



CUYAMA BASIN GROUNDWATER SUSTAINABILITY AGENCY STANDING ADVISORY COMMITTEE

Committee Members

Brenton Kelly (Chair)	Jake Furstenfeld	<i>Vacant</i>
Brad DeBranch (Vice Chair)	Joe Haslett	<i>Vacant</i>
Louise Draucker	Roberta Jaffe	<i>Vacant</i>

AGENDA

February 25, 2021

Agenda for a meeting of the Cuyama Basin Groundwater Sustainability Agency Standing Advisory Committee to be held on Thursday, February 25, 2021 at 5:00 PM. ***Due to COVID-19 pandemic restrictions and resulting suspension of certain components of the Brown Act per Executive Order Nos. N-25-20 and N-29-20, this meeting will be a remote-only meeting.*** To hear the session live call (646) 749-3122, 203-153-453 or logon to <https://global.gotomeeting.com/join/203153453> to view meeting materials.

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. Public comments should be emailed to Taylor Blakslee at tblakslee@hgcpm.com by close of business on Wednesday, February 24, 2021 to assist in facilitating this remote meeting, but they may also be provided at the meeting.

1. Call to Order
2. Roll Call
3. Pledge of Allegiance
4. Annual Appointment of Committee Members
5. Election of Officers
6. Update on SAC Membership
7. Update on SAC Role Ad hoc
8. Approval of Minutes
9. Groundwater Sustainability Plan
 - a. Update on Groundwater Sustainability Plan Activities
 - b. Approval of the 2021 Annual Report
 - c. Adopt Model Refinement Technical Memo
 - d. Options for CBGSA Administration of New Development and Changes in Water Use
 - e. Update on Monitoring Network Implementation
 - f. Update on Monthly Groundwater Conditions Report
 - g. Update on Modifications to the Groundwater Level Monitoring Network

10. Groundwater Sustainability Agency

- a. Report of the Executive Director
- b. Coordination between the GSA and Counties
- c. Board of Directors Agenda Review
- d. Report of the General Counsel

11. Items for Upcoming Sessions

12. Committee Forum

13. 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.

14. Correspondence

15. Adjourn

Cuyama Basin Groundwater Sustainability Agency Standing Advisory Committee Meeting

January 7, 2021

Draft Meetings Minutes

PRESENT:

Kelly, Brenton – Chair
DeBranch, Brad – Vice Chair
Draucker, Louise
Haslett, Joe
Jaffe, Roberta

ABSENT:

Furstenfeld, Jake

1. Call to Order

Cuyama Basin Groundwater Sustainability Agency (CBGSA) Standing Advisory Committee (SAC) Vice Chair Brad DeBranch called the meeting to order at 4:05 p.m. and Executive Director Jim Beck provided direction on the meeting protocols to facilitate a remote-only meeting.

2. Roll Call

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

3. Pledge of Allegiance

Chair Kelly led the pledge of allegiance.

4. Update on SAC Membership

Chair Kelly let the SAC know Committee Member Furstenfeld can attend future meetings if the meeting time can be pushed back an hour to 5 p.m.

Committee Member Jaffe suggested that moving the SAC meeting time may facilitate adding additional SAC members and asked what the process for moving the time is. Mr. Beck said the process for changing the time is for the SAC to come up with a proposal and we will add it to the Board agenda for their consideration.

Committee Member Jaffe asked if the SAC could provide direction on moving the time to 5 p.m. and Chair Kelly asked for a motion.

MOTION

Committee Member Jaffe made a motion to move the SAC time to 5 p.m. Committee Member DeBranch seconded the motions, a roll call vote was held, and the motion passed.

AYES: Committee Members DeBranch, Draucker, Haslett, Jaffe, Kelly
NOES: None

ABSTAIN: None
 ABSENT: Draucker, Furstenfeld

5. Approval of Minutes

Chair Kelly opened the floor for comments on the October 29, 2020 CBGSA SAC meeting minutes.

Committee Member Draucker arrived at 4:28 p.m.

Chair Kelly let staff know that Committee Member Furstenfeld was in attendance at the October 29, 2020 SAC meeting.

MOTION

Committee Member Jaffe made a motion to adopt the October 29, 2020 CBGSA SAC meeting minutes. The motion was seconded by Committee Member DeBranch, a roll call vote was made, and the motion passed.

AYES: Committee Members DeBranch, Draucker, Haslett, Jaffe, Kelly
 NOES: None
 ABSTAIN: None
 ABSENT: Furstenfeld

6. Groundwater Sustainability Plan

Woodard & Curran's Technical Project Manager Brian Van Lienden provided an update on the Groundwater Sustainability Plan (GSP) activities and the overall project schedule which are included in the SAC packet.

a. Consider Modifications to the Groundwater Level Monitoring Network

Mr. Beck and Mr. Van Lienden presented options for reducing the monitoring network. Mr. Beck let the SAC know that the CBGSA always intended to modify the monitoring network and the presented options are following through with that direction. Mr. Van Lienden let the SAC know the groundwater level monitoring network was set initially planned for 101 wells (60 of those are representative wells) and Provost & Pritchard (P&P) was hired to take monthly groundwater levels. In evaluating the monitoring network density, W&C considered level data collected from P&P and the recommended spatial density guidance from the California Department of Water Resources (DWR) to come up with the following options for modifications to the network:

1. Current network (101 wells)
2. Remove duplicative wells (58 wells)
3. Conservative DWR requirement (25 wells)

Committee Member Jaffe asked if the DWR criteria was based on Cuyama-specific parameters and Mr. Van Lienden let her know they were not but used by the State as general well density guidelines.

Committee Member Haslet asked if the quality of the well was considered in the recommended reduction options and Mr. Van Lienden let him know that did play a factor.

Stakeholder Jean Gaillard commented that he recommends adding additional wells in the management area and not to just reduce the groundwater levels monitoring network randomly.

Cuyama Valley Family Resource Center Executive Director Lynn Carlisle asked if we will be asking the Board for direction on reducing the network and Mr. Van Lienden confirmed this, but let her know we will need to present the potential impacts of a directed reduction at the March 2021 Board meeting. Mr. Beck said the feedback on the network will also be needed for budgeting purposes. Ms. Carlisle said she believes the monitoring network is a key in meeting data gaps and is concerned with reducing the quantity of data. Ms. Carlisle also commented that the DWR recommendation might apply in a more contiguous area, but Cuyama is very different. She noted that the letter from the water Board is requesting more monitoring and asked the SAC perform an analysis of each well before deciding to remove that well from the monitoring network.

Committee Member Jaffe asked if we are considering the depth of wells (shallow versus deep) and Mr. Van Lienden said we are to a degree, but in some cases, we do not have many options to choose from. Ms. Jaffe said she is very concerned with moving to 25 wells and thinks reducing the frequency of monitoring makes more sense.

Ms. Carlisle commented that reducing the network when the Cuyama Valley is going through significant land use changes concerns her. She also requested the SAC make a recommendation for W&C to provide a well-by-well justification for each recommended well removal.

Mr. Beck let the SAC know that the reduction to 58 is a fairly straightforward decision based on duplicative results. He said the reduction to 25 wells would require more work to justify. He said as staff, we are providing the brackets for the SAC and Board to consider but need a basis for establishing monitoring costs in the coming fiscal year. He recommended a motion to support the 58 well network.

Chair Jaffe said she could support an elimination of duplicative wells but wants to know the criteria for determining what wells are duplicative.

MOTION

Committee Member DeBranch made a motion to modify the groundwater level monitoring network to 58 wells based on duplicative results. The motion was seconded by Committee Member Haslett, a roll call vote was made, and the motion passed.

AYES:	Committee Members DeBranch, Draucker, Haslett, Jaffe, Kelly
NOES:	None
ABSTAIN:	None
ABSENT:	Furstenfeld

b. Adopt Process for Accepting Groundwater Level Transducer Data from Landowners

Mr. Blakslee let the SAC know that several landowners have transducers installed in their wells and are providing the data and let the SAC know the question staff is posing is whether the Committee is ok with receiving the data. Mr. Beck said he appreciates that the landowners are willing to provide their data and the CBGSA's goal is to maintain data integrity. He suggested that we develop an acceptable quality assurance/quality control system for the transducer data.

Committee Member Jaffe said accepting the data is a good way to go and noted that the Santa

Barbara County Water Agency was using transducer data provided by landowners in their monitoring program.

MOTION

Committee Member Jaffe made a motion to accept private transducer level data with appropriate quality controls. The motion was seconded by Committee Member DeBranch, a roll call vote was made, and the motion passed.

AYES: Committee Members DeBranch, Draucker, Haslett, Jaffe, Kelly
 NOES: None
 ABSTAIN: None
 ABSENT: Furstenfeld

c. Update on Model Refinement Plan

Mr. Van Lienden provided an update on the model refinement plan which is summarized in the SAC packet.

Committee Member Jaffe asked for a list of Technical Forum members and staff confirmed they would distribute this.

d. Update on Monitoring Network Implementation

Mr. Van Lienden provided an update on monitoring network implementation activities including the following:

DWR TSS Wells

Progress is being made on the three California Department of California Water Resources (DWR) Technical Support Services (TSS) dedicated monitoring wells to be drilled in the basin. He let the SAC know that the third location was moved south of the Santa Barbara Canyon Fault due to a landowner permission issue with the previous Foothill Rd. and Hwy 33 location.

Transducer Installation (10 Wells)

Mr. Van Lienden updated the SAC that the transducer installation in ten wells is making progress and staff is performing field validation to determine suitability of proposed wells. He also let the Committee know the transducers they purchased will have the capability of measuring electroconductivity.

Stream Gauge Installation

Lastly, staff provided an update on the stream gauge installation process and noted that efforts to register with the federal government as required by the USGS is still underway.

e. Update on Monthly Groundwater Conditions Report

Mr. Van Lienden provided an update on the groundwater level monitoring network and levels for November and December 2020 which are included in the Board packet.

Committee Member Jaffe asked if the threshold regions should be used for determining management areas by region. Mr. Beck said the Board discussed this when the threshold regions were set and said they were only used to develop similar criteria for well thresholds but were not intended for broader water management purposes.

f. Update on Prop 68 Implementation Grant Application

Mr. Van Lienden provided an overview on the Prop 68 implementation grant opportunity which is provided in the SAC packet. Mr. Blakslee did cautiously advise the SAC that DWR indicated that funding for meters will likely not be supported and staff will work with the ad hoc to determine what components to move the money to.

UC Santa Barbara Professor Casey Walsh provided the following comment using the meeting presentation chat option regarding the Prop 68 application: "Before I go I want to make a public comment about the Prop 68 funding discussion in this presentation (pp 88-90): there was discussion and agreement in the GSA that a priority was to secure supply for the townsites through improved wells: Ventucopa especially. The slides that consider Prop 68 projects don't consider this. Townsite water supply should be a priority for Prop 68 funding if possible. It seems to me that it would fit in the description of "eligible project types"."

Mr. Van Lienden reported that the townsites could be considered for this prop funding if directed and Committee Member Draucker requested water supply improvement funding be considered for all the different cities/communities in Cuyama if possible.

7. Groundwater Sustainability Agency**a. Report of the Executive Director**

Mr. Beck reminded the SAC that there will be an election of officers at the first meeting in January 2021. He also reported that staff is coordinating with DWR on fall groundwater level measurements to upload in the Monitoring Network Module.

b. Coordination between the GSA and Counties

Committee Member Jaffe asked the SAC to develop guidelines for the how the CBGSA and counties will approach new cannabis plantings in Cuyama and read the following statement:

SAC Meeting 1/7/21

Item 7b. Coordination Between the GSA and Counties

A year ago the Cuyama Basin GSP was approved and submitted to the DWR. This became our roadmap for monitoring and bringing our critically overdrafted basin into sustainability over the next 20 years. It is designed to change how much water extraction takes place and gives the GSA authority over implementing the Plan.

Water extraction is related to land use and well and reservoir construction which are under the jurisdiction of the counties. Thus it seems necessary for the 4 counties representing the Basin to find ways to support SGMA and the Cuyama GSP.

I acknowledge this is not simple. However, I think the GSA has an opportunity and a necessity to work this out. Cuyama is about to experience a significant planting of cannabis. While I personally have lots of concerns and questions about the impact of a wave of Cannabis being grown in the Cuyama Basin, I want to acknowledge that some of the investors and their attorney have come to the past two CVCA meetings and have met with GSA administration to attempt to build bridges.

I'd like the SAC to recommend to the GSA that guidelines be developed for alignment to be

developed between the counties and the GSA specifically focused on the growing of cannabis. Points to be considered:

- *Communication and acknowledgement to any Cannabis applicants that the CB is a critically overdrafted basin and that over the next 20 years will be reducing extraction of groundwater.*
- *That any wells on property receiving a cannabis permit and any new wells have a meter installed in compliance with the GSA.*
- *That the meter data be used to develop irrigation data for growing cannabis in the CV.*
- *That an offset plan be developed for the GSA that works toward the decrease in pumping in the GSA.*
- *That to meet the goals of the GSP, planting of cannabis be limited to already irrigated fields and avoid converting non-irrigated fields to irrigated crop growth.*

Committee Member DeBranch commented that land use and water use are challenging topics. Committee Member Draucker agreed with Committee Member Jaffe's points and said she thought the CBGSA needs to be prepared to deal with these potential issues.

Committee Member Haslett said he appreciated Committee Member Jaffe's thoughts, but believes that attempting to regulate one crop sets a precedent and can impact other crops. He said he believes this is worthy of discussion but doesn't believe the CBGSA is in the land use regulating business. He commented that he thinks it is smart to coordinate with the counties to make folks aware of conditions in the basin.

Stakeholder Lee Pearson mentioned that he thinks a lot of the cannabis growers would agree to most of her points and said that cannabis water use will likely be much lower than most crops grown in the Cuyama Valley.

Cannabis industry representative and legal counsel Amy Steinfeld said the maximum amount of non-irrigated land planned for conversion to irrigated land is roughly 300 acres. Ms. Steinfeld said her clients are willing to offer offsets and participate in a water market-based approach.

Ms. Carlisle said she hopes the Board becomes aware of the impacts of cannabis development and said there is an unknown on the actual water use of cannabis and is hopeful the CBGSA becomes more proactive on working on this issue.

Mr. Beck said that he is a water manager, not a land manager, and is charged with managing the basin under the directives set forth in the Sustainable Groundwater Management Act and the CBGSA Groundwater Sustainability Plan. He said staff will coordinate with legal to determine the CBGSA's options regarding the issues raised and acknowledged that these issues are challenging and often contentious.

c. Board of Directors Agenda Review

Mr. Beck provided an overview of the November 4, 2020 CBGSA Board of Directors meeting agenda which is provided in the SAC packet.

d. Report of the General Counsel

Nothing to report.

8. Items for Upcoming Sessions

Nothing to report.

9. Committee Forum

Nothing to report.

10. Public comment for items not on the Agenda

Nothing to report.

11. Correspondence

Mr. Blakslee let the Committee know they received two letters:

a. Resignation Letter from Committee Member Furstenfeld

Committee Member Furstenfeld submitted a letter letting the SAC know he would need to resign given attendance conflict. However, since the SAC recommended changing the SAC meeting time to 5 p.m., Chair Kelly let staff know Committee Member Furstenfeld would be able to remain on the SAC provided the Board approves the time change.

b. GSP Comment Letter from the State Water Resources Control Board (SWRCB)

Mr. Blakslee announced that the SWRCB submitted a comment letter on the CBGSA GSP comment portal that shared similar comments that the Central Coast Water Quality Control Board submitted during the official comment period. The letter did not require feedback from the CBGSA but informed the CBGSA on several points it may be consulting with DWR during the DWR review period of the CBGSA Groundwater Sustainability Plan.

12. Adjourn

Chair Kelly adjourned the meeting at 7:04 p.m.

Minutes approved by the Standing Advisory Committee of the Cuyama Basin Groundwater Sustainability Agency the 25th day of February 2021.

STANDING ADVISORY COMMITTEE OF THE
CUYAMA BASIN GROUNDWATER SUSTAINABILITY AGENCY

Chair: _____

ATTEST:

Vice Chair: _____

DRAFT



TO: Standing Advisory Committee
Agenda Item No. 9a

FROM: Brian Van Lienden, Woodard & Curran

DATE: February 25, 2021

SUBJECT: Update on Groundwater Sustainability Plan Activities

Issue

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

Groundwater Sustainability Plan Update

February 25, 2021



January-February Accomplishments

- ✓ Performed field validation/data collection for groundwater levels monitoring
- ✓ Installed transducers in Cuyama Basin wells using DWR grant funding
- ✓ Developed Cuyama Basin model refinement tech memo
- ✓ Developed 2021 Cuyama Basin Annual Report
- ✓ Submitted proposal for the SGM Prop 68 Implementation Grant to DWR



TO: Standing Advisory Committee
Agenda Item No. 9b

FROM: Brian Van Lienden, Woodard & Curran

DATE: February 25, 2021

SUBJECT: Approval of 2021 Annual Report

Issue

Consider approval of the 2021 Annual Report.

Recommended Motion

Approve the 2021 Annual Report.

Discussion

The Sustainable Groundwater Management Act (SGMA) requires an Annual Report be submitted to the California Department of Water Resources (DWR) to provide progress updates on objectives outlined in the Groundwater Sustainability Plan.

The 2021 Annual Report is due to DWR on April 1, 2021 to DWR and covers the 2020 water year.

Attachment 1 provides summary information of the annual report components and the draft 2021 Annual Report is provided as Attachment 2.

Approval of the 2021 Annual Report

February 25, 2021



Annual Report Timeline

- DWR's GSP Emergency Regulations require that an Annual Report be submitted each year by April 1.
- We are requesting approval of the Annual Report by the CBGSA Board at the March 3, 2021 Board meeting

Annual Report Components

1. Executive Summary

- a) A concise statement of the contents of the Annual Report

2. Introduction

- a) A description of the purpose of the Annual Report, CBGSA information, and a summary of the Cuyama Basin Plan Area

3. Updated Groundwater Conditions

- a) Representative monitoring network
- b) Updated groundwater contour maps
- c) Updated groundwater hydrographs

Annual Report Components

4. Estimated Water Use

- a) Includes estimates of groundwater extraction, surface water use and total water use for the preceding year (2020)

5. Change in Groundwater Storage

- 4. Includes water budget estimate and change in groundwater storage map for the preceding year (2020)

6. Plan Implementation Status

- a) Includes a description of the progress towards implementation of the GSP, including progress toward achieving interim milestones and implementation of GSP projects

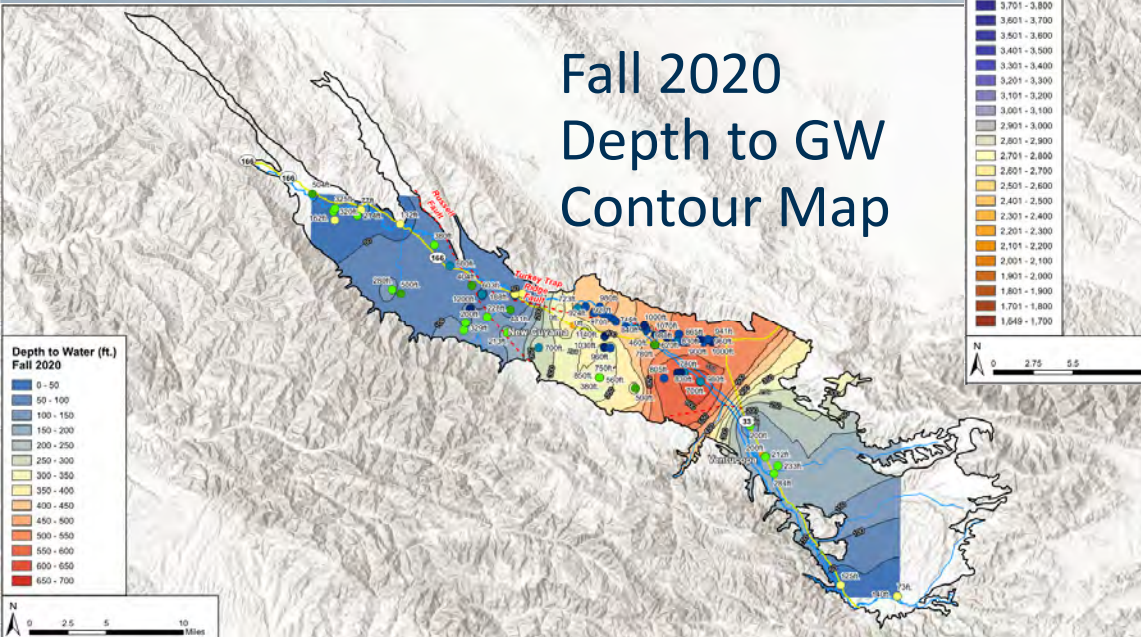
Data and Model Updates

- Groundwater elevations:
 - Available data collected for all wells in monitoring network through 2020
- Groundwater model update
 - Historical model period extended through 2020 (previously was simulated for 1998-2019)
 - No change will be made to the model calibration
 - Updated land use, precipitation and evapotranspiration data collected for 2020
 - Updated land use data has been provided for 2020 period by Bolthouse and Grimmway. Other key landowners have confirmed no change relative to 2019.

