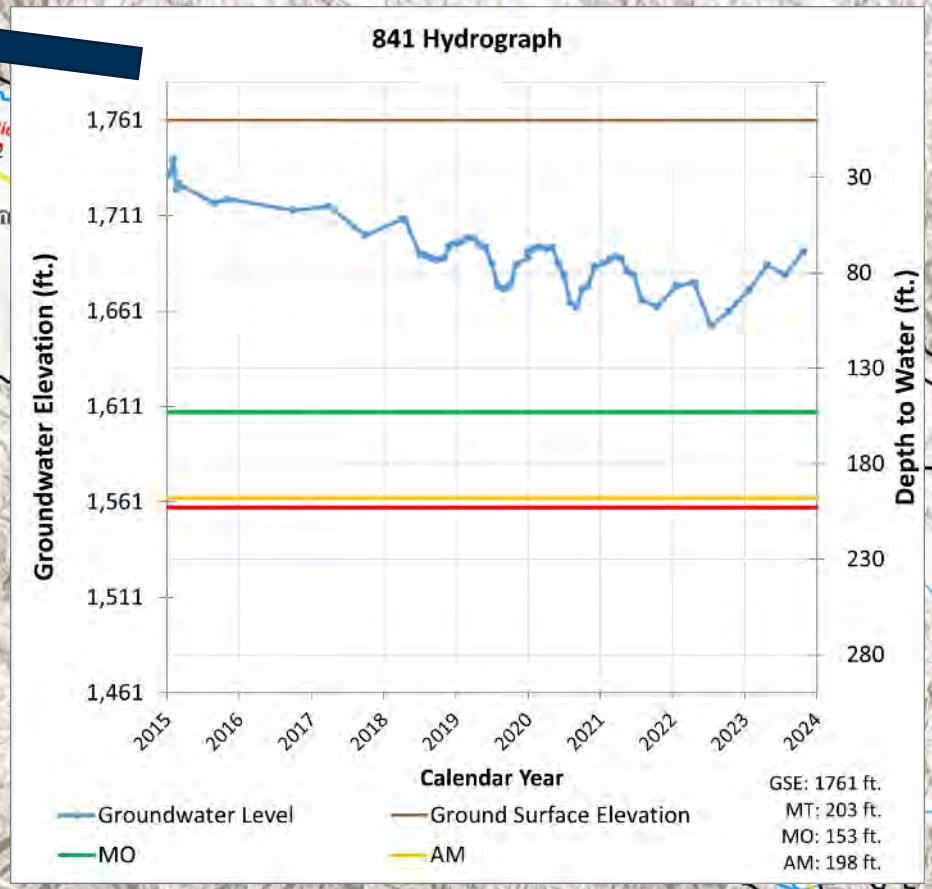




Updated Hydrographs for Selected Monitoring Wells







Attachment 2

GROUNDWATER CONDITIONS REPORT – CUYAMA VALLEY GROUNDWATER BASIN

October 2023

Woodard & Curran

801 T Street
Sacramento, CA
916.999.8700

woodardcurran.com

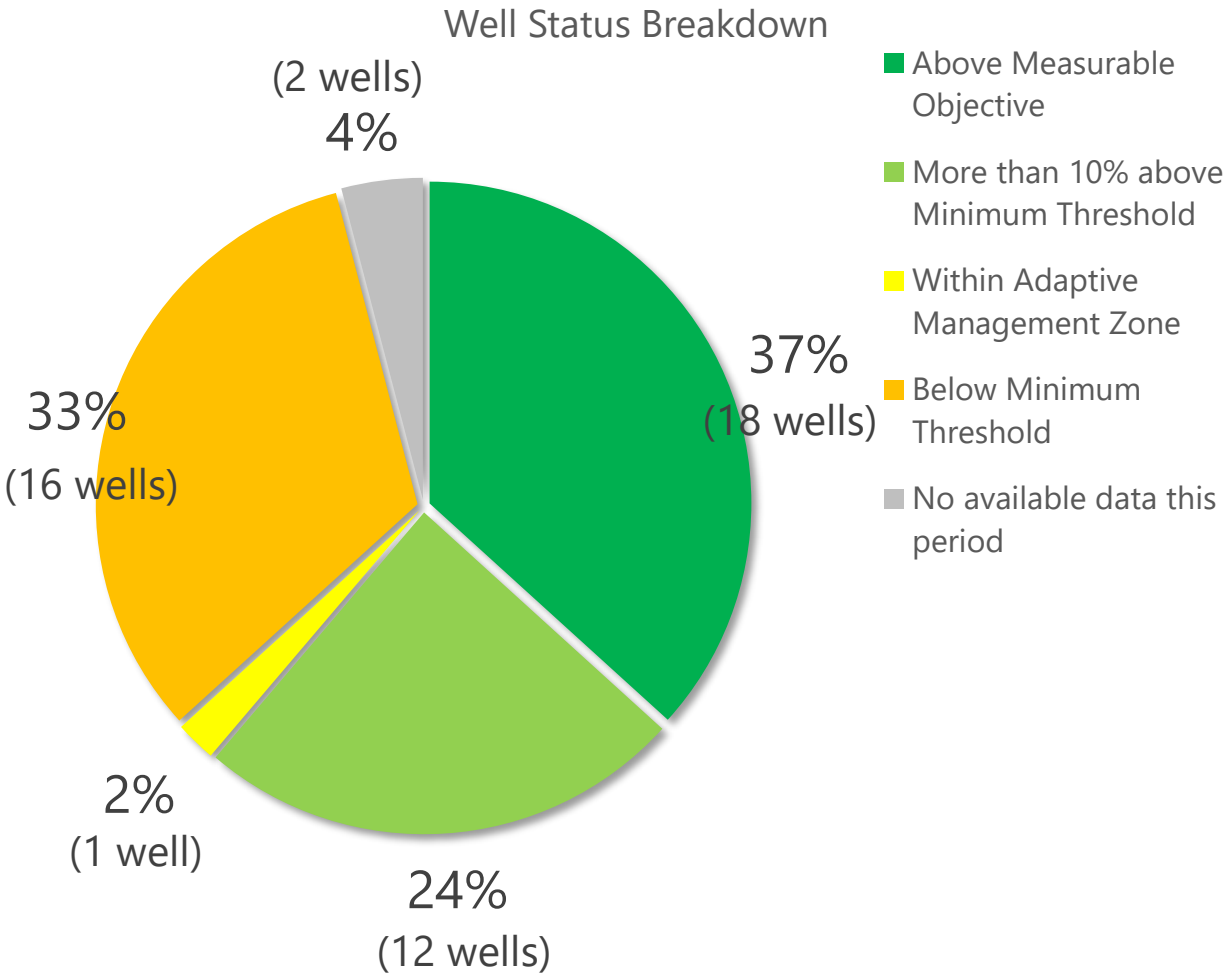
Cuyama Basin Groundwater Sustainability Agency

TABLE OF CONTENTS

1. INTRODUCTION

This report is intended to provide an update on the current groundwater level conditions in the Cuyama Valley Groundwater Basin. This work is completed by the Cuyama Basin Groundwater Sustainability Agency (CBGSA), in compliance with the Sustainable Groundwater Management Act (SGMA).

2. SUMMARY STATISTICS



There are currently 16 wells with groundwater levels exceeding minimum thresholds. As outlined in the GSP, undesirable results for the chronic lowering of groundwater levels occurs, "when 30 percent of representative monitoring wells… fall below their minimum groundwater elevation threshold for two consecutive years." (Cuyama GSP, pg. 3-2). Currently, 30% of representative monitoring wells (i.e. 15 wells) have been below the minimum threshold for 1 or more consecutive months.

3. CURRENT CONDITIONS

Table 1 includes the most recent groundwater level measurements taken in the Cuyama Basin from representative wells included in the Cuyama GSP Groundwater Level Monitoring Network, as well as the previous two measurements. Table 2 includes all of the wells and their current status in relation to the thresholds applied to each well. This information is also shown on Figure 1.

All measurements are also incorporated into the Cuyama DMS, which may be accessed at https://opti.woodardcurran.com/cuyama/login.php.

Table 1: Recent Groundwater Levels for Representative Monitoring Network

Well	Region	Apr-23	Jul-23	Oct-23	Last Year		Annual
		GWL (ft. msl)	GWL (ft. msl)	GWL (ft. msl)	GWL (ft. msl)	Month/ Year	Elevation Change (ft)
72	Central	2019	2016	2017	2014	Oct-22	3
74	Central	-	1949	1940	1939	Oct-22	2
77	Central	1798	1781	1793	1779	Oct-22	14
91	Central	1810	1802	1800	1805	Oct-22	-5
95	Central	-	1837	1841	1851	Oct-22	-11
96	Central	2275	2269	2270	2269	Oct-22	1
98	Central	-	-	-	-	-	-
99	Central	2223	2181	2223	2158	Oct-22	65
102	Central	-	1598	1758	1622	Oct-22	136
103	Central	2045	2035	2044	2032	Oct-22	13
112	Central	2053	2053	2053	2053	Oct-22	0
114	Central	-	-	-	1877	Oct-22	-
316	Central	1808	1803	1799	1803	Oct-22	-4
317	Central	-	1805	1801	-	-	-
322	Central	2222	2174	2222	2156	Oct-22	66
324	Central	2220	2189	2221	2178	Oct-22	43
325	Central	2222	2202	2222	2200	Oct-22	22
420	Central	1795	1780	1792	1725	Oct-22	67
421	Central	1802	1787	1793	1787	Oct-22	6
474	Central	2202	2206	-	2203	Oct-22	-

Well	Region	Apr-23	Jul-23	Oct-23	Last Year		Annual
		GWL (ft. msl)	GWL (ft. msl)	GWL (ft. msl)	GWL (ft. msl)	Month/ Year	Elevation Change (ft)
568	Central	1870	1869	1867	1851	Oct-22	16
604	Central	1656	1669	1684	-	-	-
608	Central	-	1799	1790	1782	Oct-22	8
609	Central	1705	1727	1725	1707	Oct-22	18
610	Central	1813	1806	1805	1808	Oct-22	-3
612	Central	1801	1779	1788	1786	Oct-22	1
613	Central	1788	1780	1801	1794	Oct-22	7
615	Central	1810	1812	1809	1814	Oct-22	-5
629	Central	1803	1845	1848	1812	Oct-22	37
633	Central	1851	1851	1798	1792	Oct-22	5
62	Eastern	2774	2783	2789	2757	Oct-22	32
85	Eastern	2844	2848	2870	2841	Oct-22	30
100	Eastern	2901	2911	2909	2846	Oct-22	63
101	Eastern	-	2634	2635	-	-	-
841	Northwestern	1685	1680	1692	1661	Oct-22	31
845	Northwestern	1647	1638	1637	1638	Oct-22	-1
2	Southeastern	3704	3702	3698	-	-	-
89	Southeastern	3428	3440	3432	3422	Oct-22	10
106	Western	2184	2184	2185	2182	Oct-22	3
107	Western	2390	2414	-	2390	Oct-22	-
117	Western	1950	1947	1946	1945	Oct-22	1

Well	Region	Apr-23	Jul-23	Oct-23	Last Year		Annual
		GWL (ft. msl)	GWL (ft. msl)	GWL (ft. msl)	GWL (ft. msl)	Month/ Year	Elevation Change (ft)
118	Western	2214	2216	2217	2212	Oct-22	6
124	Western	-	-	-	-	-	-
571	Western	2269	2238	2235	2182	Oct-22	53
573	Western	2015	2015	2015	2012	Oct-22	3
830	Far-West Northwestern	1516	1523	1522	1508	Oct-22	15
832	Far-West Northwestern	1596	1596	1595	1588	Oct-22	7
833	Far-West Northwestern	1426	1427	1434	-	-	-
836	Far-West Northwestern	1450	1459	1456	1447	Oct-22	9

Table 2: Well Status Related to Thresholds

Well	Region	Current Month		Minimum Threshold	Within 10% Minimum Threshold	Measurable Objective	Well Depth	Status	GSA Action Required?
		GWL (DTW)	Date						
72	Central	154	10/24/2023	169	165	124	790	More than 10% above Minimum Threshold	No
74	Central	253	10/24/2023	256	255	243		More than 10% above Minimum Threshold	No
77	Central	493	10/24/2023	450	445	400	980	Below Minimum Threshold (38 months)	No
91	Central	674	10/25/2023	625	620	576	980	Below Minimum Threshold (38 months)	No
95	Central	608	10/25/2023	573	570	538	805	Below Minimum Threshold (38 months)	No
96	Central	336	10/25/2023	333	332	325	500	Below Minimum Threshold (4 months)	No
98	Central	-		450	449	439	750	No available data since GSA monitoring began	No
99	Central	290	10/24/2023	311	310	300	750	Above Measurable Objective	No
102	Central	288	10/25/2023	235	231	197		Below Minimum Threshold (31 months)	No
103	Central	244	10/25/2023	290	285	235	1030	More than 10% above Minimum Threshold	No
112	Central	86	10/25/2023	87	87	85	441	More than 10% above Minimum Threshold	No
114	Central	-	10/25/2023	47	47	45	58	No available data this period (below MT in Oct 2022, 19 months)	No