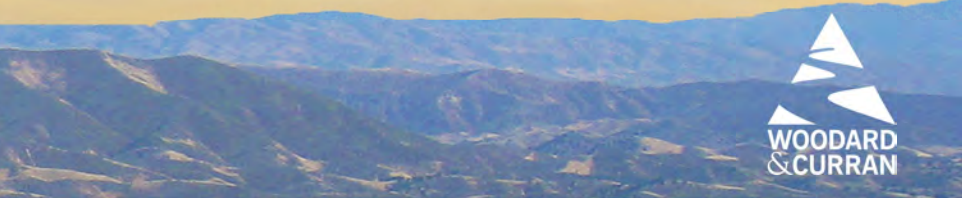
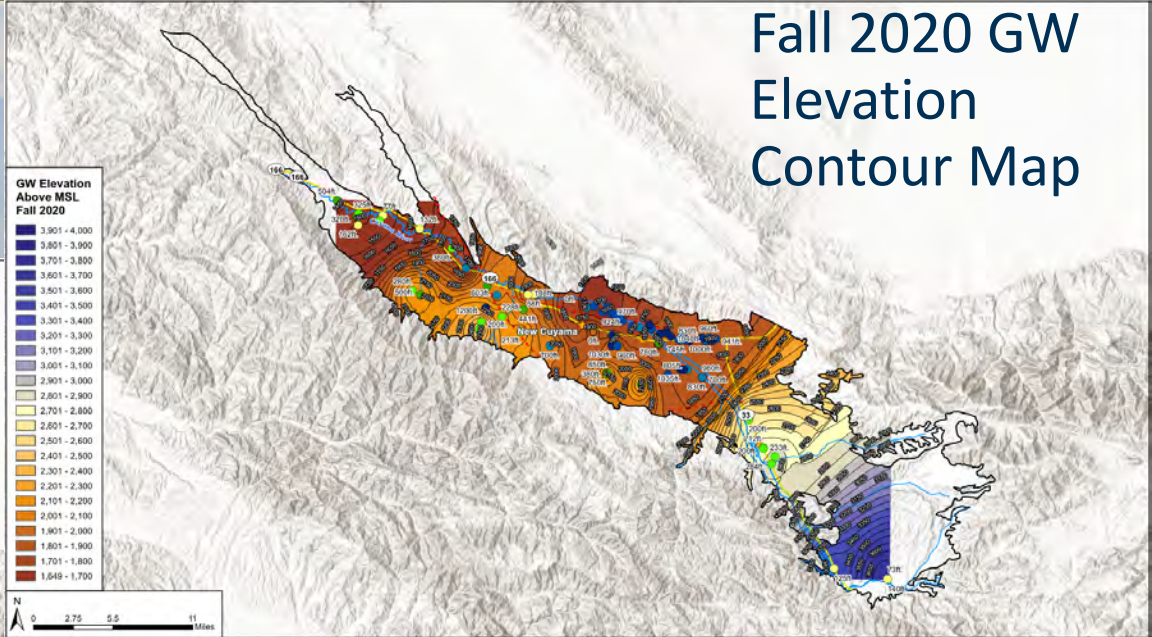
Updated Groundwater Conditions Figures

Updated Contour Maps were created for 2020 (Spring and Fall)

Fall 2020 Depth to GW Contour Map

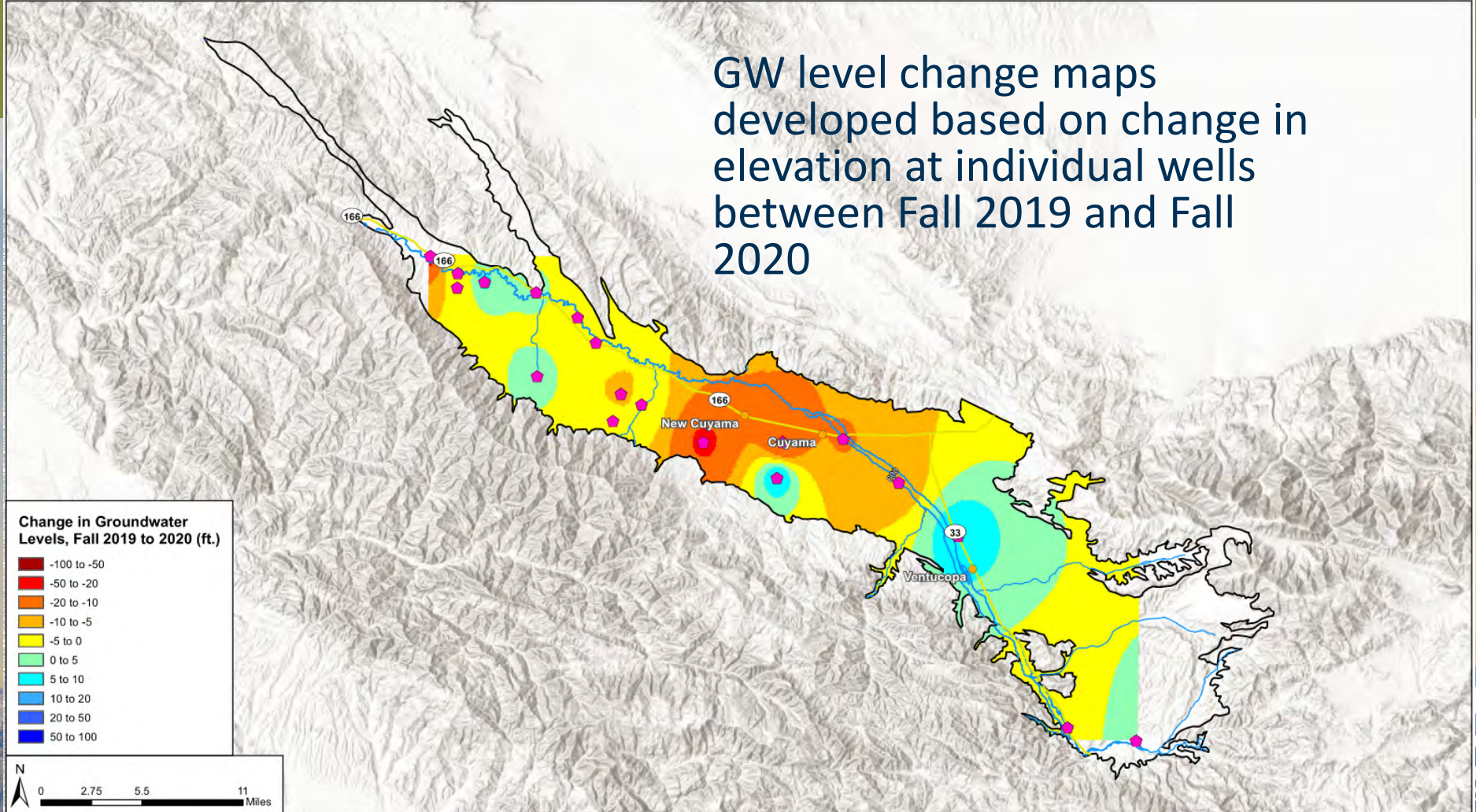


Fall 2020 GW Elevation Contour Map



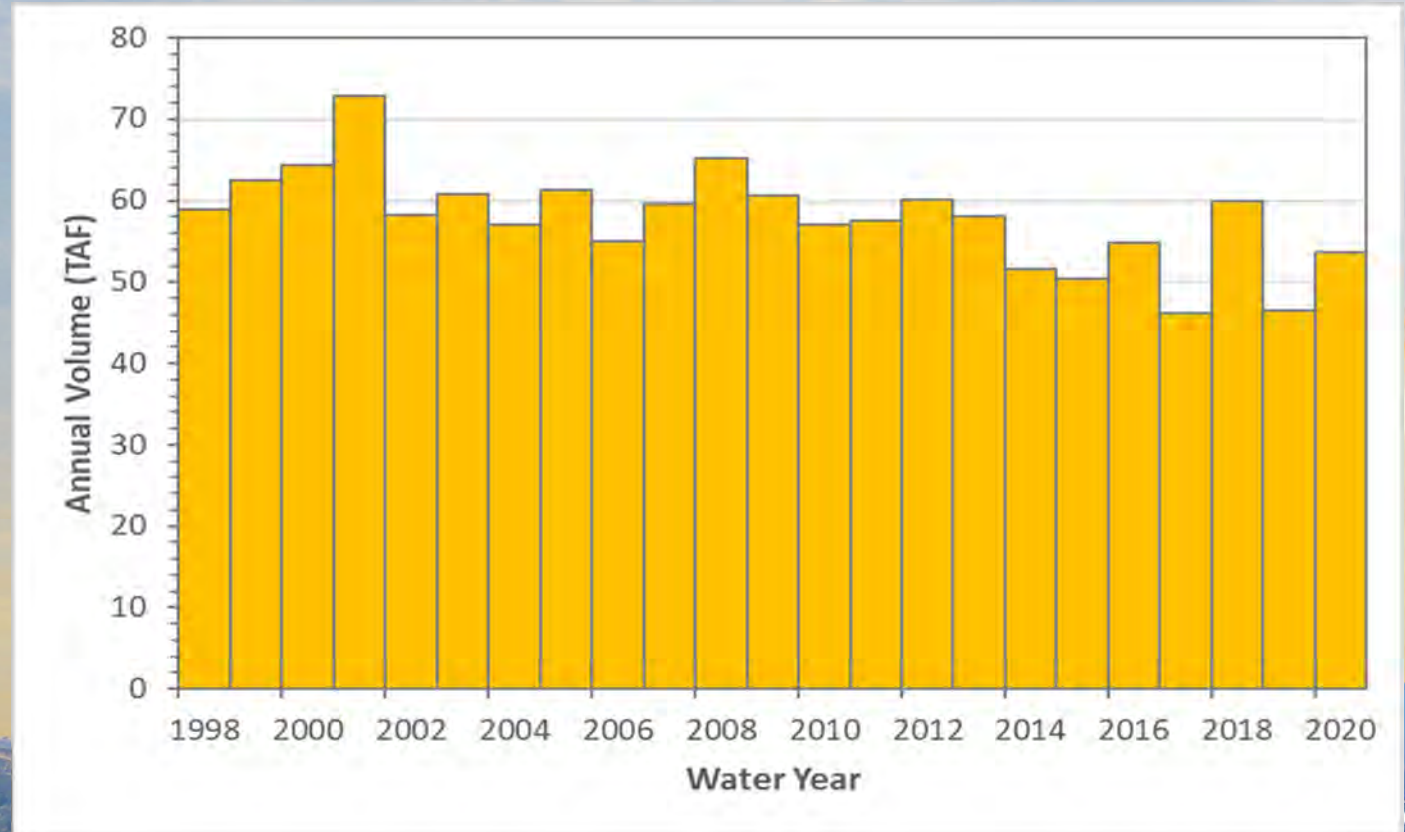
Change in Groundwater Levels from 2019 to 2020²¹

GW level change maps developed based on change in elevation at individual wells between Fall 2019 and Fall 2020



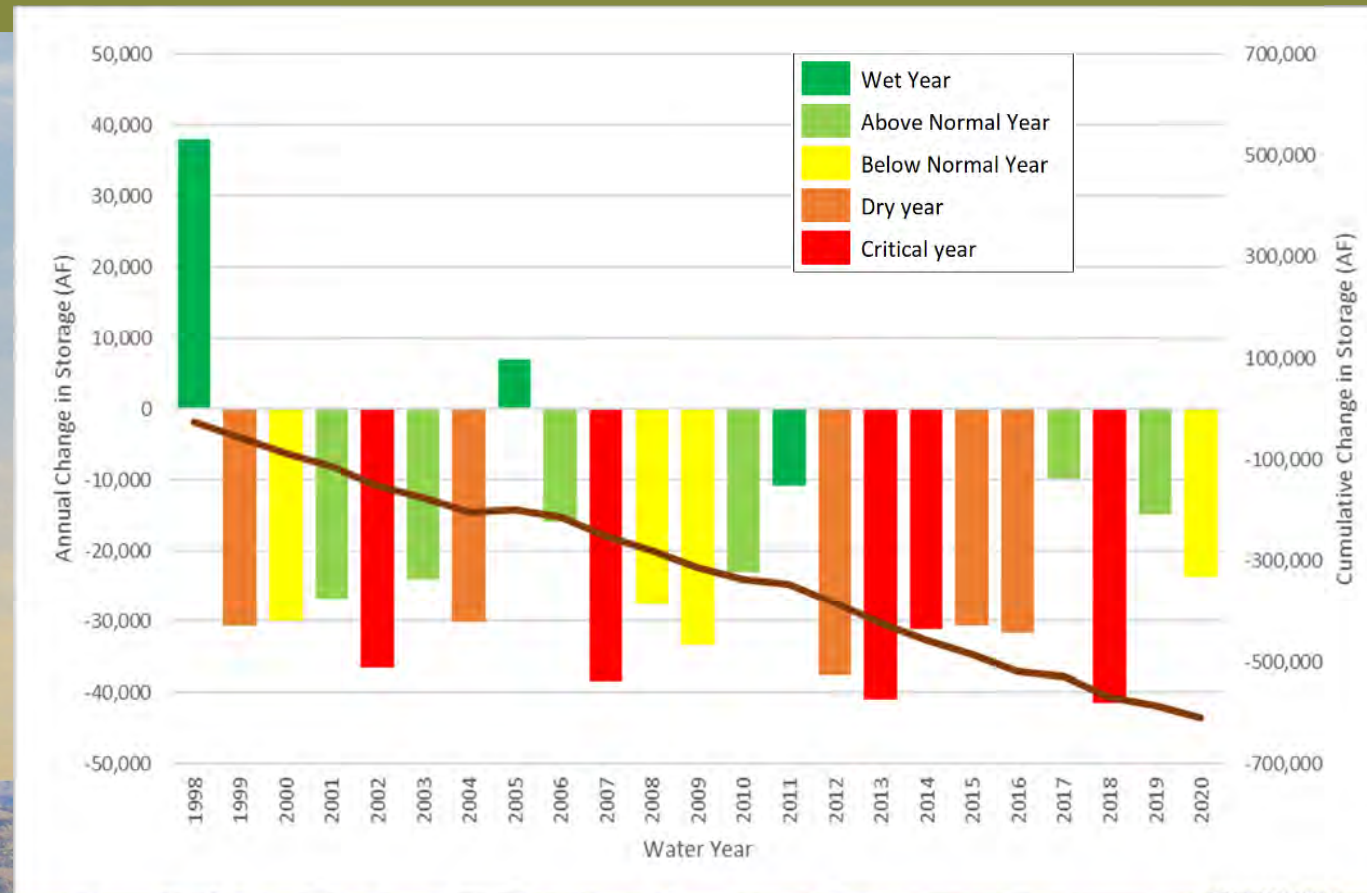
Estimated Groundwater Extraction

- Figure has been updated to include 2020
- Estimated groundwater extractions
 - 2019: 46,500 AF
 - 2020: 53,600 AF



Change in Groundwater Storage

- Figure has been updated to include 2020
- Estimated change in storage
 - 2019: -14,800 AF
 - 2020: -23,600 AF





**Cuyama Basin
Groundwater Sustainability Plan—
2021 Annual Report - Draft**

Prepared by:



March 2021

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Appendices

Appendix A Updated Hydrographs for Representative Wells

Abbreviations and Acronyms

AF	acre-feet
CBGSA	Cuyama Basin Groundwater Sustainability Agency
CBWD	Cuyama Basin Water District
CBWRM	Cuyama Basin Water Resources Model
CCSD	Cuyama Community Services District
DMS	Data Management System
DWR	California Department of Water Resources
GSA	Groundwater Sustainability Agency
GSP	Groundwater Sustainability Plan
SAC	Standing Advisory Committee
SBCWA	Santa Barbara County Water Agency
SGMA	Sustainability Groundwater Management Act
SR	State Route
TSS	Technical Support Services
USGS	United States Geological Survey

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ES-1 Executive Summary

§356.2 (a)	General information, including an executive summary and a location map depicting the basin covered by the report.
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ES-2 Introduction

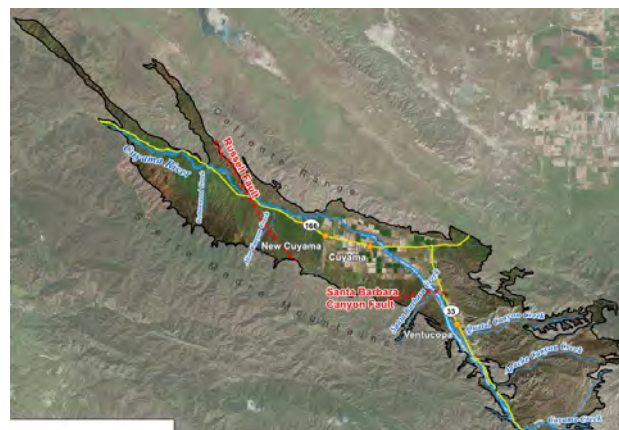
In 2014, the California legislature enacted the Sustainable Groundwater Management Act (SGMA) in response to continued overdraft of California’s groundwater resources. The Cuyama Groundwater Basin (Basin) is one of 21 basins and subbasins identified by the California Department of Water Resources (DWR)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

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

The Draft Cuyama Basin GSP was adopted on December 4, 2019 by the CBGSA and submitted to DWR on January 28, 2020. SGMA requires that the CBGSA develop a GSP that achieves groundwater sustainability in the Basin by the year 2040.

The jurisdictional area of the CBGSA is defined by DWR’s Bulletin 118, 2013, the 2016 Interim Update, and the latest 2020 update. The Cuyama Groundwater Basin generally underlies the Cuyama Valley, as shown in **Figure ES-1**.

Figure ES-1: GSP Plan Area



ES-3 Groundwater Conditions

The Annual Report for the 2020 water year includes groundwater contours for Spring and Fall of 2020, and updated hydrographs for the groundwater level monitoring network identified in the Cuyama Basin GSP. The Cuyama Basin consists of a single principal aquifer, and water levels in Basin monitoring wells are considered representative of conditions in that aquifer. Groundwater levels in some portions of the Basin have been declining for many years while other areas of the Basin have experienced no significant change in groundwater levels. Groundwater levels vary across the Basin, with the highest depth to water occurring in the central portion of the Basin (**Figure ES-2**). The western and eastern portions of the Basin have generally shallower depth to water. Generally, depth to water and groundwater elevation in 2020 have not changed substantially from 2019 levels and elevations.