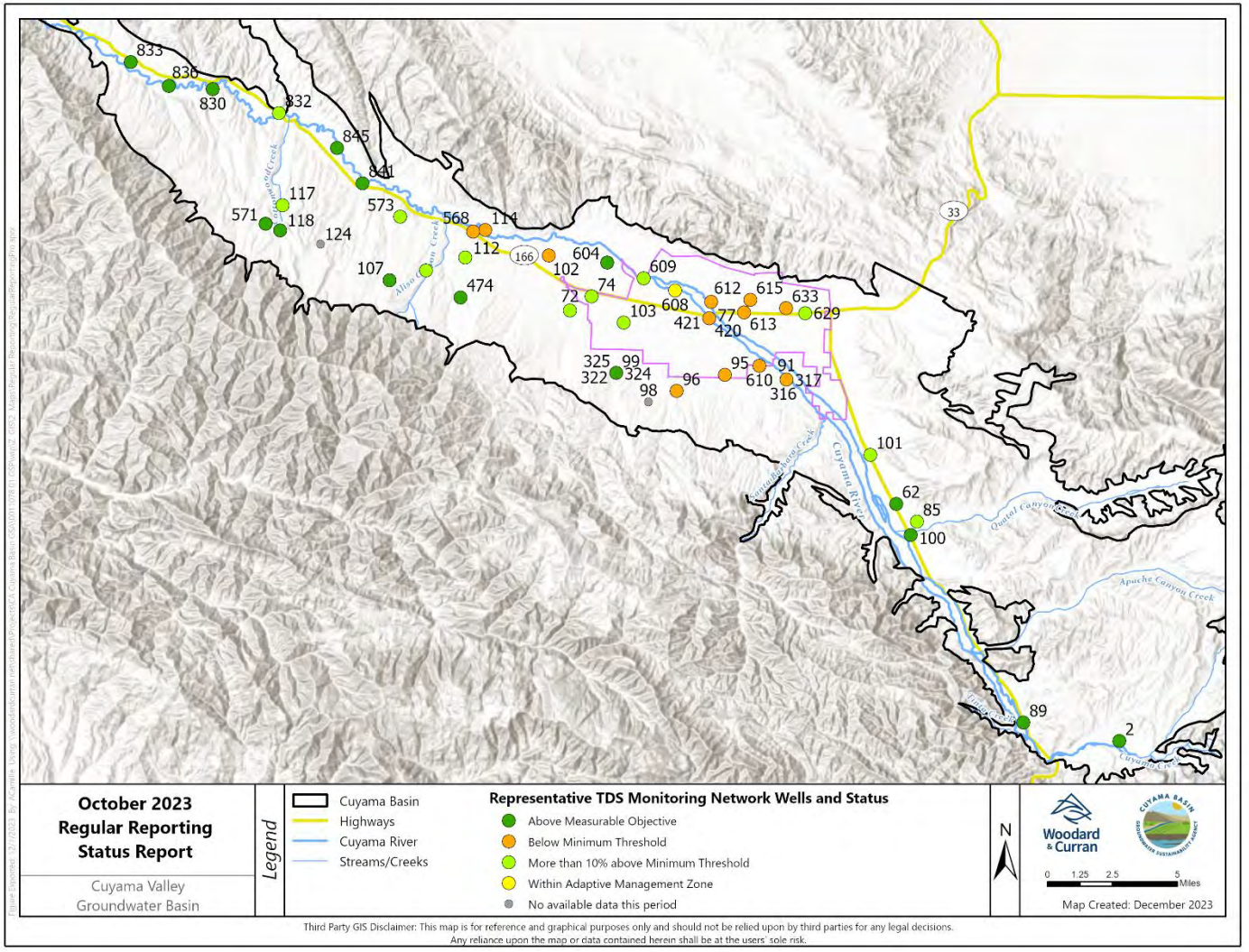
Well	Region	Current Month		Minimum Threshold	Within 10% Minimum Threshold	Measurable Objective	Well Depth	Status	GSA Action Required?
		GWL (DTW)	Date						
316	Central	675	10/25/2023	623	618	574	830	Below Minimum Threshold (38 months)	No
317	Central	673	10/25/2023	623	618	573	700	Below Minimum Threshold (38 months)	No
322	Central	291	10/24/2023	307	306	298	850	Above Measurable Objective	No
324	Central	292	10/24/2023	311	310	299	560	Above Measurable Objective	No
325	Central	291	10/24/2023	300	299	292	380	Above Measurable Objective	No
420	Central	494	10/24/2023	450	445	400	780	Below Minimum Threshold (38 months)	No
421	Central	493	10/24/2023	446	441	398	620	Below Minimum Threshold (38 months)	No
474	Central	-	10/25/2023	188	186	169	213	No data available this period (Above Measurable Objective in July 2023)	No
568	Central	37	10/25/2023	37	37	36	188	Below Minimum Threshold (1 month)	No
604	Central	440	10/24/2023	526	522	487	924	Above Measurable Objective	No
608	Central	433	10/24/2023	436	433	407	745	Within Adaptive Management Zone	No
609	Central	442	10/24/2023	458	454	421	970	More than 10% above Minimum Threshold	No
610	Central	637	10/25/2023	621	618	591	780	Below Minimum Threshold (30 months)	No
612	Central	479	10/24/2023	463	461	440	1070	Below Minimum Threshold (22 months)	No

Well	Region	Current Month		Minimum Threshold	Within 10% Minimum Threshold	Measurable Objective	Well Depth	Status	GSA Action Required?
		GWL (DTW)	Date						
613	Central	530	10/24/2023	503	500	475	830	Below Minimum Threshold (36 months)	No
615	Central	518	10/24/2023	500	497	468	865	Below Minimum Threshold (35 months)	No
629	Central	530	10/24/2023	559	556	527	1000	More than 10% above Minimum Threshold	No
633	Central	566	10/24/2023	547	542	493	1000	Below Minimum Threshold 1 month)	No
62	Eastern	132	10/24/2023	182	178	142	212	Above Measurable Objective	No
85	Eastern	177	10/24/2023	233	225	147	233	More than 10% above Minimum Threshold	No
100	Eastern	95	10/24/2023	181	175	125	284	Above Measurable Objective	No
101	Eastern	106	10/24/2023	111	108	81	200	More than 10% above Minimum Threshold	No
841	Northwestern	69	10/24/2023	203	198	153	600	Above Measurable Objective	No
845	Northwestern	74	10/24/2023	203	198	153	380	Above Measurable Objective	No
2	Southeastern	22	10/24/2023	72	70	55	73	Above Measurable Objective	No
89	Southeastern	29	10/24/2023	64	62	44	125	Above Measurable Objective	No
106	Western	142	10/25/2023	154	153	141	228	More than 10% above Minimum Threshold	No
107	Western	-	10/25/2023	91	89	72	200	No data available this period (Above Measurable Objective in July 2023)	No

Well	Region	Current Month		Minimum Threshold	Within 10% Minimum Threshold	Measurable Objective	Well Depth	Status	GSA Action Required?
		GWL (DTW)	Date						
117	Western	152	10/25/2023	160	159	151	212	More than 10% above Minimum Threshold	No
118	Western	53	10/25/2023	124	117	57	500	Above Measurable Objective	No
124	Western	-		73	71	57	161	No available data since GSA monitoring began	No
571	Western	72	10/25/2023	144	142	121	280	Above Measurable Objective	No
573	Western	69	10/25/2023	118	113	68	404	More than 10% above Minimum Threshold	No
830	Far-West Northwestern	49	10/25/2023	59	59	56	77	Above Measurable Objective	No
832	Far-West Northwestern	35	10/24/2023	45	44	30	132	More than 10% above Minimum Threshold	No
833	Far-West Northwestern	23	10/24/2023	96	89	24	504	Above Measurable Objective	No
836	Far-West Northwestern	30	10/24/2023	79	75	36	325	Above Measurable Objective	No

Note: Wells only count towards the identification of undesirable results if the level measurement is below the minimum threshold for 24 consecutive months.

Figure 1: Groundwater Level Representative Wells and Status in October 2023



4. HYDROGRAPHS

The following hydrographs provide an overview of conditions in each of the six areas threshold regions identified in the GSP.