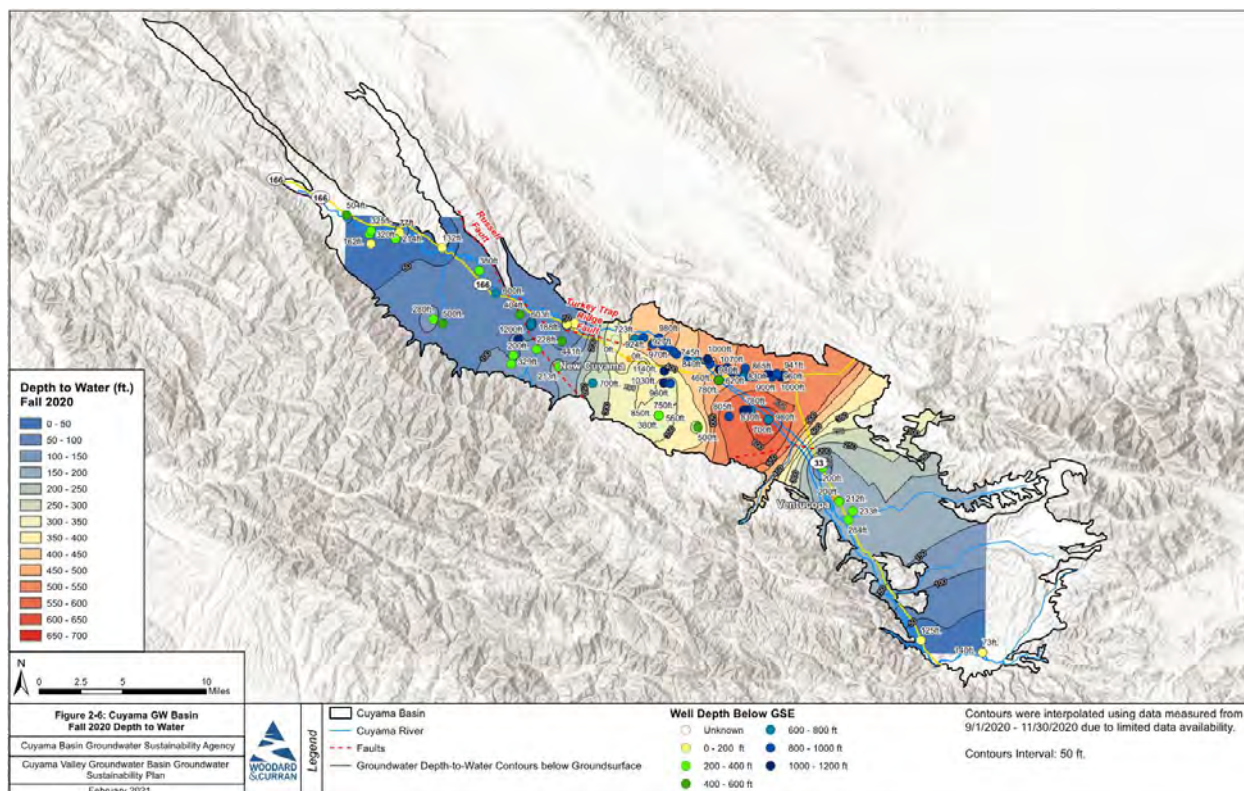


Figure ES-2: Cuyama Basin Depth to Water Contour Map (Fall 2020)

ES-4 Water Use

The Cuyama Groundwater Basin is supplied entirely by groundwater, with virtually no surface water use. Groundwater pumping in the Basin is estimated to have been about 46,000 acre-feet (AF) in 2019 and about 54,000 AF in 2020. While 2018 had reflected a more average trend in groundwater pumping, 2019 was among the lowest in the 22-year period since 1998. Groundwater pumping in 2020 increased relative to 2019 due to a reduction in the amount of idled agricultural land and a reduction in the amount of precipitation. (See **Figure ES-3**).

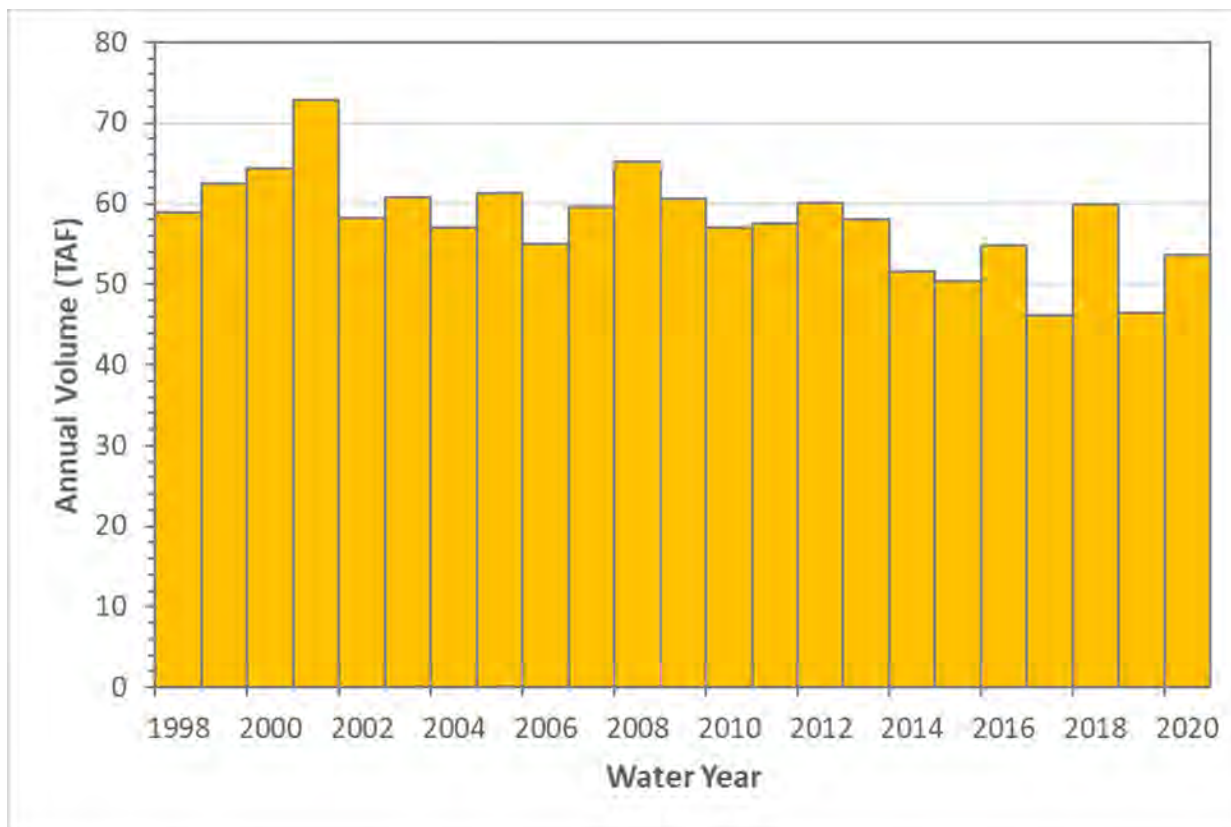


Figure ES-3: Annual Groundwater Extraction in the Cuyama Basin in Water Years 1998-2019

ES-5 Change in Groundwater Storage

It is estimated that there were reductions in Basin groundwater storage of 14,900 AF in 2019 and 23,600 AF in 2020. This continues the long-term trend in groundwater storage reduction in the Basin since 1999.

Figure ES-4 shows the historical change in groundwater storage by year, water year type,¹ and cumulative water volume in each year for the period from 1998 through 2020.



Figure ES-4: Change in Groundwater Storage by Year, Water Year Type, and Cumulative Water Volume

¹ Water year types are customized for the Basin watershed based on annual precipitation as follows:

- Wet year = more than 19.6 inches
- Above normal year = 13.1 to 19.6 inches
- Below normal year = 9.85 to 13.1 inches
- Dry year = 6.6 to 9.85 inches
- Critical year = less than 6.6 inches.

ES-6 Plan Implementation

The following plan implementation activities were accomplished in 2020:

- Approval of a groundwater extraction fee and supplemental fee, which is expected to generate \$1,533,016 in revenue to cover the administrative costs of the CBGSA for the period from January 1, 2020 through June 30, 2021.
- A total of 12 public meetings were conducted at which GSP development and implementation was discussed.
- The Cuyama Basin Groundwater Sustainability Agency (CBGSA) Board began implementation of the groundwater levels monitoring network, includes monthly monitoring at each monitoring well. This supplements ongoing efforts to install continuous monitoring equipment in wells and surface flow gages under an ongoing DWR grant. In addition, the CBGSA is pursuing DWR Technical Support Services assistance to install three new monitoring wells.
- The CBGSA applied for a Proposition 68 Groundwater Sustainability Implementation Grant for \$5 million in funding for implementation activities. In addition, the Cuyama Community Services District (CCSD) procured grant funding from DWR's Integrated Regional Water Management (IRWM) program to install a new production well.
- The GSA continued to coordinate with DWR on the development and preparations required for the Technical Support Services for the installation of 3 additional multicompetent wells in the Basin.
- The GSA is currently working with the United States Geological Survey (USGS) to install two new streamflow gauges on the Cuyama River. These should be installed during 2021.
- An agreement was executed between the CBGSA and Cuyama Basin Water District (CBWD) for the CBWD to administer management actions in the Central Basin management area.

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Section 1. Introduction

§356.2 (a)	General information, including an executive summary and a location map depicting the basin covered by the report.
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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 Annual Report.

This Annual Report meets regulatory requirements established by the California Department of Water Resources (DWR) as provided in Article 7 of the California Code of Regulations, Title 23, Division 2, Chapter 1.5, Subchapter 2.

The CBGSA was created by a Joint Exercise of Powers Agreement among the following agencies:

- Counties of Kern, San Luis Obispo, and Ventura
- Santa Barbara County Water Agency (SBCWA), representing the County of Santa Barbara
- Cuyama Basin Water District (CBWD)
- Cuyama Community Services District (CCSD)

The CBGSA Board of Directors includes the following individuals:

- Derek Yurosek – Chairperson, CBWD
- Lynn Compton – Vice Chairperson, County of San Luis Obispo
- Byron Albano – CBWD
- Cory Bantilan – SBCWA
- Tom Bracken – CBWD
- George Cappello – CBWD
- Paul Chounet –CCSD
- Zack Scrivner – County of Kern
- Glenn Shephard – County of Ventura
- Das Williams – SBCWA
- Jane Wooster – CBWD

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 Management Structure

The CBGSA is governed by an 11-member Board of Directors that meets bi-monthly (i.e. 6 times a year). A General Manager manages 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. The Board also formed a Standing Advisory Committee comprised of 11 stakeholders to provide recommendations to the Board on key technical issues which also meets regularly.

1.1.2 Legal Authority

Per Section 10723.8(a) of the California Water Code, the Santa Barbara County Water Agency (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.

1.1.3 Groundwater Sustainability Plan

The CBGSA Board of Directors approved the first iteration of the Cuyama Groundwater Sustainability Plan (GSP) on December 4, 2019. The GSP was submitted to DWR for approval on January 28, 2020 and is available for viewing online at <http://cuyamabasin.org/>.

1.2 Plan Area

Figure 1-1 shows the Basin and its key geographic features. The Basin encompasses an area of about 378 square miles² 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 toward 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 the Cuyama Valley Groundwater Basin.

² The current Bulletin 118 section on the Cuyama Valley Groundwater Basin incorrectly states that the Basin area is 230 square miles. The estimate of 378 square miles shown here and in the GSP is consistent with the mapping shown on DWR's GSA Map Viewer.

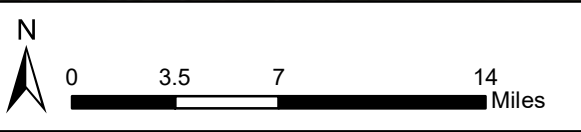
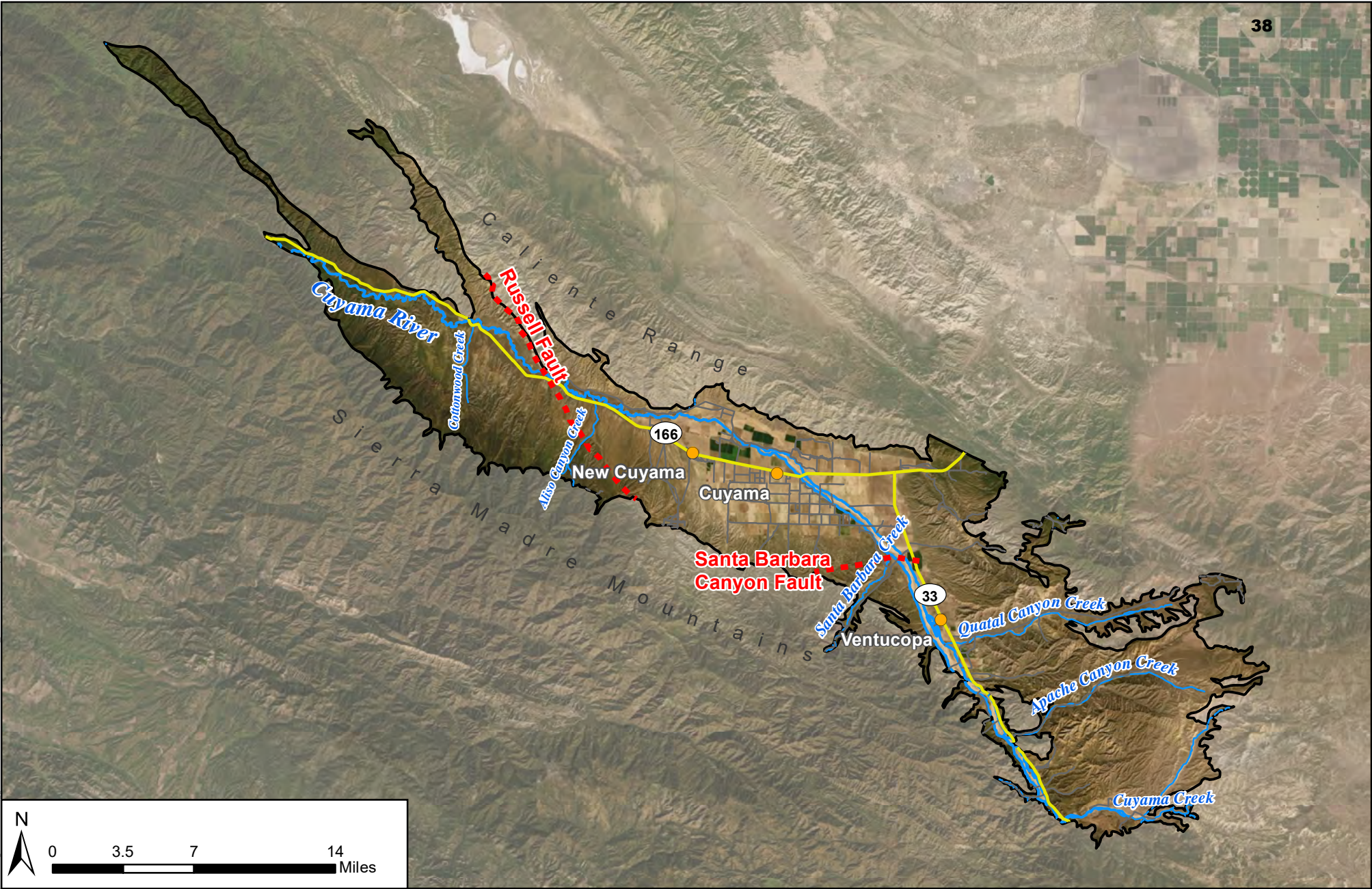


Figure 1-1 - Cuyama Valley Groundwater Basin
 Cuyama Basin Groundwater Sustainability Agency
 Cuyama Valley Groundwater Basin Groundwater Sustainability Plan
 February 2020



Legend	
Cuyama Basin	Local Roads
Towns	Cuyama River
Faults	Streams/Creeks
Highways	

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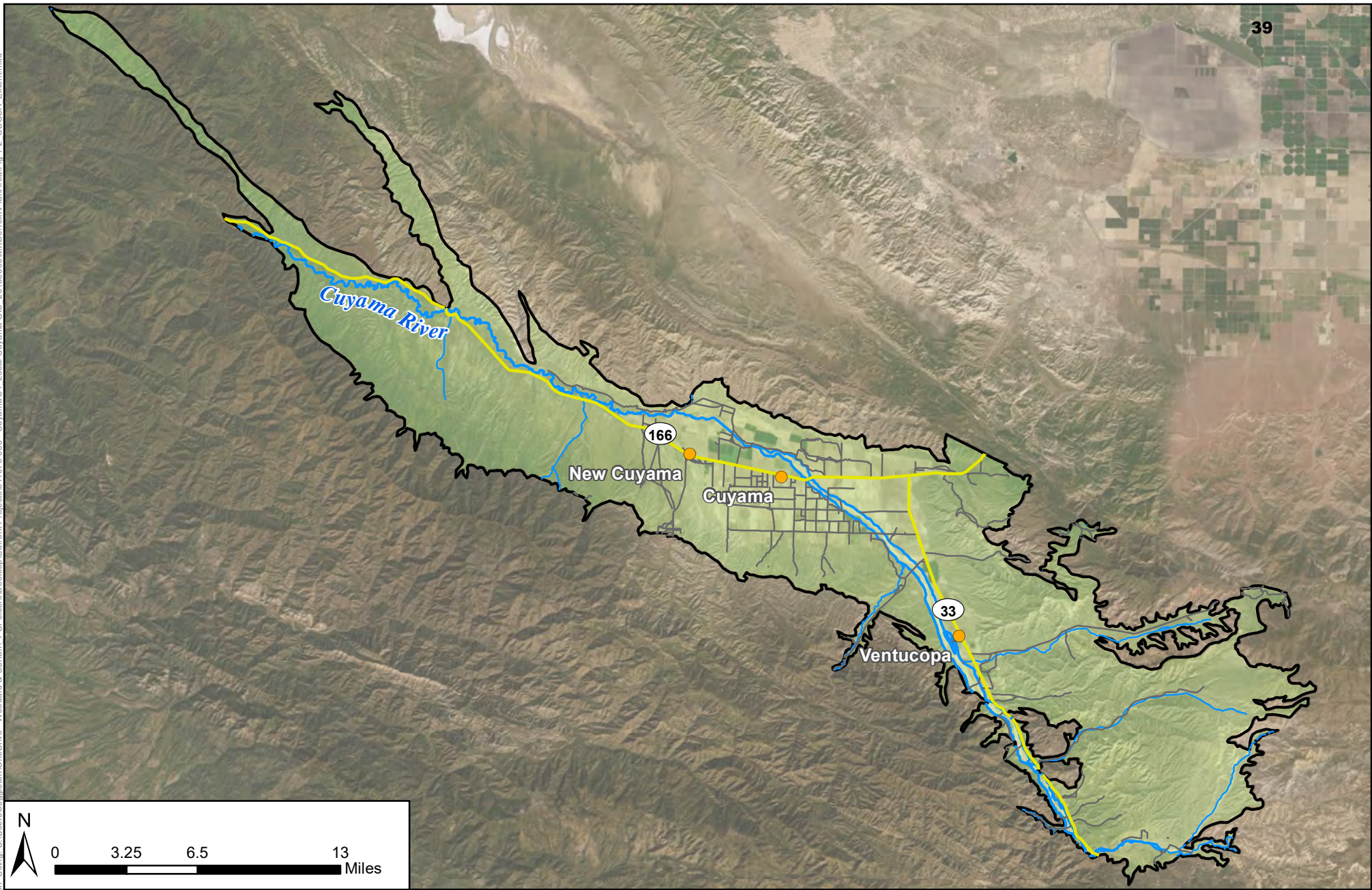


Figure 1-2 - Cuyama Valley Groundwater Sustainability Agency Boundary

Cuyama Basin Groundwater Sustainability Agency

Cuyama Valley Groundwater Basin Groundwater Sustainability Plan

January 2020



Legend

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

Section 2. Groundwater Conditions

§356.2 (b)(1)	Groundwater elevation data from monitoring wells identified in the monitoring network shall be analyzed and displayed as follows:
§356.2 (b)(1)(A)	Groundwater elevation contour maps for each principal aquifer in the basin illustrating, at a minimum, the seasonal high and seasonal low groundwater conditions.
§356.2 (b)(1)(B)	Hydrographs of groundwater elevations and water year type using historical data to the greatest extent available, including from January 1, 2015, to current reporting year.

2.1 Groundwater Levels Representative Monitoring Network

As required by DWR’s SGMA regulations, a monitoring network and representative monitoring network were identified in the Cuyama Basin GSP utilizing existing wells. The groundwater levels representative monitoring network that was included in the GSP is shown on **Figure 2-1**. The Cuyama Basin consists of a single principal aquifer, and water levels in monitoring network wells are considered representative of conditions in that aquifer. The objective of the representative monitoring network is to detect undesirable results in the Basin related to groundwater levels using the sustainability thresholds described in the GSP. 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.
- Monitoring that has occurred on the groundwater level monitoring network since the development of the Cuyama Basin GSP is included in this Annual Report. Collected groundwater level data has been analyzed to prepare contour maps and updated hydrographs, which are presented in the following sections.

2.1.1 Representative Monitoring Network Refinements

The CBGSA has begun the process of refining and improving the groundwater monitoring network within the Basin. The primary focus during GSP development was to ensure that the monitoring network maximized the potential pool of monitoring locations and gain a broad understanding of available data sources. Through this approach, all wells with recent measurements (data taken on or after January 1, 2018) were included in the monitoring network. This resulted in 101 wells in the monitoring network, including 60 representative wells, which achieved a spatial density of 26.7 wells per 100 square miles. The monitoring network included in the GSP is shown in **Figure 2-1**.

Monitoring has been ongoing in the Basin on a monthly basis since August 2020. Based on information gathered to date, the CBGSA Board determined at its January 2021 meeting to reduce the monitoring network to eliminate spatially redundant wells from the network. This will reduce the representative monitoring network to 52 wells at 46 locations (this includes three multi-completion wells), as shown in Error! Reference source not found. below. However, to address spatial data gaps identified in the GSP, the CBGSA is currently working with DWR’s Technical Support Services (TSS) program to add three

new multi-completion wells (with a total of three completions each), as well as adding one additional single completion well to the network using grant funding provided by DWR. In addition, a new well is being added to the network in the vicinity of Santa Barbara Canyon. These additions will bring the monitoring network up to 62 wells at 50 locations. The revised monitoring network is shown in **Figure 2-2**.

The refinements to the monitoring network will decrease the monitoring well density from 26.7 wells to 16.4 wells per 100 square miles when considering each completion. This well density is still greater than the recommended 0.2-10 wells per 100 square miles recommended by Heath (1976) as described in the GSP, *Section 4.5.3 Spatial Density*.

Thirteen of the wells in the monitoring network include transducers that provide continuous monitoring. Ten of these transducers were recently added using grant funding from DWR.

Table 2-1: Refined Groundwater Monitoring Network Well List

Opti_ID	Network	Includes a Transducer?	Included in a Multi-Completion Well?	Latitude	Longitude
Existing Wells					
2	Representative	No	No	34.6985833	-119.3134722
62	Representative	Yes	No	34.828034	-119.4665109
72	Representative	No	No	34.9343611	-119.6898333
74	Representative	No	No	34.94225	-119.6751667
77	Representative	Yes	Yes	34.9311583	-119.5952556
85	Representative	No	No	34.8194232	-119.4523437
89	Representative	No	No	34.7081389	-119.3785
91	Representative	Yes	Yes	34.8977167	-119.542125
95	Representative	No	No	34.89975	-119.5839167
96	Representative	No	No	34.8902555	-119.616517
98	Representative	No	No	34.8839722	-119.6354722
99	Representative	No	Yes	34.8997806	-119.657725
100	Representative	No	No	34.8118889	-119.4565278
101	Representative	No	No	34.8563889	-119.4846667
102	Representative	Yes	No	34.9647222	-119.70475
103	Representative	Yes	No	34.9279167	-119.6531389
106	Representative	No	No	34.955294	-119.78764
107	Representative	No	No	34.9494226	-119.8123579
110	Monitoring	No	No	34.9766439	-119.7940239
112	Representative	No	No	34.9627553	-119.7612452
114	Representative	No	No	34.9783102	-119.748189
115	Monitoring	No	No	34.963411	-119.807238
118	Representative	No	No	34.975978	-119.887176
119	Monitoring	No	No	35.0433086	-119.8729138
121	Monitoring	No	No	34.996523	-119.853474
124	Representative	No	No	34.968831	-119.859639
316	Representative	Yes	Yes	34.8977167	-119.542125
317	Representative	Yes	Yes	34.8977167	-119.542125
322	Representative	No	No	34.8997806	-119.657725
324	Representative	No	Yes	34.8997806	-119.657725
325	Representative	No	Yes	34.8997806	-119.657725
420	Representative	Yes	Yes	34.9311583	-119.5952556

Cuyama Basin Groundwater Sustainability Plan—
2021 Annual Report

Opti_ID	Network	Includes a Transducer?	Included in a Multi-Completion Well?	Latitude	Longitude
421	Representative	Yes	Yes	34.9311583	-119.5952556
474	Representative	No	No	34.9405338	-119.7640232
568	Representative	No	No	34.9773889	-119.7563333
571	Representative	Yes	No	34.9796111	-119.8970278
573	Representative	No	No	34.9848333	-119.806
604	Representative	No	No	34.9612905	-119.6650121
608	Representative	No	No	34.94643	-119.6187515
609	Representative	No	No	34.952892	-119.6400793
610	Representative	No	No	34.9051916	-119.560696
612	Representative	No	No	34.9404569	-119.5941622
613	Representative	No	No	34.934845	-119.5717606
615	Representative	No	No	34.941809	-119.5675537
629	Representative	No	No	34.93481	-119.5301644
633	Representative	No	No	34.9375267	-119.5432505
830	Representative	No	No	35.054073	-119.934759
832	Representative	No	No	35.0416	-119.889452
833	Representative	No	No	35.068416	-119.990897
836	Representative	No	No	35.05534	-119.964647
841	Representative	Yes	No	35.00323	-119.83181
845	Representative	Yes	No	35.02252	-119.84979

Note: Additional wells to be added to the network under DWR's TSS program are not shown

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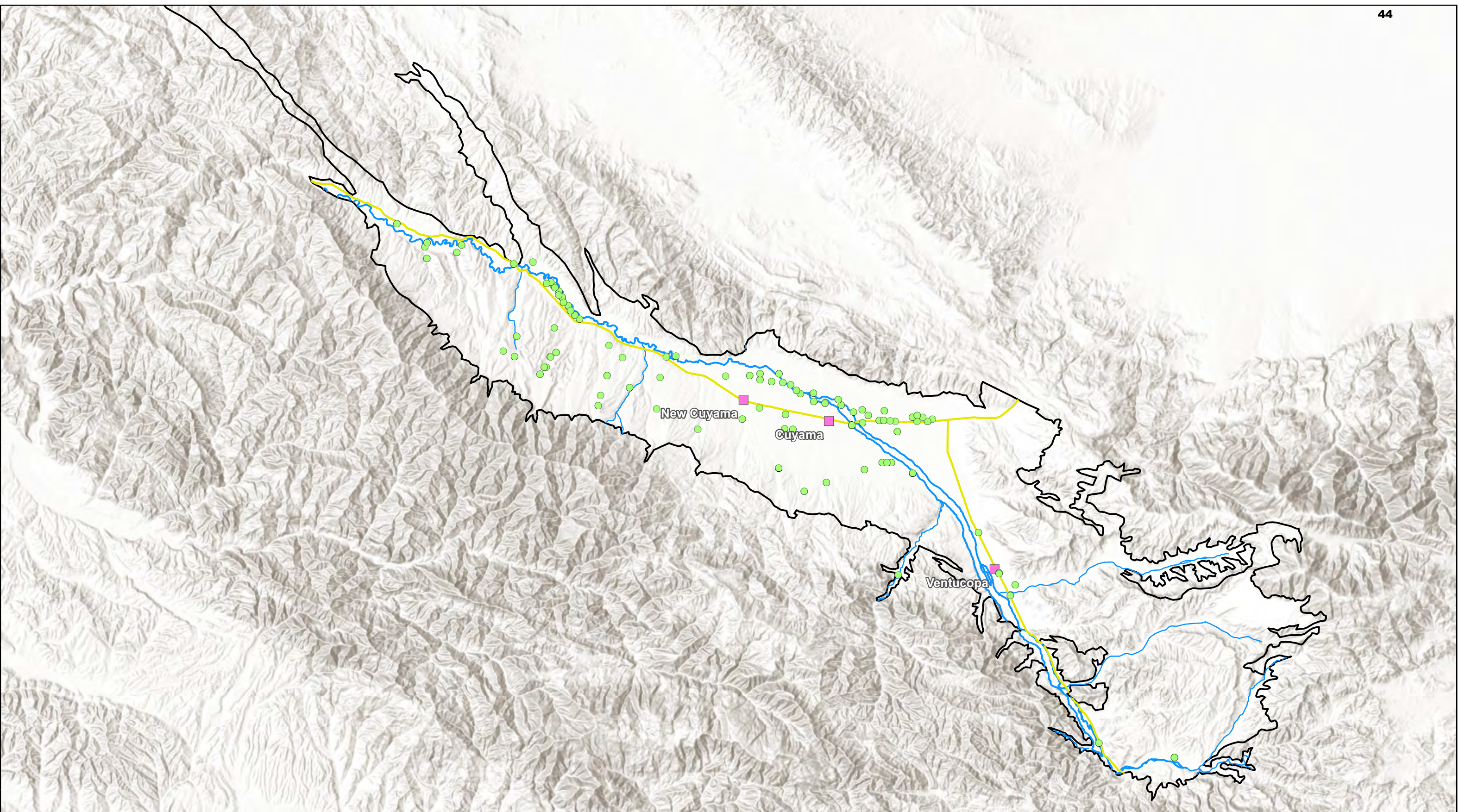


Figure 2-1: Cuyama GW Basin Groundwater Level & Storage Monitoring Network Wells
 Cuyama Basin Groundwater Sustainability Agency
 Cuyama Valley Groundwater Basin Groundwater Sustainability Plan
 January 2020



Legend

- Cuyama Basin
 - Towns
 - Highways
 - Cuyama River
 - Streams
- Monitoring Network Wells**
- Monitoring Network Wells



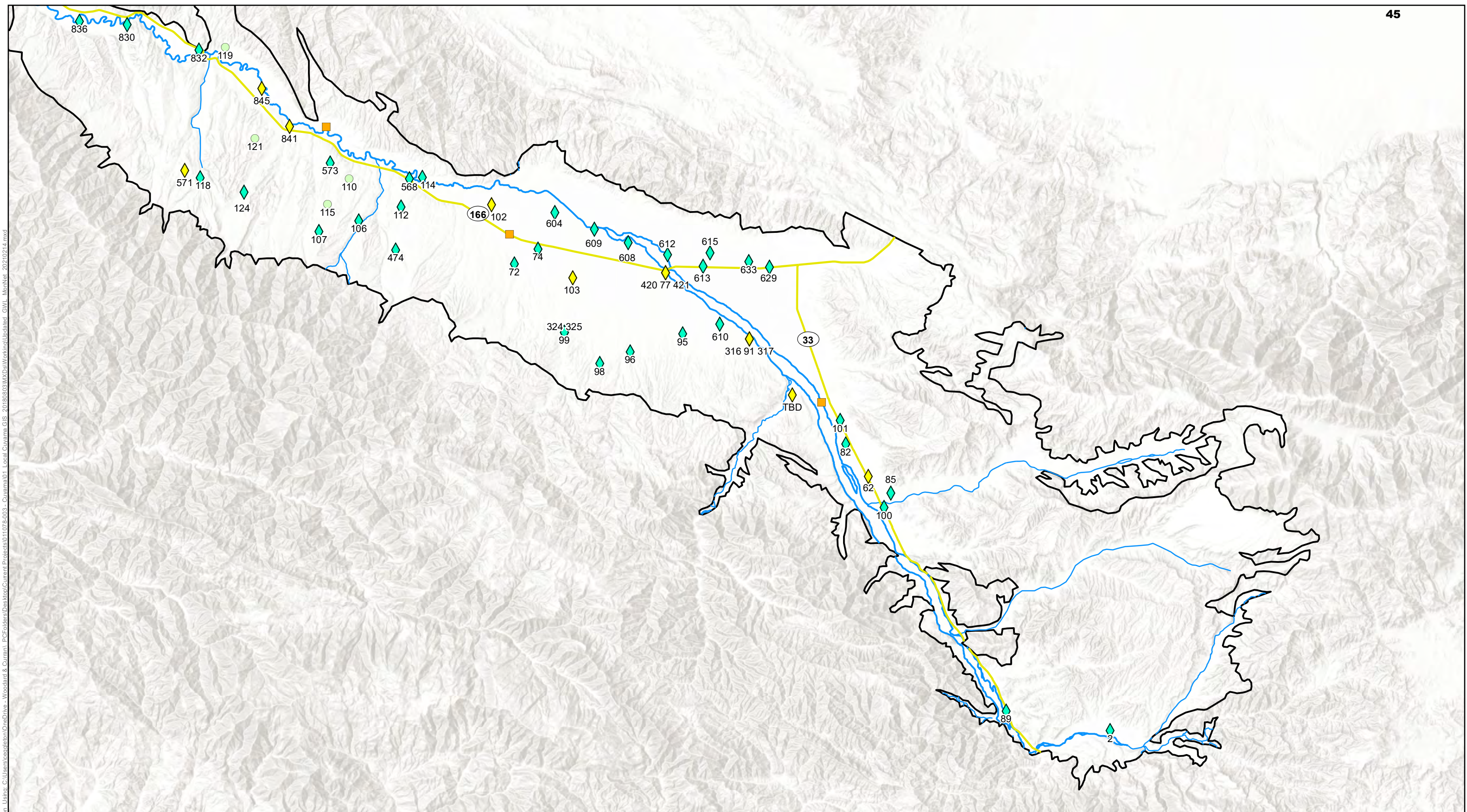


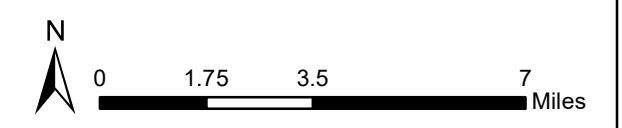
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Figure 2-2: Cuyama GW Basin - Refined Groundwater Monitoring Network
 Cuyama Basin Groundwater Sustainability Agency
 Cuyama Valley Groundwater Basin Groundwater Sustainability Plan
 February 2021



Legend

- Cuyama Basin
- Cuyama River
- Representative Well
- Representative Well/ Transducer
- Monitoring Network Well
- TSS Wells



2.2 Groundwater Contour Maps

The 2020 GSP included contour maps up through the spring of 2018. The last Annual Report that was submitted in 2020 included contour maps for fall 2018, spring 2019 and fall 2019. For this Annual Report, analysis was conducted to incorporate data from January 2020 to December 2020 that was received from the United States Geological Survey (USGS), DWR, private landowners, local counties and agencies, and the CBGSA. Data was then added to the Data Management System (DMS) and processed to analyze the current groundwater conditions by creating seasonal groundwater contour/raster maps for the spring and fall of 2020 and hydrographs of basin monitoring wells.

A contour map shows changes in groundwater elevations by interpolating groundwater elevations between monitoring sites. The elevations are shown on the map with the use of a contour line, which indicates that at all locations that line is drawn, the line represents groundwater at the elevation indicated. There are two versions of contour maps used in this section: one that shows the elevation of groundwater above mean sea level, which is useful because it can be used to identify the horizontal gradients of groundwater, and one that shows contours of depth to water, the distance from the ground surface to groundwater, which is useful because it can identify areas of shallow or deep groundwater.

Analysts prepared groundwater contour maps under the supervision of a Certified Hydrogeologist in the State of California for both groundwater elevation and depth to water for both spring and fall of 2020.

Each contour map is contoured at a 50-foot contour interval, with contour elevations indicated in white numeric label. The groundwater contours were also based on assumptions in order to accumulate enough data points to generate useful contour maps. Assumptions are as follows:

- Measurements from wells of different depths are representative of conditions at that location and there are no significant known vertical gradients. Due to the limited spatial amount of monitoring points, data from wells of a wide variety of depths were used to generate the contours.
- Measurements from dates that may be as far apart temporally as three months are representative of conditions during the spring or fall season, and conditions have not changed substantially from the time of the earliest measurement used to the latest. Due to the limited temporal resolution of measurement data in the Basin, data from a wide variety of measurement dates were used to generate the contours.

These assumptions generate contours that are useful at the planning level for understanding groundwater levels across the Basin, and to identify general horizontal gradients and regional groundwater level trends. The contour maps are not indicative of exact values across the Basin because groundwater contour maps approximate conditions between measurement points, and do not account for topography. Therefore, a well on a ridge may be farther from groundwater than one in a canyon, and the contour map will not reflect that level of detail.

Figure 2-3 shows groundwater elevation contours for spring of 2020. Data was collected from Santa Barbara County, Ventura County, DWR, USGS, local landowners, and the CBGSA, however, data collected between February and April was very limited and was not available for the south eastern portion of the Basin. The contours developed using the available data show a depression in the central portion of the Basin between Ventucopa and New Cuyama. Groundwater elevations tend to steadily decrease westward across the Basin. Groundwater flows appear to be moving down slope through the Basin towards the west but gradients are significantly reduced through the central portion. **Figure 2-4** shows the depth to groundwater contours for spring 2020 and shows a depression in the central portion of the Basin greater

than 450 ft below ground surface. However, due to limited groundwater data available for this time period, this depth may be greater but not represented. Groundwater levels then increase toward the west reaching depths above 100 ft in the western portion of the Basin. These levels align with trends seen in older counter maps provided in the 2020 Cuyama Valley Basin GSP.

Figure 2-5 shows the groundwater elevation contours for fall of 2020. Data for this time period provides greater Basin coverage than in spring of 2020, as additional data was collected by the CBGSA monitoring program, which was active during this time. Groundwater elevations show a clear depression in the central portion of the Basin and a steep gradient between the central portion of the Basin and the Ventucopa area, which is consistent with contour maps for 2015 through 2019 conditions. Contours indicate a groundwater flow down the Basin from east to west, with a decrease significant decrease in gradient through the central portion of the Basin.

Figure 2-6 shows the depth to groundwater contours for the fall of 2020. Depth to water contours indicate a depression in the central portion of the Basin, and a steep gradient between the central portion of the Basin and the Ventucopa area, which is consistent with contour maps for 2015 through 2019 conditions. When compared with **Figure 2-5**, it is clear that Basin topography is not the sole factor of groundwater level changes because both groundwater elevations and depths below ground surface rise between Cuyama and Ventucopa. Groundwater level data was available in fall of 2020 for two monitoring wells in the far east portion of the Basin, and that data indicates that groundwater levels in that area are within 50 feet of the ground surface.

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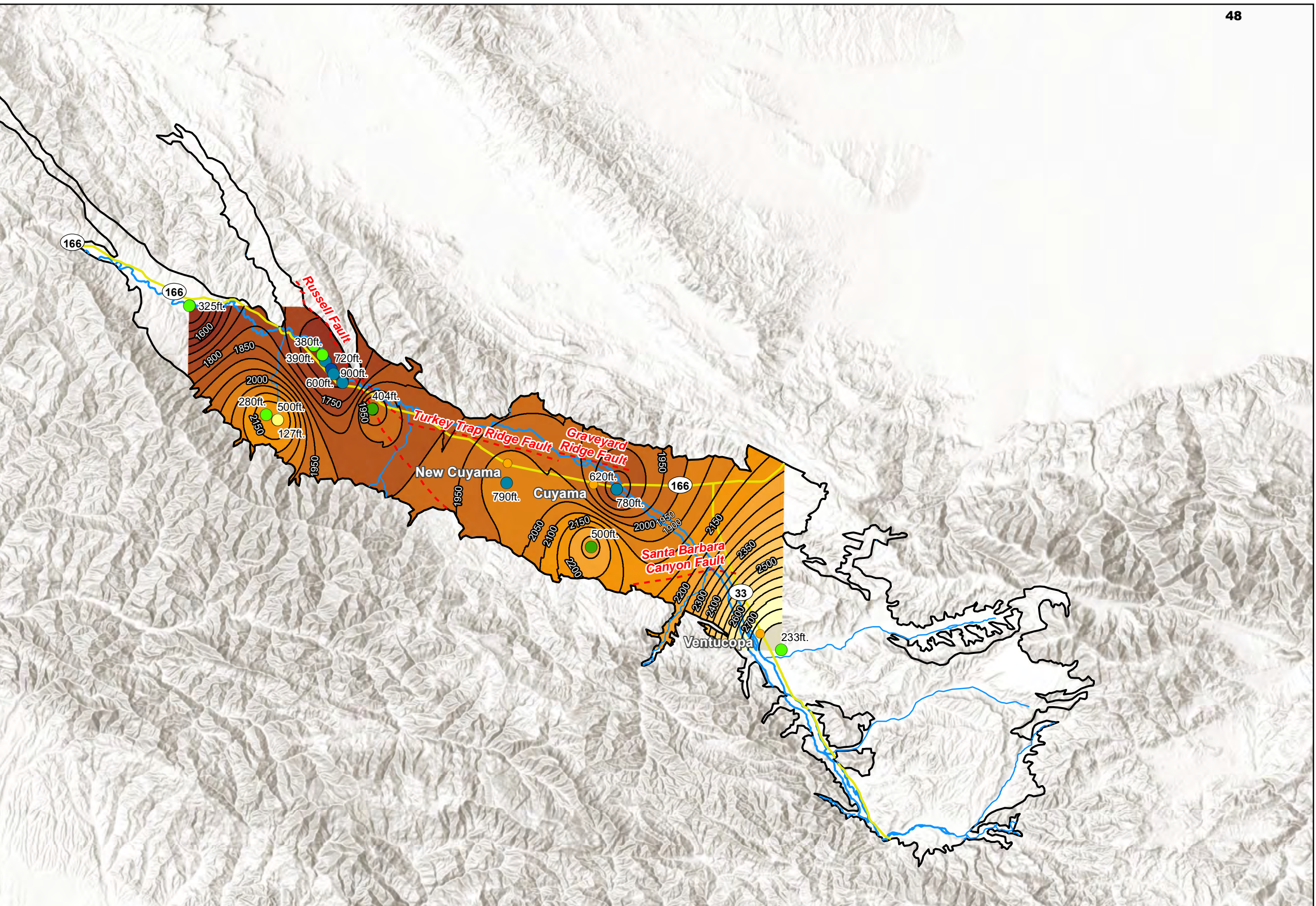
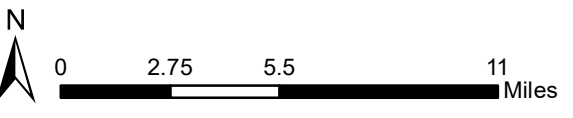
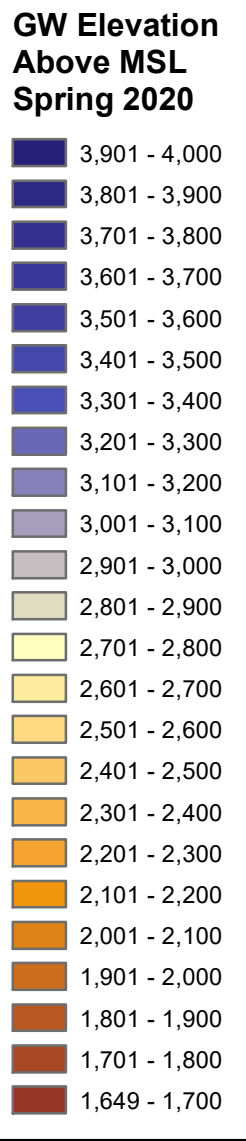