Figure 2: Southeast Region – Well 89

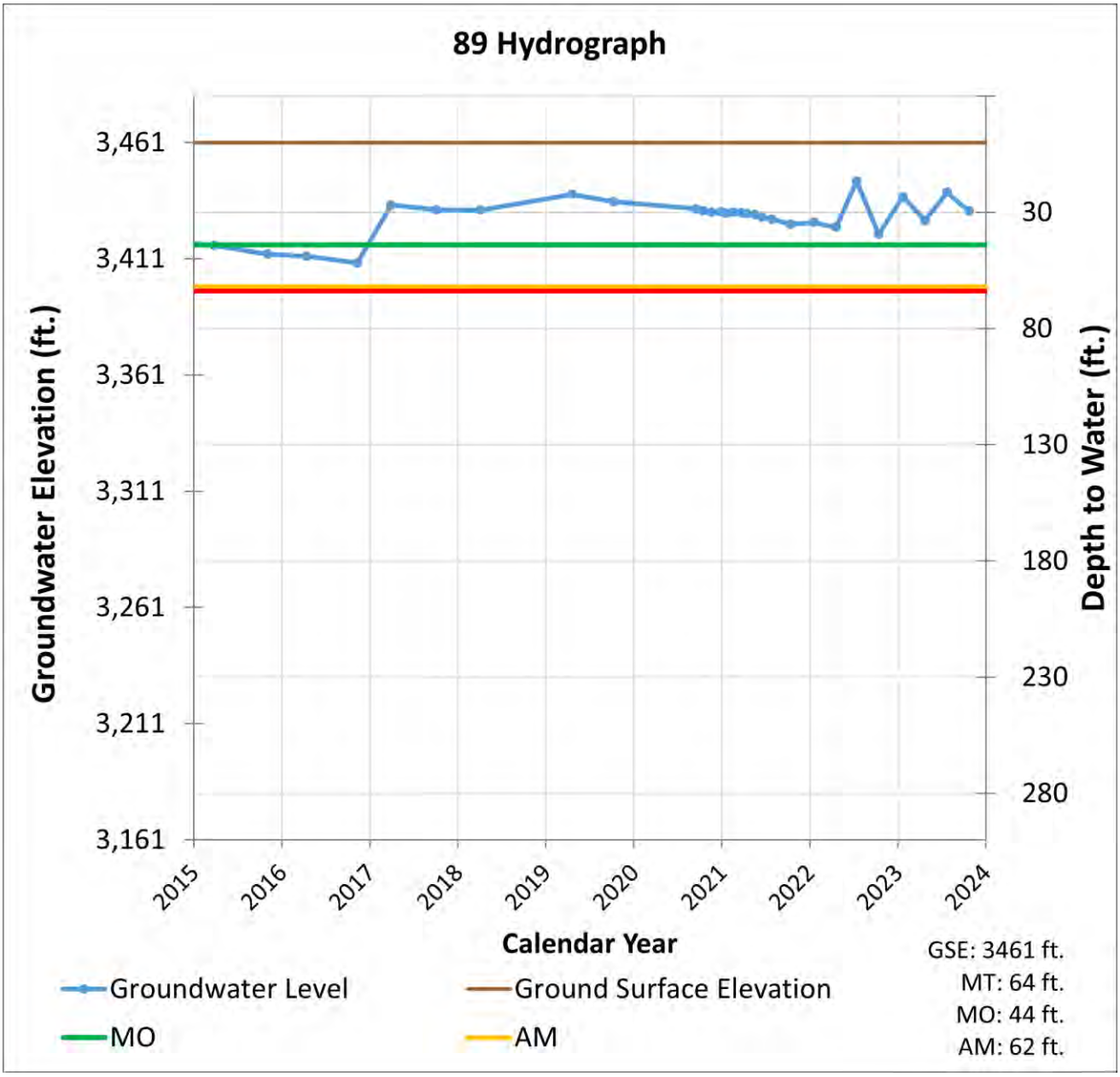


Figure 3: Eastern Region – Well 62

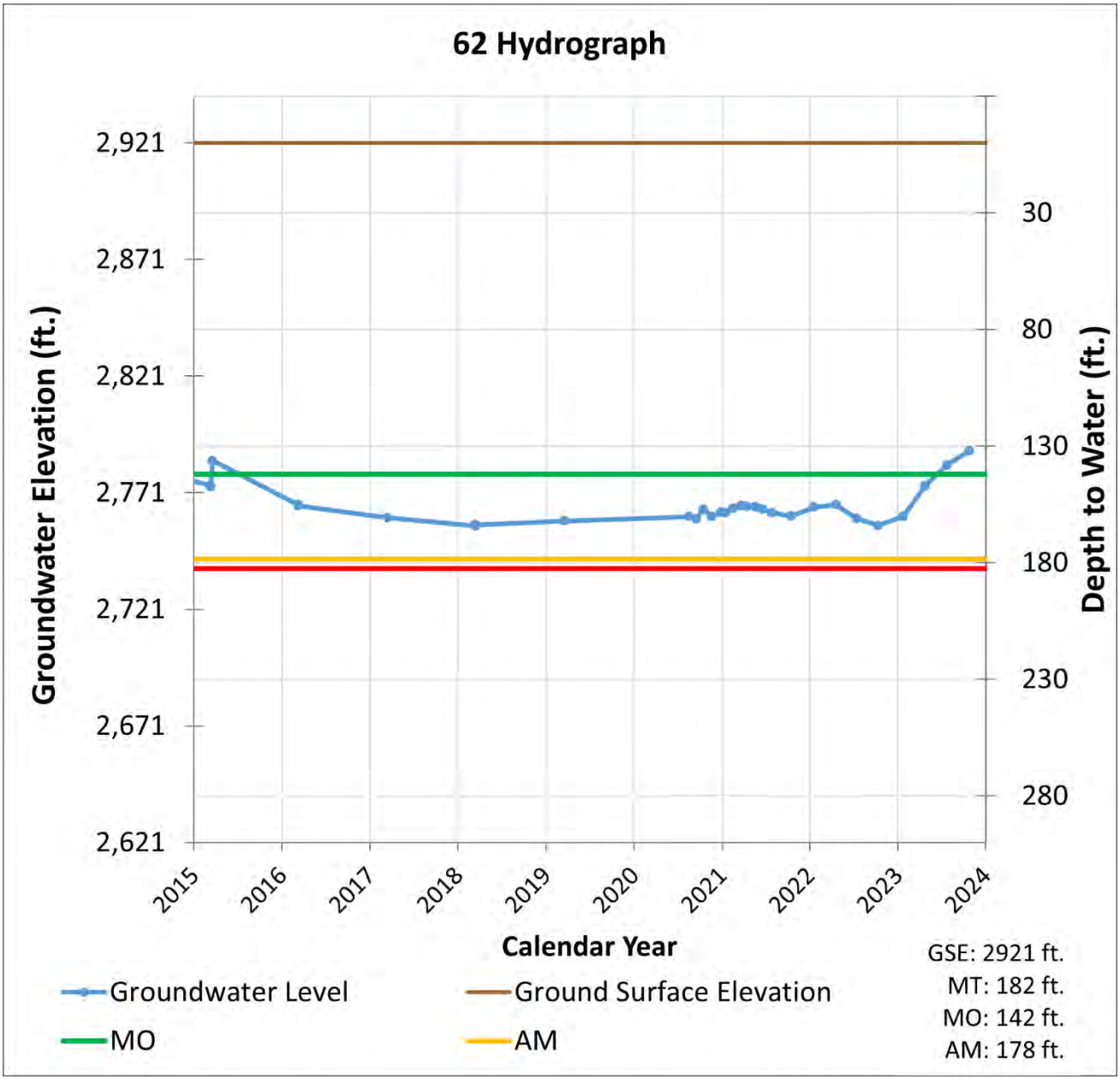


Figure 4: Central Region – Well 91

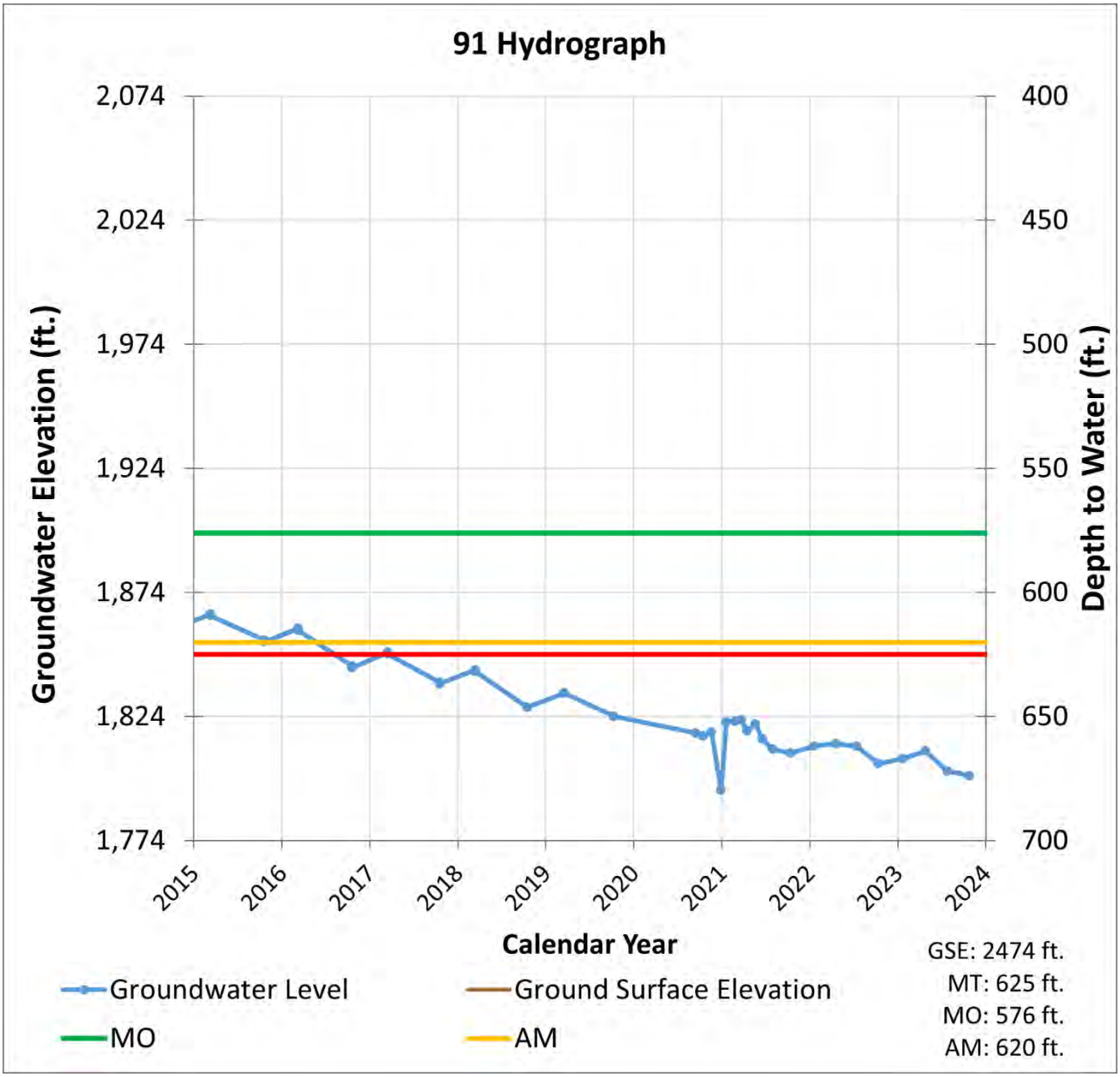


Figure 5: Central Region – Well 74