Figure 2-3: Cuyama GW Basin Spring 2020 Groundwater Elevation

Cuyama Basin Groundwater Sustainability Agency
 Cuyama Valley Groundwater Basin Groundwater Sustainability Plan
 February 2021



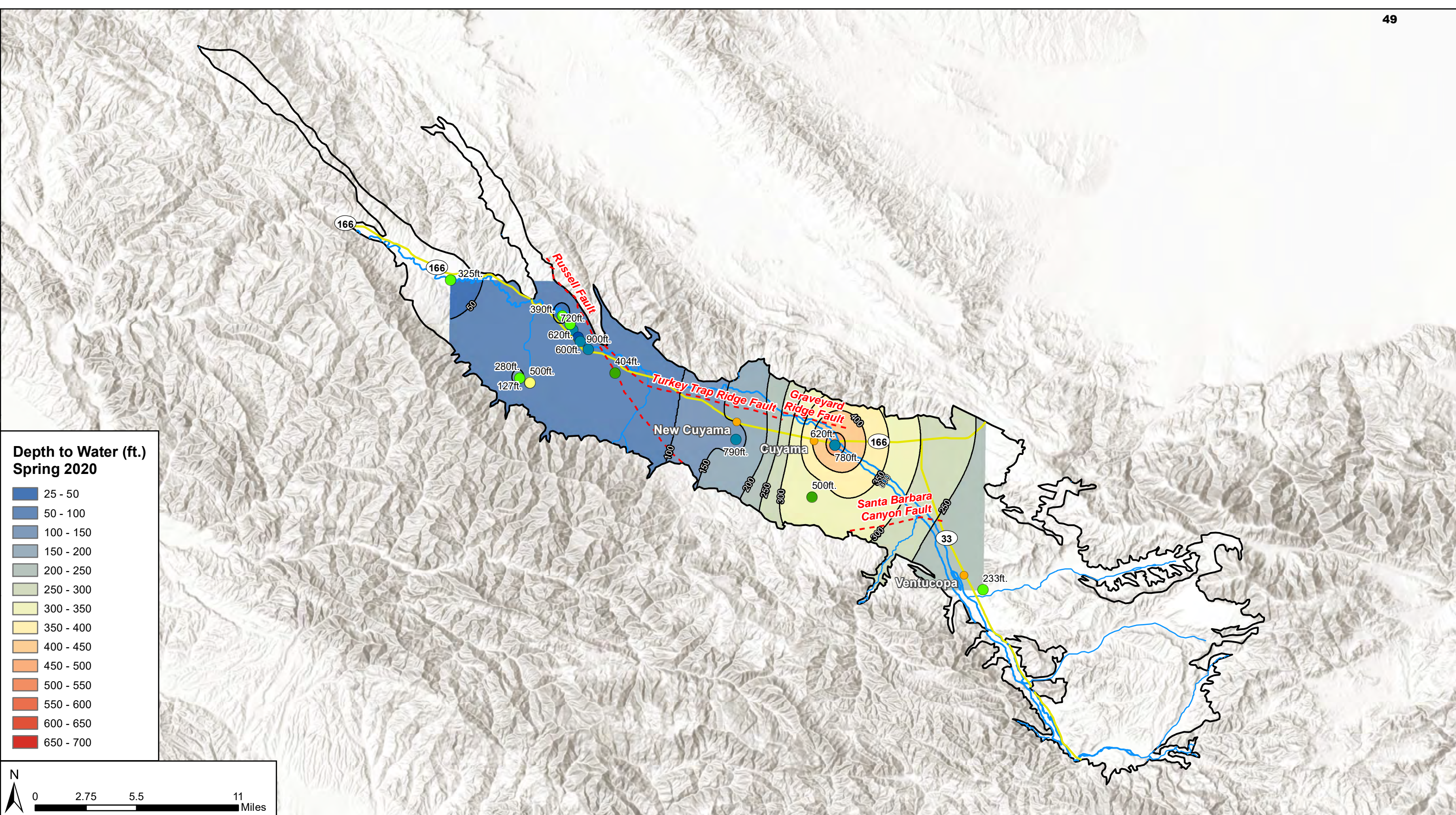
- Legend**
- Cuyama Basin
 - Cuyama River
 - - - Faults
 - Groundwater Elevation Above MSL

- Well Depth Below GSE**
- | | |
|---|--|
| Unknown | ● 600 - 800 ft |
| ● 0 - 200 ft | ● 800 - 1000 ft |
| ● 200 - 400 ft | ● 1000 - 1200 ft |
| ● 400 - 600 ft | |

Contours were interpolated using data measured from 2/1/2020 - 4/30/2020 due to limited data availability.

Contours Interval: 50 ft.

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**Depth to Water (ft.)
Spring 2020**

- 25 - 50
- 50 - 100
- 100 - 150
- 150 - 200
- 200 - 250
- 250 - 300
- 300 - 350
- 350 - 400
- 400 - 450
- 450 - 500
- 500 - 550
- 550 - 600
- 600 - 650
- 650 - 700

N

0 2.75 5.5 11 Miles

**Figure 2-4: Cuyama GW Basin
Spring 2020 Depth to Water**

Cuyama Basin Groundwater Sustainability Agency
Cuyama Valley Groundwater Basin Groundwater Sustainability Plan
February 2021

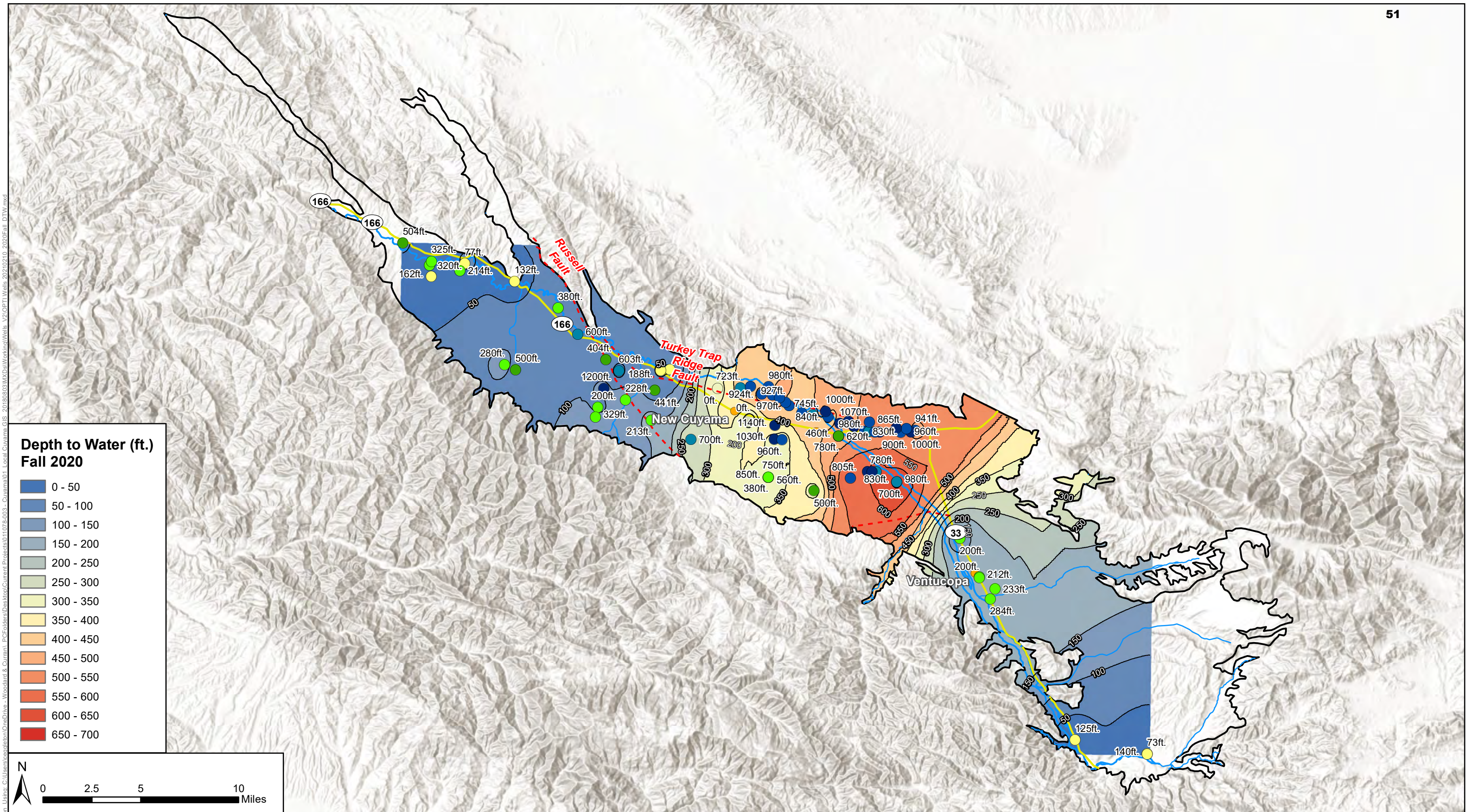


Legend

- Cuyama Basin
- Cuyama River
- - - Faults
- Groundwater Depth-to-Water Contours below Groundsurface

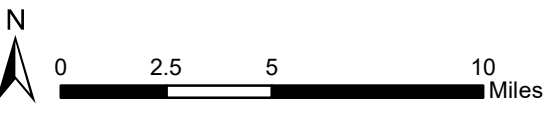
- Well Depth Below GSE**
- Unknown
 - 0 - 200 ft
 - 200 - 400 ft
 - 400 - 600 ft
 - 600 - 800 ft
 - 800 - 1000 ft
 - 1000 - 1200 ft

Contours were interpolated using data measured from 2/1/2020 - 4/30/2020 due to limited data availability.
Contours Interval: 50 ft.



**Depth to Water (ft.)
Fall 2020**

- 0 - 50
- 50 - 100
- 100 - 150
- 150 - 200
- 200 - 250
- 250 - 300
- 300 - 350
- 350 - 400
- 400 - 450
- 450 - 500
- 500 - 550
- 550 - 600
- 600 - 650
- 650 - 700



**Figure 2-6: Cuyama GW Basin
Fall 2020 Depth to Water**

Cuyama Basin Groundwater Sustainability Agency
Cuyama Valley Groundwater Basin Groundwater Sustainability Plan
February 2021



Legend

- Cuyama Basin
- Cuyama River
- - - Faults
- Groundwater Depth-to-Water Contours below Groundsurface

- Well Depth Below GSE**
- Unknown
 - 0 - 200 ft
 - 200 - 400 ft
 - 400 - 600 ft
 - 600 - 800 ft
 - 800 - 1000 ft
 - 1000 - 1200 ft

Contours were interpolated using data measured from 9/1/2020 - 11/30/2020 due to limited data availability.
Contours Interval: 50 ft.

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2.3 Hydrographs

Groundwater hydrographs were developed for each monitoring network well to provide indicators of groundwater trends throughout the Basin. Measurements from each well with historical monitoring data were compiled into one hydrograph for each well. A selection of wells from each threshold region are provided below, while hydrographs for every well are presented in Appendix A.³

In many cases, changes in historical groundwater conditions at particular wells have been influenced by climactic patterns in the Basin. Historical precipitation is highly variable, with several relatively wet years and some multi-year droughts.

Groundwater conditions generally vary in different parts of the Basin. To provide a comparative analysis general groundwater trends are provided in **Table 2-2** and are accompanied by hydrographs for each threshold regions. A map of threshold regions is provided in **Figure 2-7**, which also shows the locations of example wells used in each threshold region.

Table 2-2: Groundwater Trends by Threshold Regions

Threshold Region	Groundwater Trend	Example Well(s)
Northwestern Region	Slight downward trend influenced by seasonal fluctuations. This is expected as recent changes in land use have begun to pump groundwater. Levels are still approximately 80 ft above the Measurable Objective.	841 (Figure 2-8)
Western Region	Levels in this region have either stayed relatively flat or slightly increased.	108 (Figure 2-9)
Central Region	Levels have historically had a steady downward trend with some seasonal fluctuations. This pattern remains with trends continuing downward and, in some cases, levels surpassing minimum thresholds.	74 and 91 (Figure 2-10 and 2-11)
Eastern Region	This region has seen an overall decline over several decades, however, recent groundwater trends appear to be equilibrizing.	62 (Figure 2-12)
Southeastern Region	Levels in this relatively small region decreased slightly during the last drought but have recovered over the past few years and are well above the Measurable Objective.	89 (Figure 2-13)

³ Hydrographs in the appendix for this report include those that have recent monitoring data but will be removed based on monitoring network refinements described in this report. Subsequent Annual Reports for the Cuyama Basin will not include these hydrographs.

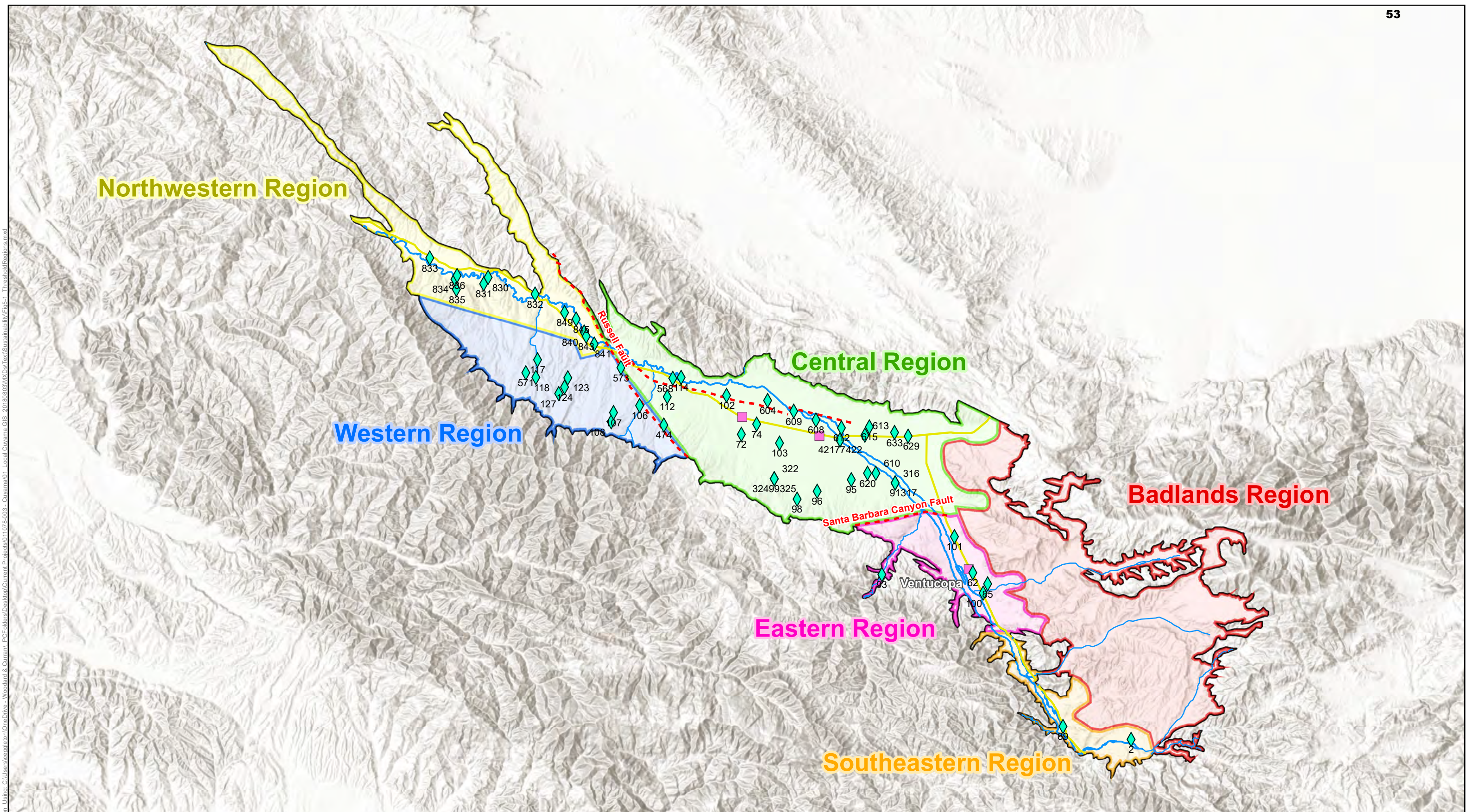


Figure 2-7: Cuyama GW Basin Groundwater Level Representative Wells & Threshold Regions
 Cuyama Basin Groundwater Sustainability Agency
 Cuyama Valley Groundwater Basin Groundwater Sustainability Plan
 April 2019



Legend

- Cuyama Basin
- Towns
- ◆ Representative Wells
- Faults
- Highways
- Cuyama River
- Streams
- Threshold Regions**
- Badlands Region
- Central Region
- Eastern Region
- Northwestern Region
- Southeastern Region
- Western Region



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Figure 2-8: Example Well Hydrographs – Northwestern Region