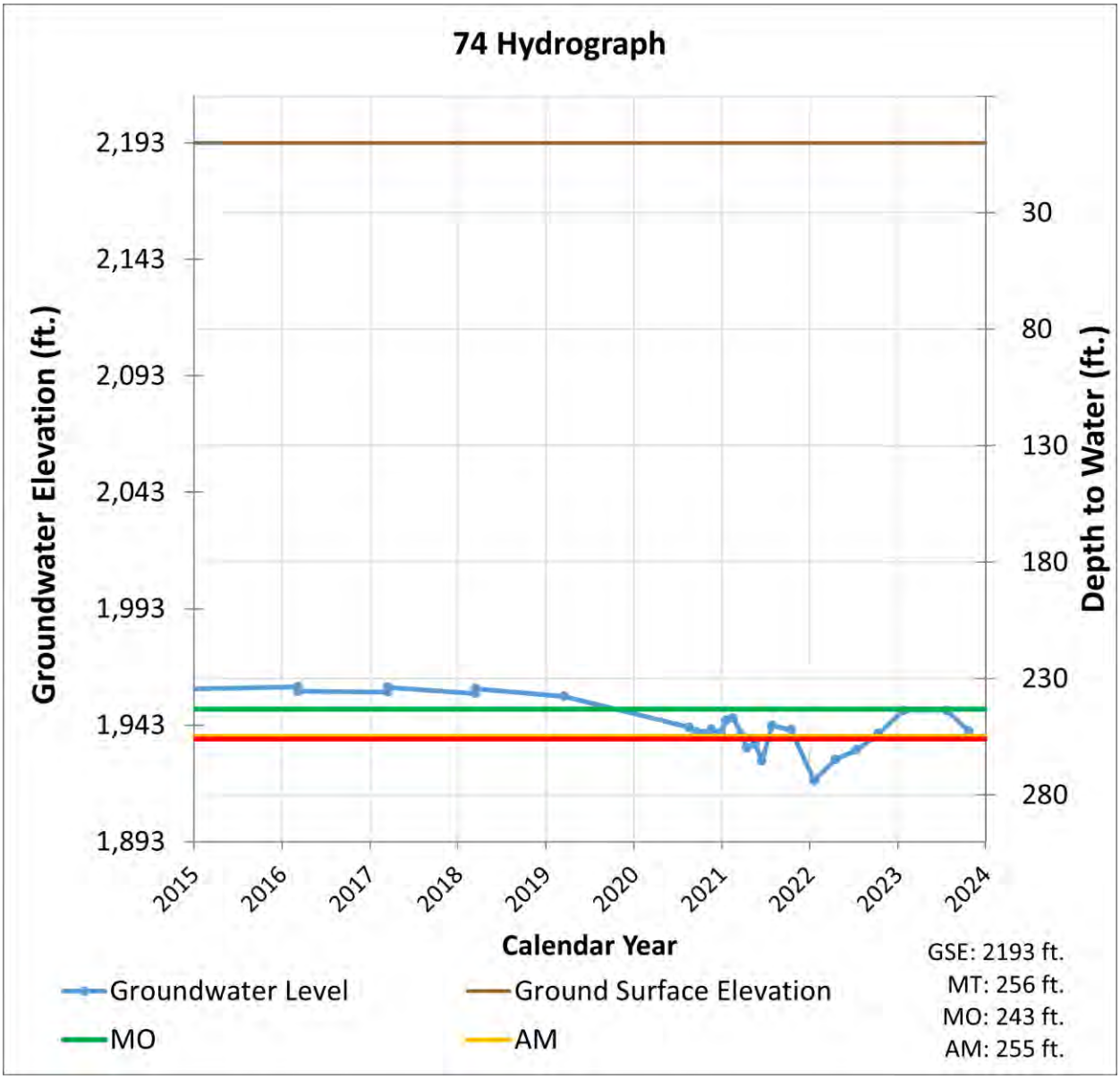


Figure 6: Western Region – Well 571

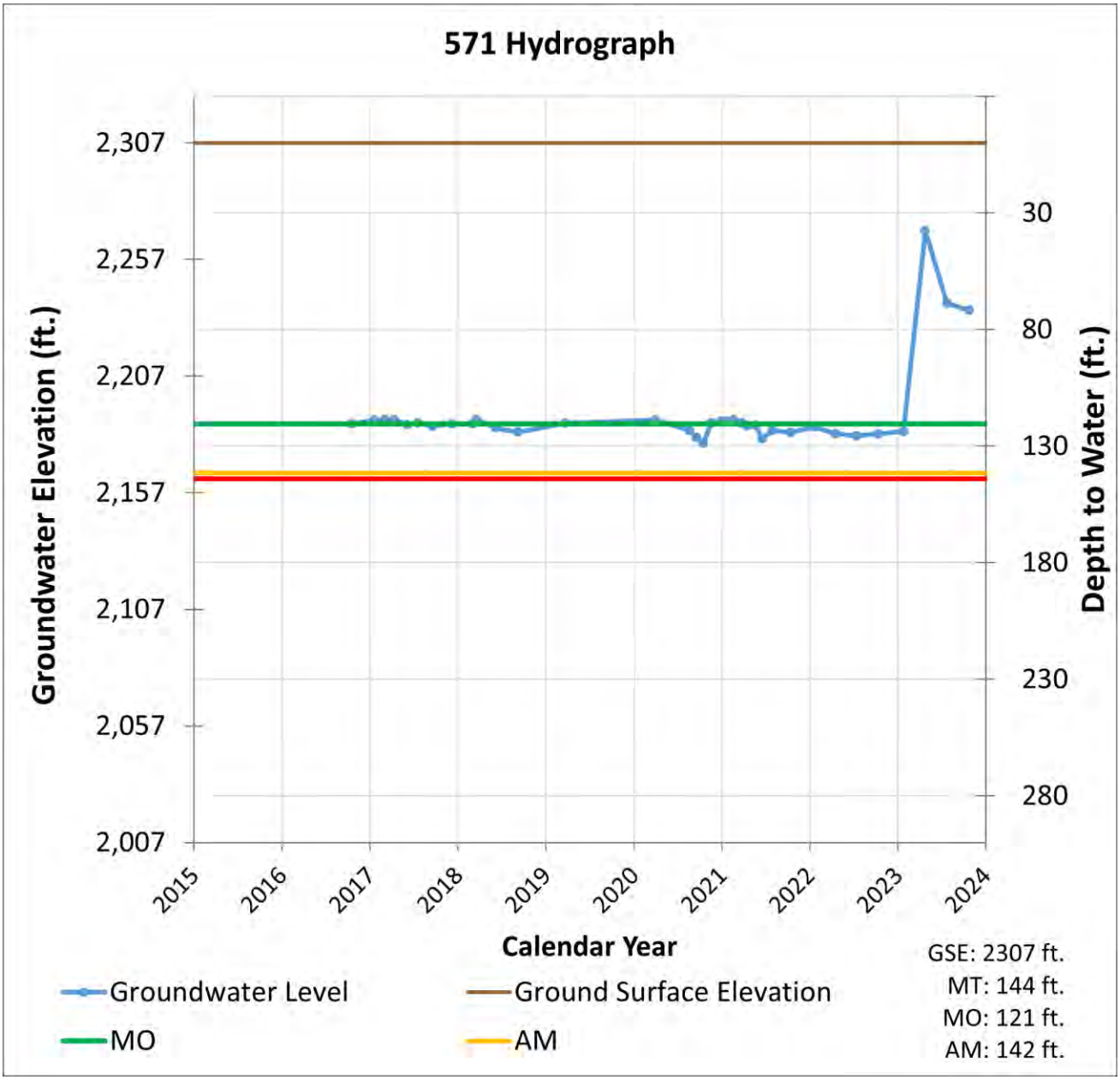
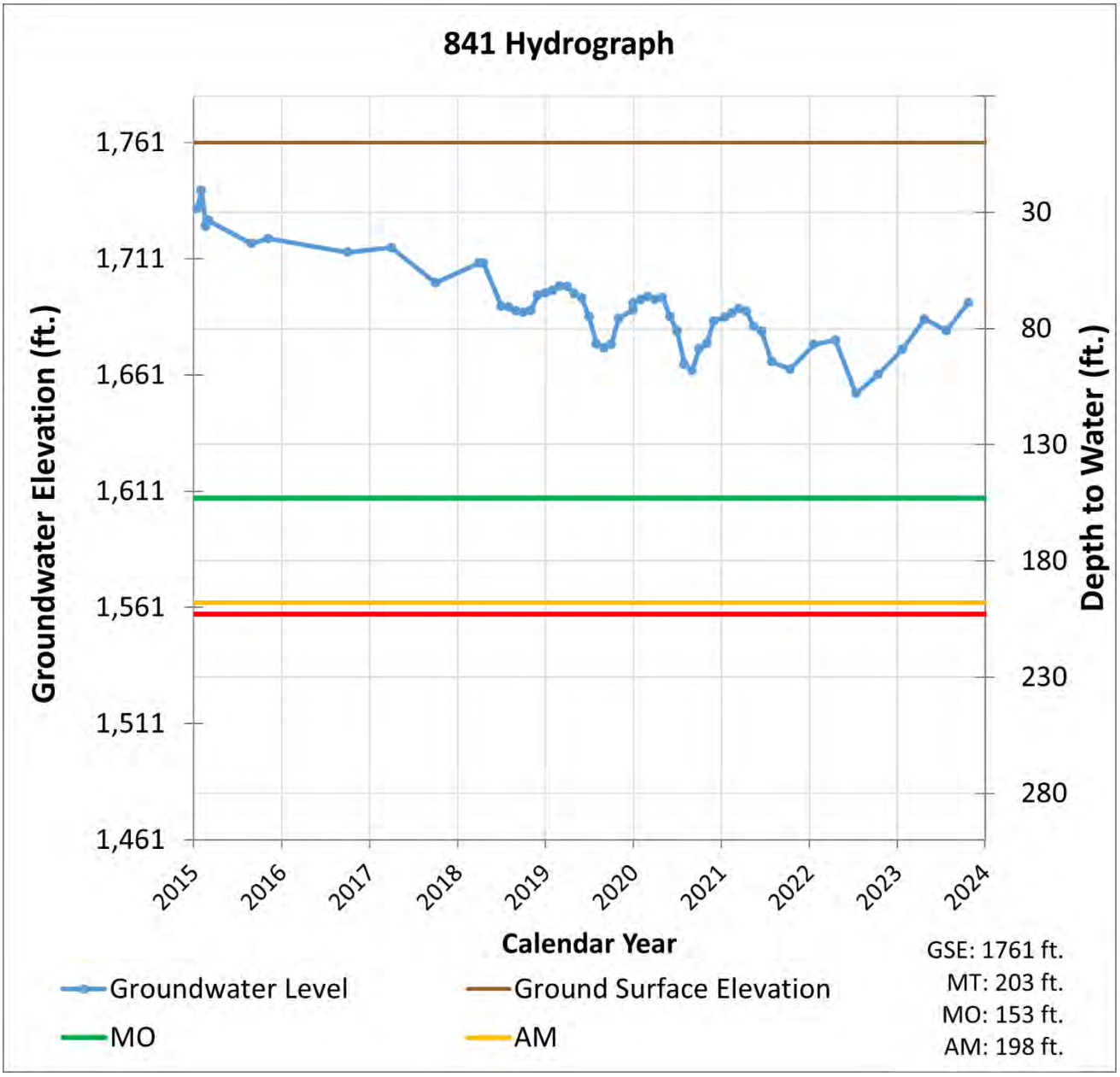