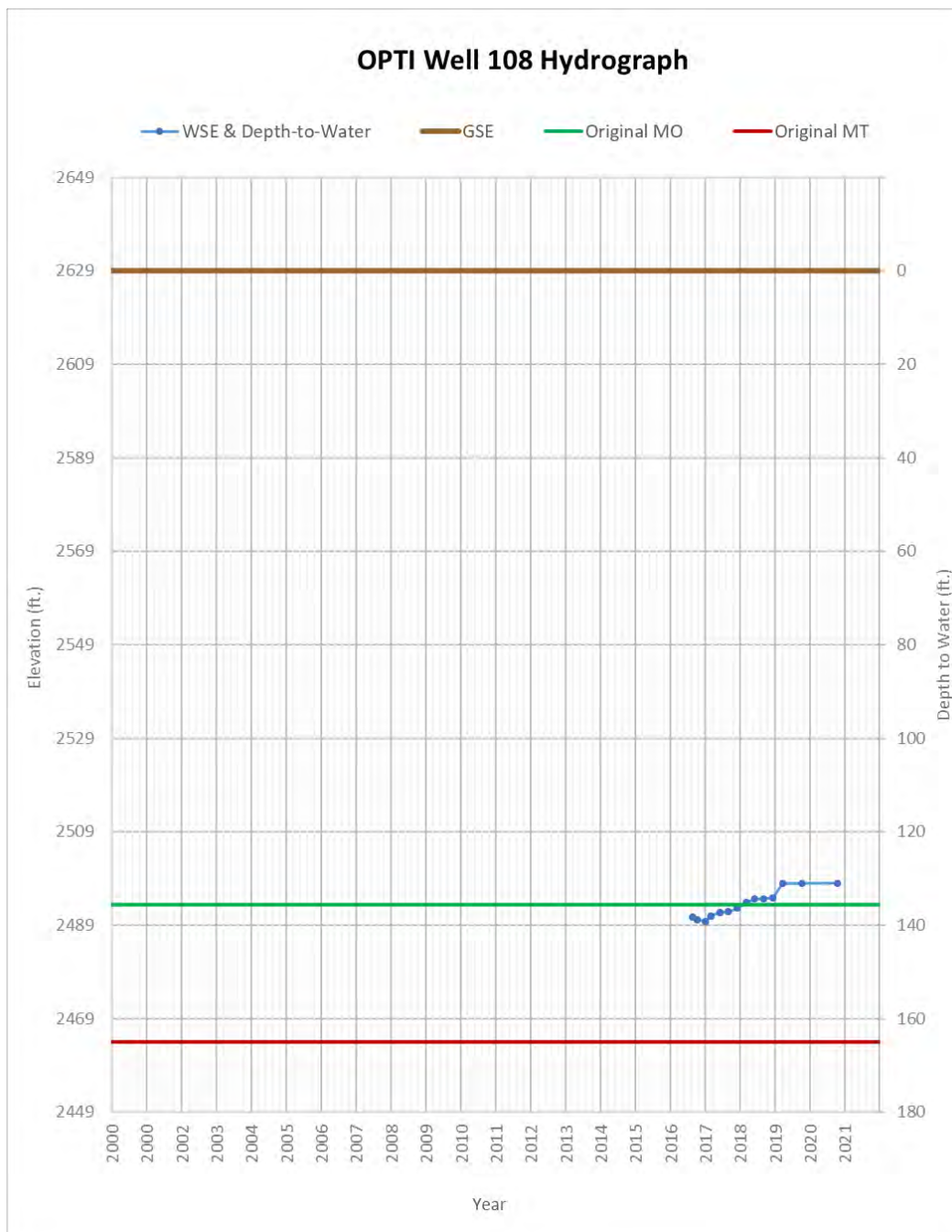


Figure 2-9: Example Well Hydrographs – Western Region

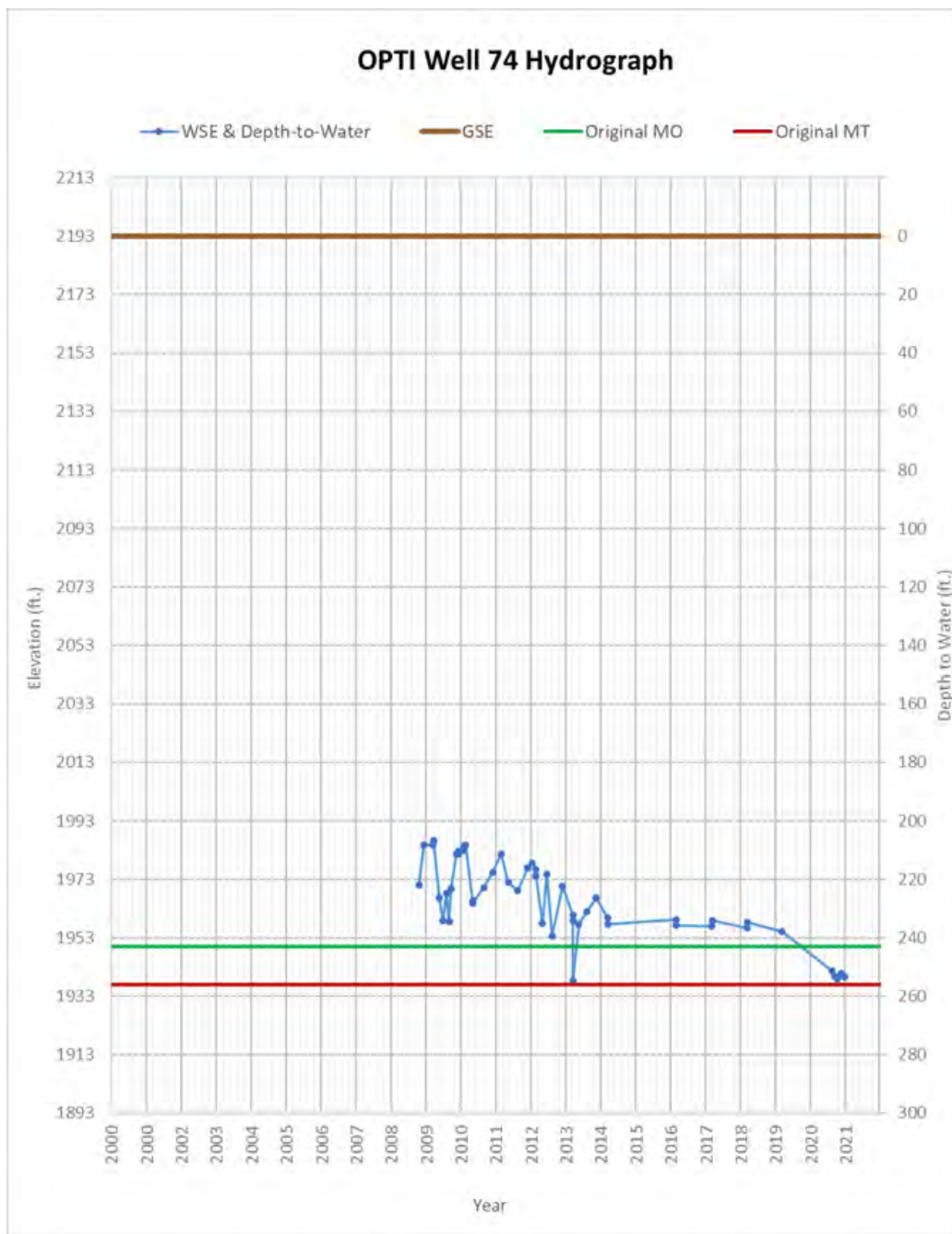


Figure 2-10: Example Well Hydrographs – Central Region



Figure 2-11: Example Well Hydrographs – Central Region

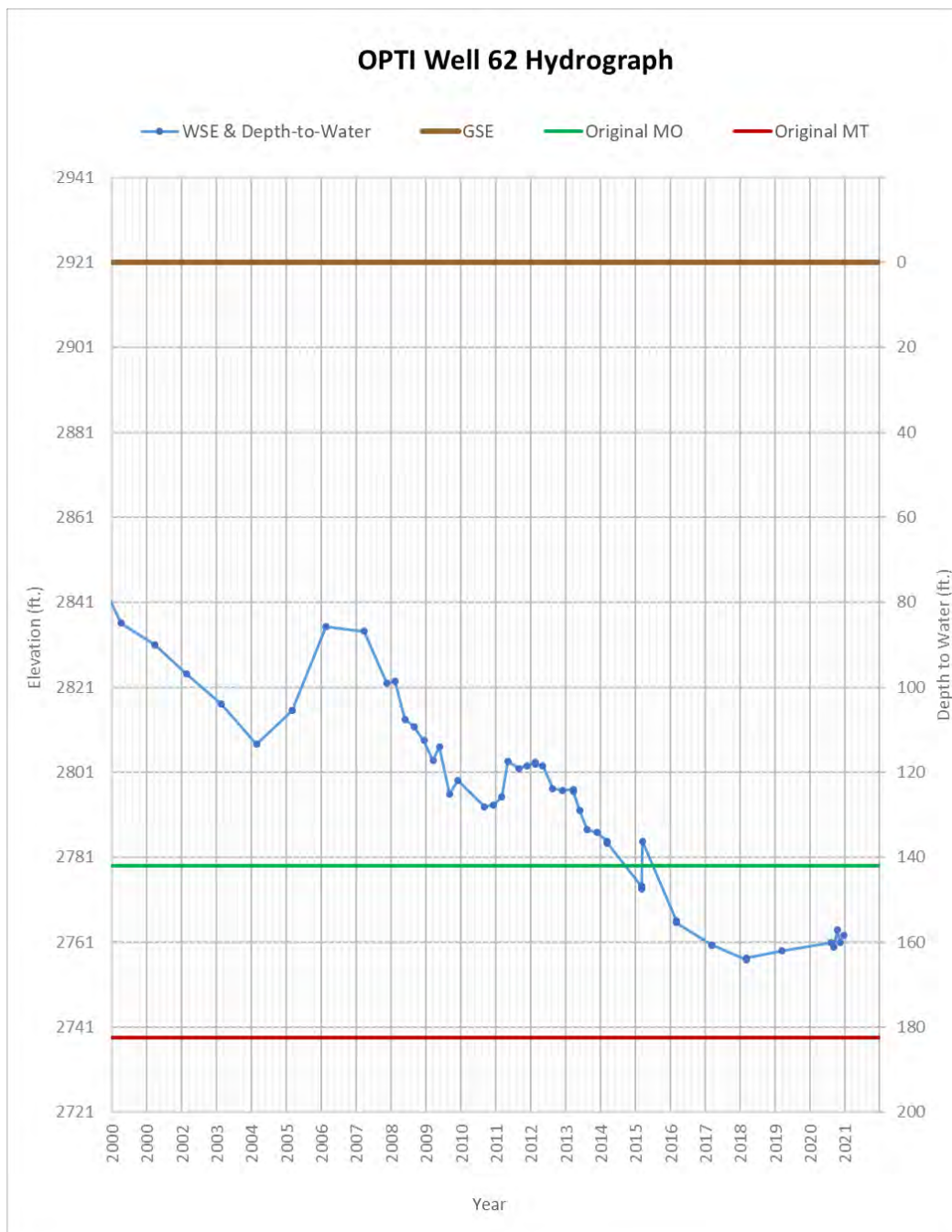


Figure 2-12: Example Well Hydrographs – Eastern Region

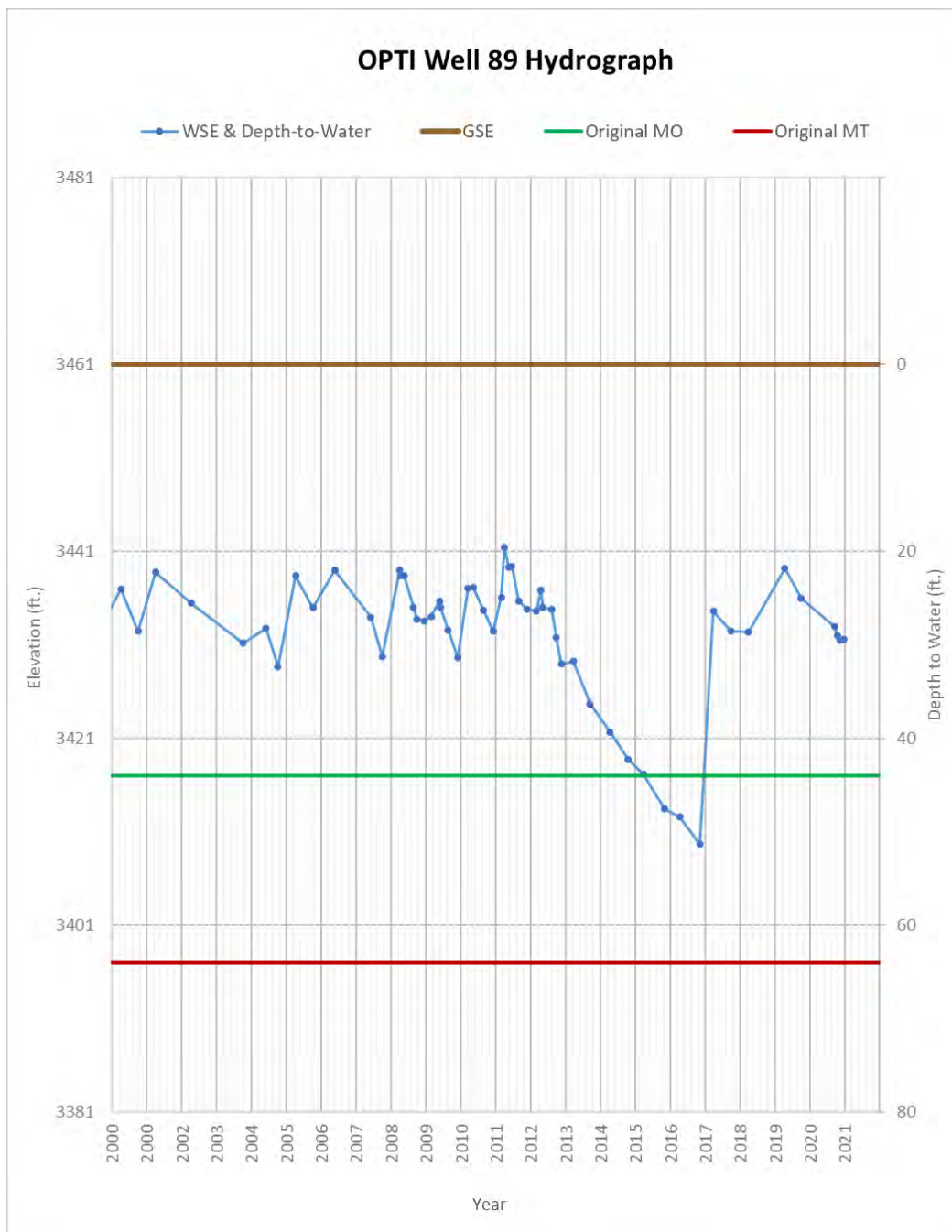


Figure 2-13: Example Well Hydrographs – Southeastern Region

Section 3. Water Use

§356.2 (b) (2)	Groundwater extraction for the preceding water year. Data shall be collected using the best available measurement methods and shall be presented in a table that summarizes groundwater extractions by water use sector, and identifies the method of measurement (direct or estimate) and accuracy of measurements, and a map that illustrates the general location and volume of groundwater extractions.
§356.2 (b) (3)	Surface water supply used or available for use, for groundwater recharge or in-lieu use shall be reported based on quantitative data that describes the annual volume and sources for the preceding water year.
§356.2 (b) (4)	Total water use shall be collected using the best available measurement methods and shall be reported in a table that summarizes total water use by water use sector, water source type, and identifies the method of measurement (direct or estimate) and accuracy of measurements. Existing water use data from the most recent Urban Water Management Plans or Agricultural Water Management Plans within the basin may be used, as long as the data are reported by water year.

3.1 Groundwater Extraction

Water budgets in the Cuyama Basin GSP were developed using the Cuyama Basin Water Resources Model (CBWRM) model, which is a fully integrated surface and groundwater flow model covering the Basin. The CBWRM was used to develop a historical water budget that evaluated the availability and reliability of past surface water supply deliveries, aquifer response to water supply, and demand trends relative to water year type. For the GSP, the CBWRM was used to develop water budget estimates for the hydrologic period of 1998 through 2017. As discussed in the GSP, the model was developed based on the best available data and information as of June 2018. An assessment of model uncertainty included in the GSP estimated an error range in overall model results of about +/- 10%. It is expected that the model will be refined in the future as improved and updated monitoring information becomes available for the Basin. For the 2020 and 2021 Annual Reports, the CBWRM model was extended to include the 2018 through 2020 water years, utilizing updated land use, temperature and precipitation⁴ data from those years.

Figure 3-1 shows the annual time series of groundwater pumping for the water years 1998 through 2020. The CBWRM estimates the following total groundwater extraction amounts in the Cuyama Basin in the 2018 through 2020 water years:

- 2018 Water Year: 59,900 acre-feet (AF)
- 2019 Water Year: 46,500 AF
- 2020 Water Year: 53,600 AF

Almost all groundwater extraction in the Basin is for agriculture use. There is approximately 300 AF of domestic use in each year, with the remainder in each year being for agricultural use.

⁴ It should be noted that precipitation data provided by PRISM was updated and there are minor changes to some historical (pre-2020) data reflected in the water budget results when compared to previous reports.

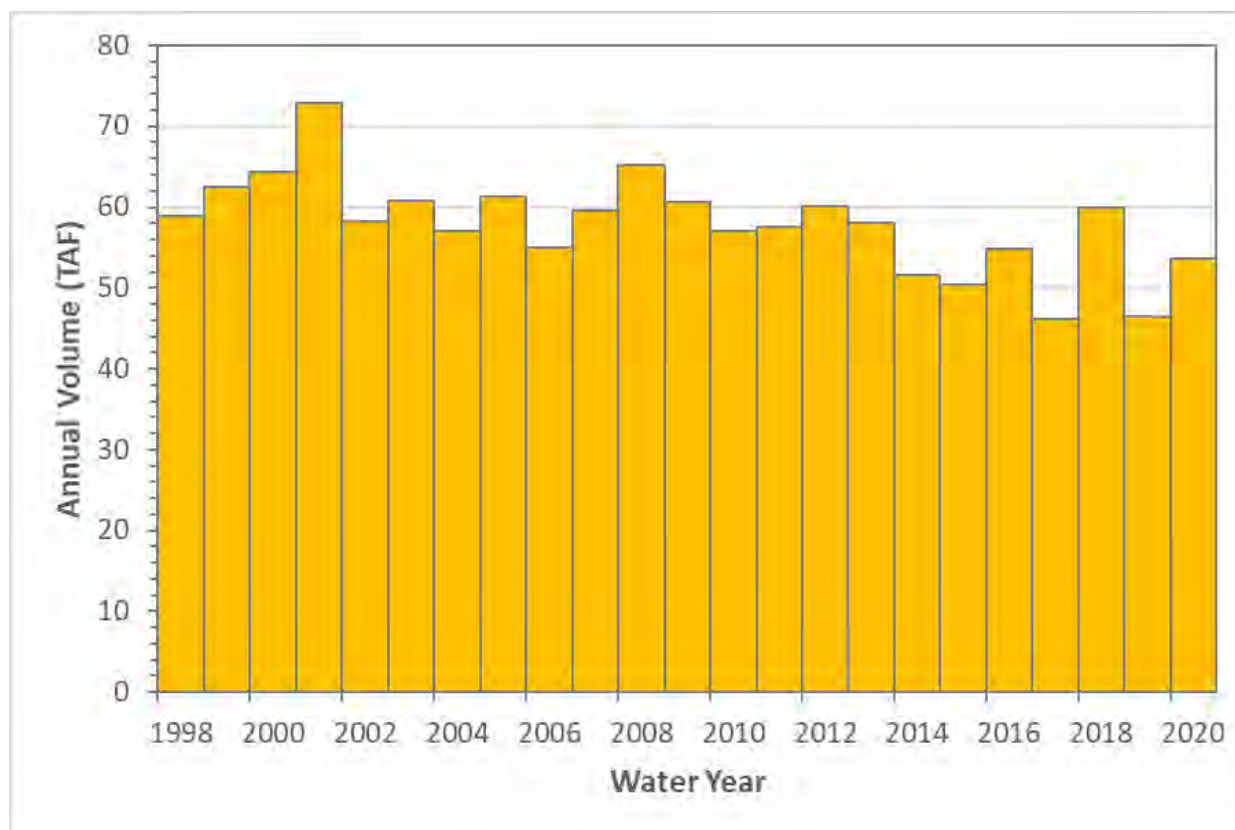


Figure 3-1: Annual Groundwater Extraction in the Cuyama Basin in Water Years 1998-2019

Figure 3-2 shows the locations where groundwater is applied in the Basin. The locations of groundwater use have not changed since completion of the GSP.

3.2 Surface Water Use

No surface water was used in the Cuyama Basin during the reporting period.

3.3 Total Water Use

Since there is no surface water use in the Cuyama Basin, the total water use equals the groundwater extraction in each year, as shown in Section 3.1.

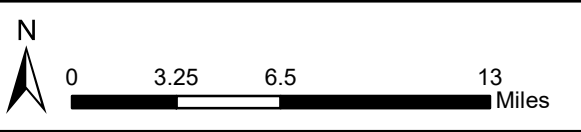
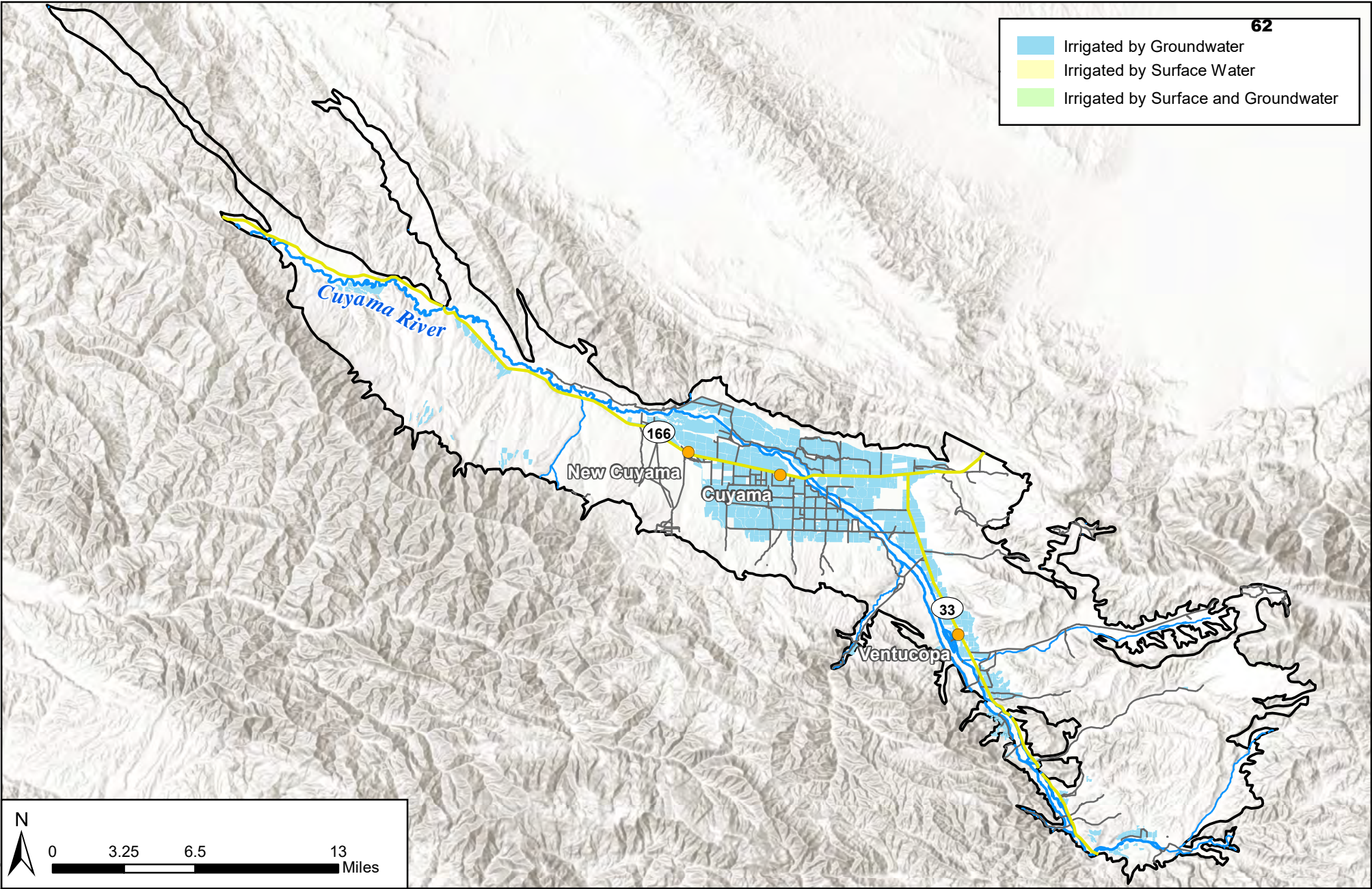
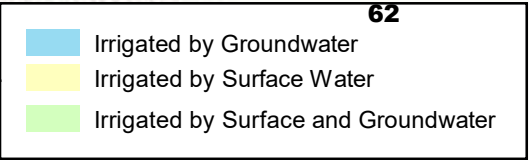


Figure 3-2 - Land Use by Water Source

Cuyama Basin Groundwater Sustainability Agency

Cuyama Valley Groundwater Basin Groundwater Sustainability Plan

January 2020



Legend

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

Source: California Department of Water Resources Statewide Crop Mapping, 2016 dataset, <https://gis.water.ca.gov/app/CADWRLandUseViewer/>

Figure Exported: 6/19/2018 8:00 AM By: mrvicks Using: \\woodardcurran.net\shared\Projects\RM\O\SAC\01011078_00 - Cuyama Basin GSP\PC_GIS\XDOs\Text\PlanArea\Fig_1-14_Land Use by Water_Source.mxd

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Section 4. Change in Groundwater Storage

§356.2 (b) (5)	Change in groundwater in storage shall include the following:
§356.2 (b) (5) (A)	Change in groundwater in storage maps for each principal aquifer in the basin.
§356.2 (b) (5) (B)	A graph depicting water year type, groundwater use, the annual change in groundwater in storage, and the cumulative change in groundwater in storage for the basin based on historical data to the greatest extent available, including from January 1, 2015, to the current reporting year.

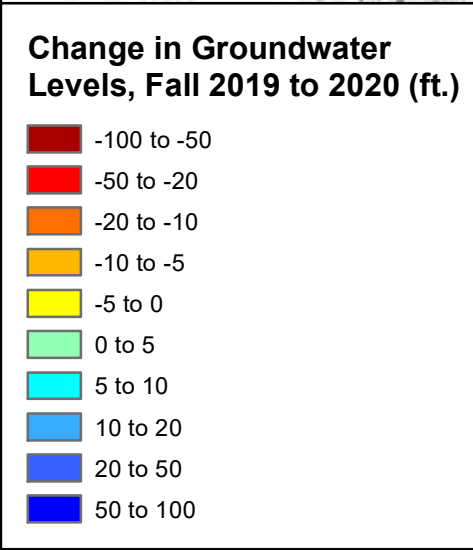
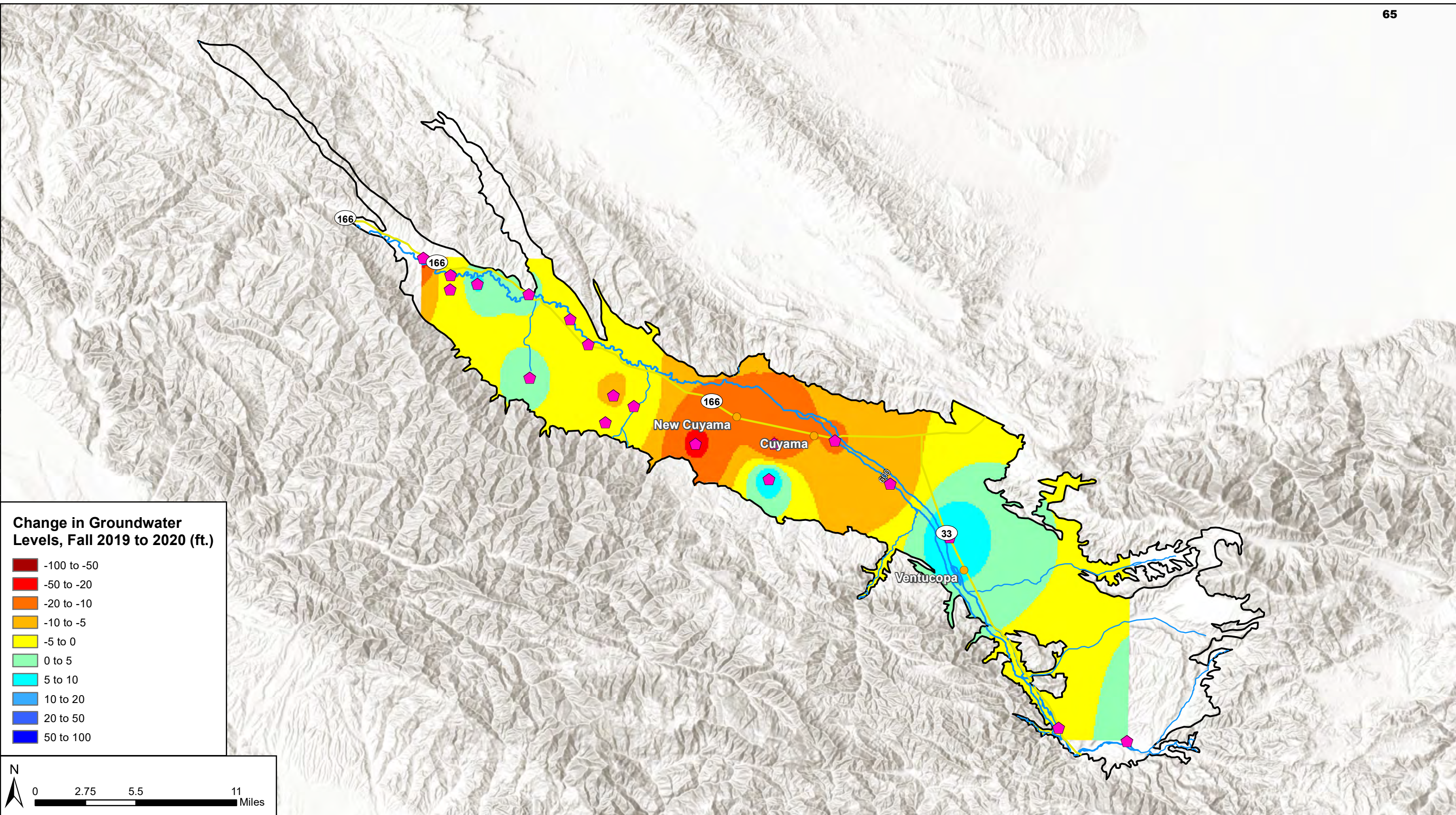
Figure 4-1 shows contours of the estimated change in groundwater levels in the Cuyama Basin between 2019 and 2020. The changes shown are based on historical measurements of groundwater elevations in Cuyama Basin representative wells that have recorded measurements in each year. Since the Cuyama Basin monitoring network was implemented and the GSA started collected data in 2020, the change in groundwater levels are based on only a limited number of wells, especially in the Central Basin. It is expected that the estimated annual change in groundwater levels can be improved in the future as refinements to the monitoring network are finalized and more data is measured through the GSA.

A quantitative estimate of the annual change in groundwater storage was estimated using the CBWRM model, which was extended to include the 2019 through 2020 water years as described in the groundwater extraction section above. The CBWRM was used to estimate the full groundwater budget for each year in the Cuyama Basin, which consists of a single principal aquifer. The estimated values for each water budget component in each year are shown in **Table 4-1**. The CBWRM estimates reductions in groundwater storage of 14,800 AF in 2019, and 23,600 AF in 2020.

Table 4-1: Groundwater Budget Estimates for Water Years 2019 and 2020

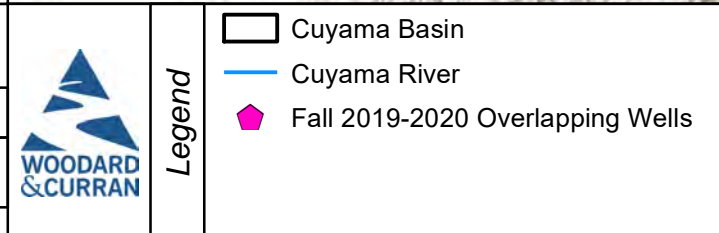
Component	Water Year 2019 (AFY)	Water Year 2020 (AFY)
Inflows		
Deep percolation	26,200	25,700
Stream seepage	3,900	2,800
Subsurface inflow	1,600	1,500
Total Inflow	31,700	30,000
Outflows		
Groundwater pumping	46,500	53,600
Total Outflow	46,500	53,600
Change in Storage	-14,800	-23,600

Figure_Exported_2/15/2021 11:52:21 AM By: ceoplation Using: C:\Users\ceoplation\OneDrive - Woodard & Curran\PC\Folders\Desktop\Current\Projects\011079-003 - Cuyama\01 - Local Cuyama GIS - 2018\08\03\MXD\WorkingWells_V2\2019 to 2020\Fall_DTW_Change.mxd



**Figure 4-1: Cuyama GW Basin
Fall 2019 to 2020 GWL Change**

Cuyama Basin Groundwater Sustainability Agency
Cuyama Valley Groundwater Basin Groundwater Sustainability Plan
February 2021



Rasters have been developed as an estimation tool. Areas of overlapping interpolation data for Fall 2019 and Fall 2020 are interpolated using data measured from September 1st and November 30th of each year due to limited data availability. It should be noted this information should be used with individual well hydrographs to make a more informative analysis of groundwater conditions.

Figure 4-2 shows the historical change in groundwater storage by year, water year type,⁵ and cumulative water volume in each year for the period from 1998 through 2020. The change in groundwater storage in each year was estimated by the CBWRM model. The color of bar for each year of change in storage correlates a water year type defined by Basin precipitation.



Figure 4-2: Change in Groundwater Storage by Year, Water Year Type, and Cumulative Water Volume

⁵ Water year types are customized for the Basin watershed based on annual precipitation as follows:

- Wet year = more than 19.6 inches
- Above normal year = 13.1 to 19.6 inches
- Below normal year = 9.85 to 13.1 inches
- Dry year = 6.6 to 9.85 inches
- Critical year = less than 6.6 inches.

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Section 5. Groundwater Quality

As discussed in Section 4.8 of the Cuyama GSP, the CBGSA’s groundwater quality network is designed to monitor salinity levels (as TDS). The groundwater quality network is composed of 64 wells, all of which are representative. Because the CBGSA is still in the initial phases of plan implementation, groundwater quality data has just started to be collected in early 2021. At the time of this report, results from the first samples have not yet been received. The CBGSA expects to provide additional information and data in the next Annual Report.

Section 6. Land Subsidence

Section 4.9 of the Cuyama GSP describes the monitoring network for land subsidence in the Basin, which is composed of five continuous geographic positioning system (CGPS) stations in and around the Basin to monitor lateral and vertical ground movements. Two of the five stations, the Cuyama Valley High School (CUHS) and the Ventucopa (VCST) stations are within the Basin boundary. The other three stations are outside of the Basin and provide data comparative data for vertical movements that are more likely related to tectonic displacement rather than land subsidence.

The undesirable result for subsidence, as described in Section 3.2.5, a result that causes significant and unreasonable reduction in the viability of the uses of infrastructure over the planning and implementation horizon. This result is detected when 30 percent of representative subsidence monitoring sites (i.e. 1 of 2 sites) exceed the minimum threshold for subsidence over two years. The minimum threshold for subsidence, as defined in GSP Section 5.6.3, is 2 inches per year.

At the time the GSP was submitted in 2020, subsidence rates for the CUHS station were -0.56 inches per year. As shown in **Figure 6-1**, data through 2020 was downloaded from UNAVCO⁶ and the subsidence trend for CUHS was recalculated. Current subsidence rates in the central portion of the Basin are now -16.9 mm per year or -0.67 inches per year. This is rate is still below the minimum threshold, and thus undesirable results for subsidence are not occurring in the Basin.

⁶ <https://www.unavco.org/data/web-services/documentation/documentation.html#!/GNSS47GPS/getPositionByStationId>

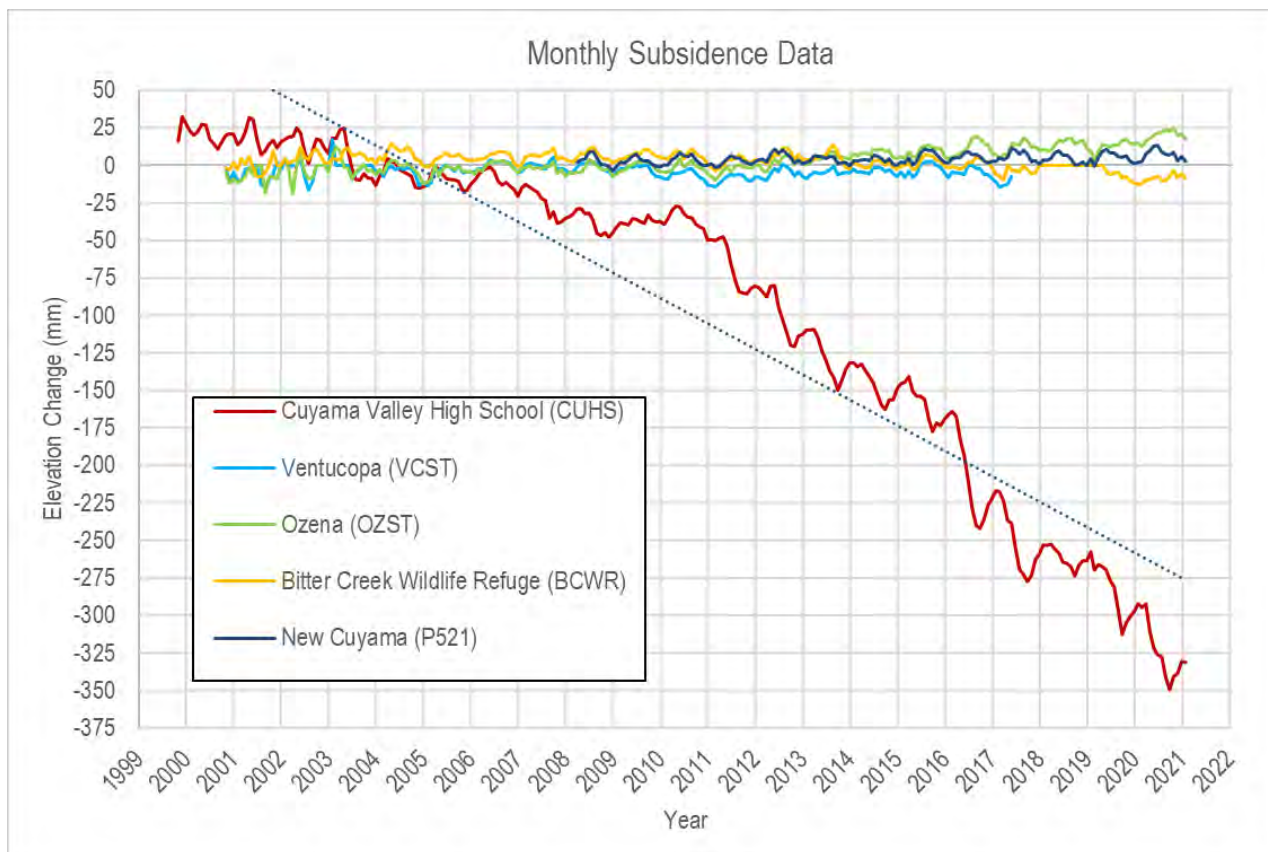


Figure 6-1: Subsidence Monitoring Data

Section 7. Plan Implementation

§356.2 (c)	A description of progress toward implementing the Plan, including achieving interim milestones, and implementation of projects or management actions since the previous annual report.
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This section describes management activities taken by the CBGSA to implement the Cuyama Basin GSP from adoption of the GSP through preparation of this Annual Report.

7.1 Progress Toward Achieving Interim Milestones

Since the GSP was adopted by the CBGSA Board recently and CBGSA data collection efforts began in the second half of 2020, progress toward achieving interim milestones is in its early stages.

To track changes in groundwater conditions and the Basins progress towards sustainability, the GSA compiles a monthly groundwater condition reports based on the data collected to monitoring groundwater levels. Current data collection occurs monthly with corresponding reports, however, at its January 2021 meeting, the CBGSA Board determined to shift to quarter monitoring in the near future after refinements to the monitoring network are finalized.

As described in Section 5 of the GSP (Minimum Thresholds, Measurable Objectives, and Interim Milestones), all interim milestones (IMs) are calculated the same way in each threshold region. IMs are equal the MT in 2025, with a projected improvement to one-third the distance between the MT and MO in 2030 and half the distance between the MT and MO in 2035. **Table 7-1** includes groundwater levels taken in November and December of 2020 and compares them to their respective 2025 IMs. As is shown in the table, 28 wells are already above their IM, while 21 are below, and 10 did not have data available at this time. As there are still four year before 2025, the CBGSA will use its regular groundwater condition reports to closely monitor the Basin's progress towards sustainability and its IMs.

Table 7-1: Groundwater Levels in November & December 2020 Compared to 2025 Interim Milestones

Well	Region	Nov-20 GWL	Dec-20 GWL	2025 IM	Status
72	Central	-	-	169	Unknown
74	Central	252	253	256	Above IM
77	Central	471	467	450	Below IM
91	Central	656	680	625	Below IM
95	Central	596	595	573	Below IM
96	Central	335	334	333	Below IM
98	Central	-	-	450	Unknown
99	Central	293	293	311	Above IM
102	Central	328	-	235	Below IM
103	Central	319	301	290	Below IM
112	Central	84	-	87	Below IM
114	Central	46	-	47	Below IM
316	Central	657	656	623	Below IM
317	Central	657	655	623	Below IM
322	Central	294	292	307	Above IM
324	Central	296	293	311	Above IM
325	Central	294	292	300	Above IM
420	Central	473	468	450	Below IM
421	Central	476	470	446	Below IM
422	Central	-	-	444	Unknown
474	Central	170	-	188	Below IM
568	Central	38	37	37	Above IM
604	Central	491	479	526	Above IM
608	Central	440	436	436	Above IM
609	Central	380	365	458	Above IM
610	Central	626	622	621	Below IM
612	Central	460	467	463	Below IM
613	Central	516	514	503	Below IM
615	Central	491	505	500	Below IM
620	Central	616	618	606	Below IM
629	Central	559	556	559	Above IM
633	Central	563	561	547	Below IM

Cuyama Basin Groundwater Sustainability Plan—
2021 Annual Report

Well	Region	Nov-20 GWL	Dec-20 GWL	2025 IM	Status
62	Eastern	160	158	182	Above IM
85	Eastern	204	202	233	Above IM
100	Eastern	154	151	181	Above IM
101	Eastern	111	109	111	Above IM
840	Northwestern	-	-	203	Unknown
841	Northwestern	86	77	203	Above IM
843	Northwestern	-	-	203	Unknown
845	Northwestern	66	63	203	Above IM
849	Northwestern	-	-	203	Unknown
2	Southeastern	30	31	72	Above IM
89	Southeastern	30	30	64	Above IM
106	Western	143	143	154	Above IM
107	Western	83	83	91	Above IM
108	Western	-	-	165	Unknown
117	Western	-	-	160	Unknown
118	Western	56	56	124	Above IM
123	Western	-	-	31	Unknown
124	Western	-	-	73	Unknown
127	Western	-	-	42	Unknown
571	Western	120	120	144	Above IM
573	Western	71	-	118	Below IM
830	Far-West Northwestern	56	56	59	Above IM
831	Far-West Northwestern	38	52	77	Above IM
832	Far-West Northwestern	38	38	45	Above IM
833	Far-West Northwestern	27	-	96	Below IM
834	Far-West Northwestern	40	41	84	Above IM
835	Far-West Northwestern	36	37	55	Above IM
836	Far-West Northwestern	36	38	79	Above IM

7.2 Funding to Support GSP Implementation

On November 6, 2019, the CBGSA Board approved the implementation of a groundwater extraction fee to fund the CBGSA administration and implementation activities for 2020. The \$19 per acre-foot fee was based on model-estimated 2019 water use totaling 60,000 acre-feet (AF) and the Fiscal Year 2019-20 budget totaling \$1,115,690. Water use and payments were submitted based on user-reported data and

resulted in the collection of \$585,536 representing water use totaling 30,711 AF. The under collection was due to an overrepresentation of water use in the model, and therefore, on August 13, 2020, the CBGSA approved a supplemental fee of \$44 per AF to cover the Fiscal Year 20-21 period which resulted in the collection of \$947,480.