Figure 7: Northwestern Region – Well 841



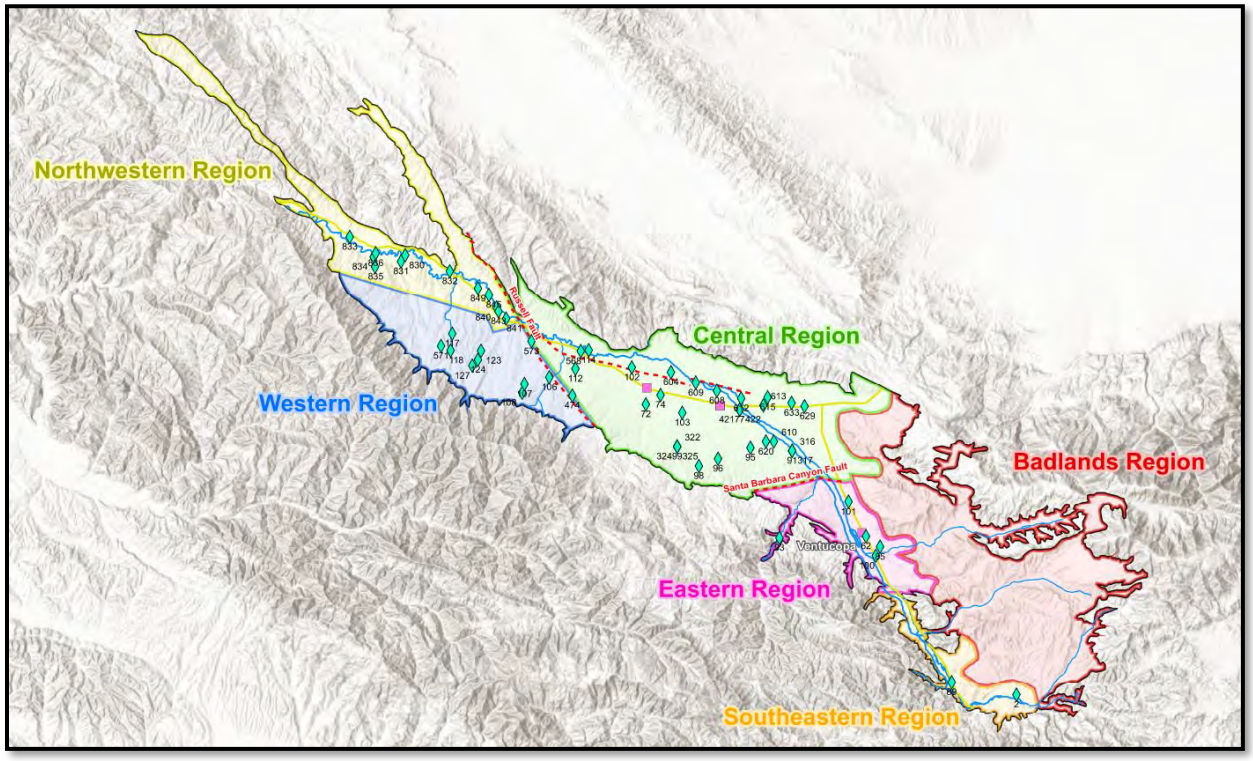


Figure 8: Threshold Regions in the Cuyama Groundwater Basin

5. MONITORING NETWORK UPDATES

As shown in Table 2, there are 5 wells with no measurement during the current monitoring period. These "no measurement codes" can have different causes as described below.

- Access agreements have not been established with the landowner:
    - Wells 98, 124
- Measurement was not possible at the time when the field technician went to take measurements:
    - Wells 107, 114, 474

[redacted]

Woodard & Curran

woodardcurran.com

TO: Standing Advisory Committee
Agenda Item No. 9c

FROM: Jim Beck, Executive Director

DATE: January 4, 202

SUBJECT: Board of Directors Agenda Review

Recommended Motion
None – informational only.

Discussion
The Cuyama Basin Groundwater Sustainability Agency Board of Directors agenda for the January 10, 2024, Board of Directors meeting is provided as Attachment 1.

CUYAMA BASIN GROUNDWATER SUSTAINABILITY AGENCY

BOARD OF DIRECTORS MEETING

Board of Directors

Cory Bantilan Chair, Santa Barbara County Water Agency
Matt Vickery Vice Chair, Cuyama Basin Water District
Arne Anselm Secretary, County of Ventura
Byron Albano Treasurer, Cuyama Basin Water District
Rick Burnes Cuyama Basin Water District
Jimmy Paulding County of San Luis Obispo
Zack Scrivner County of Kern
Das Williams Santa Barbara County Water Agency
Deborah Williams Cuyama Community Services District
Jane Wooster Cuyama Basin Water District
Derek Yurosek Cuyama Basin Water District

AGENDA

January 10, 2024

Agenda for a meeting of the Cuyama Basin Groundwater Sustainability Agency Board of Directors to be held on Wednesday, January 10, 2024, at 2:00 PM at the **Cuyama Valley Family Resource Center 4689 CA-166, New Cuyama, CA 93254.** Participate via computer at: https://rb.gy/1nxwv or by going to Microsoft Teams, downloading the free application, then entering Meeting ID: 224 192 969 900 Passcode: jVHbgy or enter or telephonically at (469) 480-3918 Phone Conference ID: 956 062 525#.

Teleconference Locations:

4689 CA-166, New Cuyama, CA 93254	3432 Kraft Ln., Arvin, CA 93203	1065 Higuera Street, San Luis Obispo	105 E. Anapamu Street, Santa Barbara, CA 93101	5241 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. 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 (Bantilan) (1 min)
2. Roll Call (Blakslee) (1 min)
3. Pledge of Allegiance (Bantilan) (1 min)
4. Meeting Protocols (Blakslee) (2 min)
5. Election of Officers (Bantilan) (5 min)
6. Standing Advisory Committee Meeting Report (Kelly) (3 min)

CONSENT AGENDA

Items listed on the Consent Agenda are considered routine and non-controversial by staff and will be approved by one motion if no member of the Board or public wishes to comment or ask questions. If comment or discussion is desired by anyone, the item will be removed from the Consent Agenda and will be considered in the listed sequence with an opportunity for any member of the public to address the Board concerning the item before action is taken.

7. Approve Minutes – November 1, 2023 (Bantilan) (1 min)
8. Approve Payment of Bills for September, October, November, and December 2023 (Blakslee) (1 min)

9. Approve Financial Reports for October and November 2023 (Blakslee) (1 min)

ACTION ITEMS

All action items require a simple majority vote by default (50% of the vote). Items that require a super majority vote (75% of the weighted total) will be noted as such at the end of the item.

10. Consider for Approval Resolution No. 2024-01 Authorizing the Submission of Calendar Year 2020, Fiscal Years 20-21, 21-22, 22-23 and 23-24 Delinquent Groundwater Extraction Fees to County Tax Collectors for Collection (Dominguez) (5 min)

11. Groundwater Sustainability Plan Amendment Components

    a) Update on GSP Component Schedule (Beck/Van Lienden) (5 min)

    b) Discuss and Take Appropriate Action on Sustainable Management Criteria and Undesirable Results Criteria for: [**Final** Discussion] (Beck/Van Lienden) (90 min)

        i. Groundwater Levels

        ii. Groundwater Storage

        iii. Subsidence

        iv. Water Quality

    c) Discuss and Take Appropriate Action on GSP Draft Chapters: [**Final** Discussion] (Beck/Van Lienden) (30 min)

        i. Chapter 1. Agency Information, Plan Area, Communication

        ii. Chapter 4. Monitoring Networks

    d) Discuss and Take Appropriate Action on Allocation Program Components (Continued Discussion) (Beck/Van Lienden) (60 min)

REPORT ITEMS

12. Administrative Updates

    a) Report of the Executive Director (Beck) (5 min)

    b) Report of the General Counsel (Hughes) (5 min)

13. Technical Updates

    a) Update on Groundwater Sustainability Plan Activities (Van Lienden) (2 min)

    b) Update on Grant-Funded Projects (Van Lienden) (5 min)

    c) Update on October 2023 Groundwater Conditions Report (Van Lienden) (5 min)

14. Report of Ad Hoc Committees (1 min)

15. Directors' Forum (1 min)

16. Public Comment for Items Not on the Agenda (5 min)

17. Correspondence (1 min)

CLOSED SESSION

18. Conference with Legal Counsel – Anticipation Litigation

    Significant Exposure to Litigation Pursuant to Government Code section 54956.9(d)(2)

        (a) Number of Potential Cases: One

19. Conference with Legal Counsel – Existing Litigation

    Pursuant to Government Code section 54956.9(d)(1)

(a) Bolthouse Land Company, LLC, et al v. All Persons Claiming a Right to Extract or Store Groundwater in the Cuyama Valley Groundwater Basin (BCV-21-101927)

20. Adjourn (5:56 p.m.)