Due to a combination of metered use and crop factor use being reported by users, the Board required the supplemental fee be based fully on evapotranspiration crop factors. This methodology resulted in user-reported water use of 25,357 AF. For FY 21-22, the CBGSA will likely continue to administer the annual fee based on crop factors, but meters are being required for all pumpers by December 31, 2021 and future fees may be based on actual pumping.

Additionally, the CBGSA applied for Proposition 68 SGM Implementation Grant funding from DWR in January of 2021 to support implementation activities including:

1. The installation of piezometers to better understand the infiltration of surface water flows into the groundwater aquifer and potential impacts of GSP actions on GDEs located in the Basin
2. Installation of ten dedicated multi-completion monitoring wells to provide groundwater level data needed to better understand how Basin water levels change in response to groundwater pumping and surface and subsurface flows
3. Enhancements of the DMS to report monitoring data and their relationship with sustainability indicators
4. Develop updated land use dataset for years 2018 to 2020 to better understand current and cyclical land use trends and to facilitate updating of water use estimates in the Basin
5. Correct issues with the current weather (CIMIS) station in the Basin and install additional weather stations to improve the accuracy and geographic coverage of precipitation and ET measurements
6. Perform short and long-term aquifer tests in portions of the Basin to improve understanding of hydrogeological conditions in areas of the Basin that the GSP identified as having limited information for characterization
7. Update the Cuyama Basin numerical model parameter values and calibration using the data provided by the above tasks and other recent CBGSA collected data
8. Utilize the updated numerical model to perform additional sustainability scenarios prior to implementation of GSP management actions to provide the information needed for optimal implementation of those actions
9. Perform a feasibility study of the precipitation enhancement action identified in the GSP to determine if this action should be pursued and implemented in the Basin
10. Perform a water rights analysis on flood and stormwater capture flows in the Basin to understand the feasibility of further developing a stormwater capture project in the Basin given water availability and existing water rights

The total requested grant amount was \$5,000,000. At the time of writing this report, grant awards have not been announced or distributed.

In addition, the Cuyama Community Services District received grant funding during 2020 from DWR's IRWM program to install a new ground water production well.

7.3 Stakeholder Outreach Activities in Support of GSP Implementation

The following is a list of public meetings where GSP development and implementation was discussed during 2020.

- CBGSA Board meetings: March 4, May 6, June 3, June 25, August 13, and November 4
- Standing Advisory Committee (SAC) meetings: February 27, April 30, May 28, June 25, August 13, and October 29

7.4 Progress on Implementation of GSP Projects

Table 7-2 shows the projects and management actions that were included in the GSP. The following subsections describe the progress of implementation of each GSP project.

Table 7-2: Summary of Projects and Management Actions included in the GSP

Activity	Current Status	Anticipated Timing	Estimated Cost ^a
Project 1: Flood and Stormwater Capture	Conceptual project evaluated in 2015	<ul style="list-style-type: none"> • Feasibility study: 0 to 5 years • Design/Construction: 5 to 15 years 	<ul style="list-style-type: none"> • Study: \$1,000,000 • Flood and Stormwater Capture Project: \$600-\$800 per AF (\$2,600,000 – 3,400,000 per year)
Project 2: Precipitation Enhancement	Initial Feasibility Study completed in 2016	<ul style="list-style-type: none"> • Refined project study: 0 to 2 years • Implementation of Precipitation Enhancement: 0 to 5 years 	<ul style="list-style-type: none"> • Study: \$200,000 • Precipitation Enhancement Project: \$25 per AF (\$150,000 per year)
Project 3: Water Supply Transfers/Exchanges	Not yet begun	<ul style="list-style-type: none"> • Feasibility study/planning: 0 to 5 years • Implementation in 5 to 15 years 	<ul style="list-style-type: none"> • Study: \$200,000 • Transfers/Exchanges: \$600-\$2,800 per AF (total cost TBD)
Project 4: Improve Reliability of Water Supplies for Local Communities	Preliminary studies/planning complete	<ul style="list-style-type: none"> • Feasibility studies: 0 to 2 years • Design/Construction: 1 to 5 years 	<ul style="list-style-type: none"> • Study: \$100,000 • Design/Construction: \$1,800,000
Management Action 1: Basin-Wide Economic Analysis	Completed	<ul style="list-style-type: none"> • December 2020 	<ul style="list-style-type: none"> • \$60,000
Management Action 2: Pumping Allocations in Central Basin Management Area	Preliminary coordination begun	<ul style="list-style-type: none"> • Pumping Allocation Study completed: 2022 • Allocations implemented: 2023 through 2040 	<ul style="list-style-type: none"> • Plan: \$300,000 • Implementation: \$150,000 per year
Adaptive Management	Not yet begun	Only implemented if triggered; timing would vary	TBD

^a Estimated cost based on planning documents and professional judgment
AF = acre-feet

7.4.1 Project 1: Flood and Stormwater Capture

The CBGSA applied for Proposition 68 SGM Implementation Grant funding from DWR in January of 2021 which included tasks to understand the feasibility of future flood and stormwater capture. Specifically, funding was sought to perform a water rights analysis on flood and stormwater capture flows in the Basin to understand the feasibility of further developing a stormwater capture project in the Basin given water availability and existing water rights. At the time of this Annual Report, grant awards have not been announced or distributed.

7.4.2 Project 2: Precipitation Enhancement

The CBGSA applied for Proposition 68 SGM Implementation Grant funding from DWR in January of 2021 which included tasks to understand the feasibility of precipitation enhancements efforts. Specifically, funding was sought to perform a feasibility study of the precipitation enhancement action identified in the GSP to determine if this action should be pursued and implemented in the Basin. At the time of this Annual Report, grant awards have not been announced or distributed.

7.4.3 Project 3: Water Supply Transfers or Exchanges

No progress was made toward implementation of this project since completion of the GSP in January 2020.

7.4.4 Project 4: Improve Reliability of Water Supplies for Local Communities

As noted above, the CCSO received a grant award from DWR's IRWM program to install a new production well.

7.5 Management Actions

Table 7-2 shows the projects and management actions that were included in the GSP. The following subsections describe the progress of implementation of each GSP management action.

7.5.1 Management Action 1: Basin-Wide Economic Analysis

A Basin-wide direct economic analysis of proposed GSP actions was completed. The results of this analysis were presented to the GSP Board on December 4, 2019, and the final report was completed in December 2019. The final Basin-wide economic analysis report was provided in the 2020 Annual Report. This management action is 100% complete.

7.5.2 Management Action 2: Pumping Allocations in Central Basin Management Area

An agreement was executed between the CBGSA and CBWD for the CBWD to administer management actions in the Central Basin management area. Beyond that agreement, no significant actions have been taken toward implementation of this management action since completion of the GSP in January 2020.

7.6 Adaptive Management

No adaptive management activities have been conducted since completion of the GSP in January 2020.

7.7 Progress Toward Implementation of Monitoring Networks

This section provides updates about implementation of the monitoring networks identified during GSP development.

7.7.1 Groundwater Levels Monitoring Network

As described in the previous annual report, on December 4, 2019, the CBGSA Board approved a task to begin implementation of the groundwater levels monitoring network. As part of this task, well information sheets were prepared for each well in the monitoring network to allow for implementation of regular monitoring at each well. This work was completed in early 2021, and now monthly groundwater data are collected at each well in the monitoring network.

As described in Section 2.1 above, the CBGSA has begun to refine the groundwater monitoring network to be more efficient, manageable, and economical for monitoring while retaining reliability and adequate representation of the Basin. These proposed refined monitoring network is included in **Table 2-1** and **Figure 2-2**, and is anticipated to be in operation in 2021.

In addition, under a Category 1 grant from DWR, continuous monitoring equipment was installed in 10 additional wells in early 2021. These wells are also identified in **Table 2-1** and Error! Reference source not found. shows the locations selected for installation.

The CBGSA has also approved applications to be submitted to DWR’s Technical Support Services (TSS) for installation of three new multi-completion monitoring wells within the Basin and is actively coordinating with DWR for the installation of these new wells.

Finally, the CBGSA intends to complete its survey of all the groundwater level monitoring network wells in 2021. This includes re-measuring latitudes, longitudes, elevations, and other metadata associated with each well. Groundwater level measurement data collected before this survey will be adjusted and reuploaded to DWR after surveying is complete to adequately reflect the difference in elevations caused because of the difference between the reference point elevation and ground surface elevation. This is something the CBGSA is fully aware of, and it is understood that groundwater levels may adjust by up to approximately 1-2 feet for some of the measurements.

7.7.2 Surface Water Monitoring Network

Under a Category 1 grant from DWR, it is expected that two new surface flow gages will be installed on the Cuyama River during 2021.

Section 8. References

California Department of Water Resources (DWR). 2003. *California's Groundwater Bulletin 118—Update 2003*. <https://water.ca.gov/LegacyFiles/groundwater/bulletin118/basindescriptions/3-13.pdf>

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Appendix A
Updated Hydrographs for Representative Wells

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TO: Standing Advisory Committee
Agenda Item No. 9c

FROM: Brian Van Lienden, Woodard & Curran

DATE: February 25, 2021

SUBJECT: Adopt Model Refinement Technical Memo

Issue

Consider adoption of the model refinement technical memo.

Recommended Motion

Adopt the Model Refinement Technical Memo.

Discussion

The Cuyama Basin Groundwater Sustainability Agency (CBGSA) Standing Advisory Committee and Board of Directors provided direction to develop a plan to update the Cuyama Basin Water Resources Model beginning July 1, 2021.

Provided as Attachment 1 is a summary on the background in developing the model update technical memo, and that memo is provided as Attachment 2 for consideration of approval.

Staff included the update components described in the Technical Memo in its recent Prop 68 Implementation Grant application. The attached slides and technical memo make recommendations on what components to consider keeping if the CBGSA is not awarded the grant.

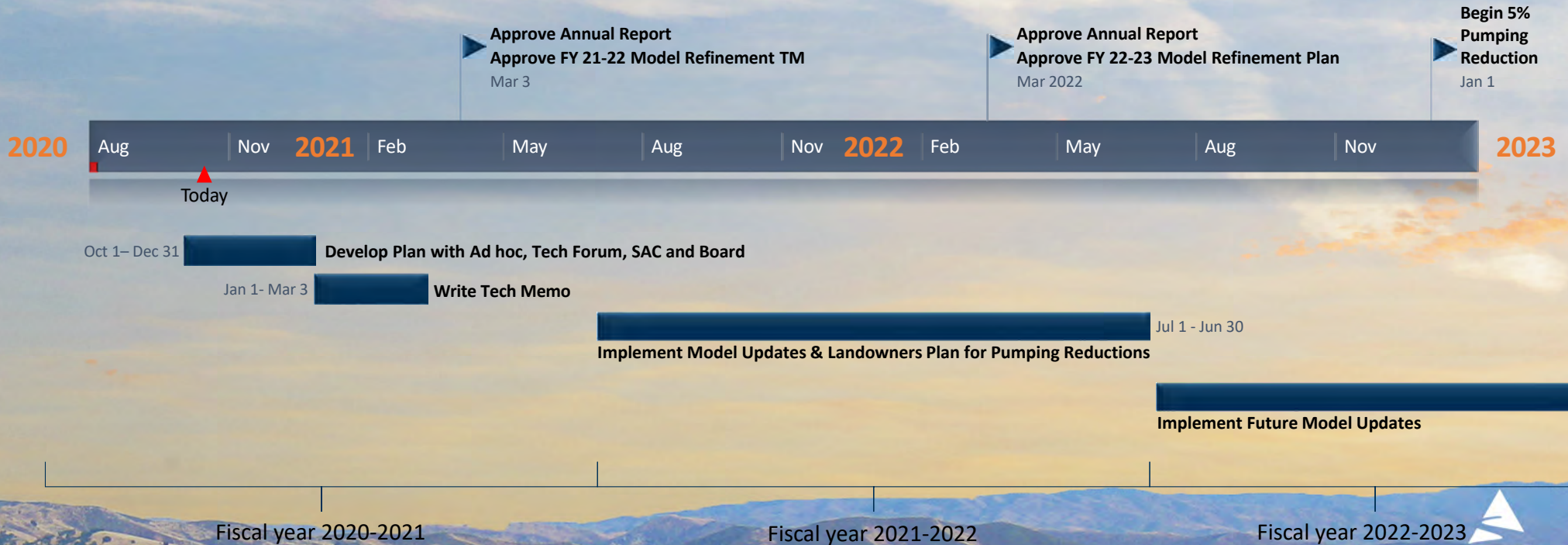
Cuyama Basin Groundwater Sustainability Agency

Adopt Model Refinement Technical
Memorandum

February 25, 2021



Model Refinement Schedule



Recommended Model Refinement Activities for FY⁸⁶ 2021-22

- **The following were included in the DWR grant proposal but are recommended for implementation even without grant funding**
- Updated land use estimates for the 2018-2020 period
 - Estimated Cost: ~\$20,000
- Improve hydrogeological characterization:
 - Perform aquifer tests at 4 wells
 - Estimated Cost: ~\$80,000
- Model data updates, re-calibration and application
 - Update model input data sets and model parameters
 - Perform re-calibration of the model based on additional data collected
 - Develop updated estimates of historical and projected water budgets
 - Develop updated sustainability estimates under projected conditions
 - Evaluate the range of uncertainty for the re-calibrated model
 - Estimated Cost: ~\$150,000

Recommended Model Refinement Activities for FY 2021-22

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- **The following are recommended only if grant funding is procured**
- Improve existing CIMIS station and develop new CIMIS station(s)
 - Estimated cost: up to ~\$80,000
- Install new piezometers in vicinity of the streambed
 - Estimated Cost: up to ~\$200,000
 - Piezometers should still be installed in vicinity of GDEs
- Additional model development and application activities
 - Estimated cost: up to ~\$200,000
 - Develop updated Crop ET estimates for 2018-2020 period
 - Update the CBWRM model documentation appendix
 - Use the updated CBWRM model to explore additional sustainability and water management options
- Develop a Decision Support Platform
 - Estimated cost: ~\$60,000

Adoption of Model Refinement Tech Memo

- We are requesting adoption of the Model Refinement Tech Memo by the CBGSA Board at the March 3, 2021 Board meeting
- Tech Memo will be used as basis for FY 2021-22 CBGSA budgeting

DRAFT MODEL REFINEMENT TECHNICAL MEMORANDUM

TO: Cuyama Basin Groundwater Sustainability Agency

FROM: Brian Van Lienden, Sercan Ceyhan, and Ali Taghavi, Woodard & Curran

DATE: February 18, 2021

RE: Recommended Approach for Update and Refinement of Cuyama Basin Water Resources Model

1. BACKGROUND

The purpose of this Technical Memorandum (TM) is to describe the recommended approach for the Cuyama Basin Groundwater Sustainability Agency (CBGSA) to update and refine the Cuyama Basin Water Resources Model (CBWRM). The CBWRM was developed to evaluate the recent historical, current, and projected surface water and groundwater conditions in the Cuyama Groundwater Basin (Basin), and simulate various scenarios as part of the Basin's *Groundwater Sustainability Plan* (GSP), which was submitted to the California Department of Water Resources (DWR) in January 2020. The fine temporal and spatial scale of the CBRWM allows the CBGSA and its stakeholders to evaluate the effect of changing groundwater conditions in different parts of the Basin.

CBWRM development was documented in Chapter 2 Appendix C of the GSP. Appendix C included recommendations for continued model development, including continued engagement with local stakeholders, performing additional hydrogeological conceptualization, improving streamflow record collection, improving the representation of small watersheds, developing groundwater pumping estimates, and incorporating future data into model calibration. Some of the recommended improvements are already being implemented by the CBGSA, including the construction of two additional streamflow gages are being constructed in the Cuyama River, implementation of a groundwater metering program that will track pumping quantities, and implementation of the groundwater levels monitoring program that will provide regular groundwater levels data from monitoring wells located throughout the Basin.

This TM describes additional data and model improvements that are recommended to be implemented in FY 2021-22 and beyond. The recommendations were developed with consultation provided by the model refinement ad-hoc committee (on a call on October 7), the Technical Forum (on a call on October 13), the Standing Advisory Committee at meetings on October 29 and January 7, and the CBGSA Board at meetings on November 3 and January 13. Many of the proposed data and model improvement activities were included in the SGMA Implementation Grant proposal that the CBGSA submitted to DWR in January 2021. The recommendations for Fiscal Year (FY) 2021-22 for each item below indicates whether it is recommended for the CBGSA to implement the item regardless of the availability of grant funding, or if the item should only be implemented if the CBGSA is successful in procuring grant funding for it.

Table 1 shows the recommended CBWRM refinement activities in FY 2021-22, which should be performed even absent the procurement of grant funding.

Table 1. Recommended Activities Supporting CBWRM Refinement in FY 2021-22

Activity	Approximate Cost
Develop updated land use estimates for 2018-2020	\$20,000
Perform aquifer tests at four well locations to improve hydrogeological characterization	\$80,000
Update CBWRM model data and calibration and develop updated water budget estimates and sustainability estimates	\$150,000
Total	\$250,000

2. TIMELINE OF CBWRM MODEL REFINEMENT AND APPLICATION

Figure 1 shows the projected timeline of CBWRM model refinements and application. In the next few years, it is expected that the CBWRM will be used to help guide CBGSA decision-making with the following applications:

- Development of the previous year’s water budget for Annual Reports (due April 1 of each year)
- Perform sustainability scenarios to refine pumping reduction implementation approach and management area definition prior to the beginning of pumping reductions in 2023
- Potential additional analysis of water supply options

To accomplish these goals, data and field improvements and CBWRM refinement and application should be performed during FY 2021-22. The recommended data and model development activities to be performed during FY 2021-22 are described in the sections below. It is anticipated that additional model and data development would occur during future fiscal years. A plan for model and data refinements to be performed during FY 2022-23 would also be developed during FY 2021-22.

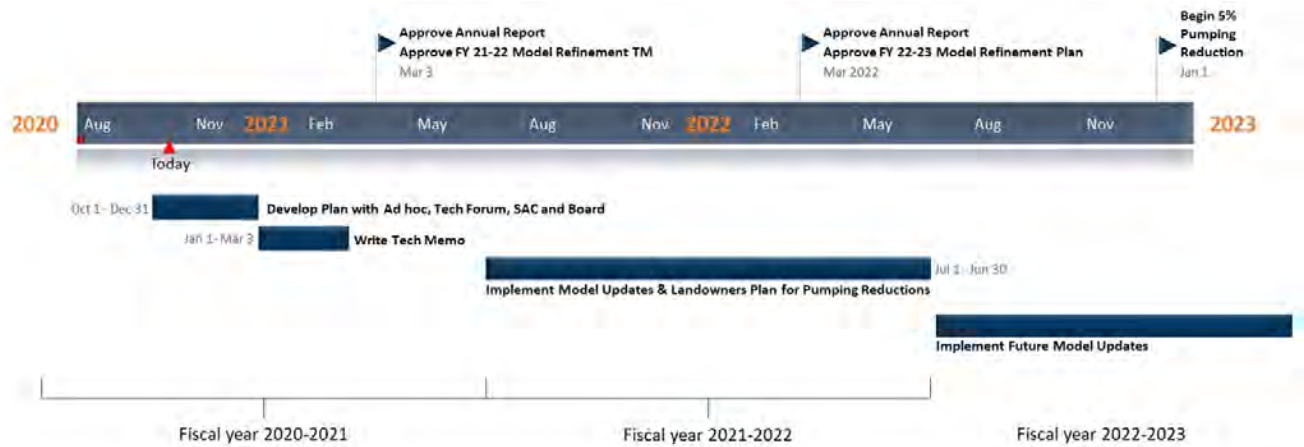


Figure 1. CBWRM Refinement and Application Schedule

3. DATA ENHANCEMENTS AND CAPITAL IMPROVEMENTS DURING FISCAL YEAR 2021-22

Recommended data enhancements and capital improvements that would provide data to improve the reliability of the CBWRM include updating land use estimates, updating the existing California Irrigation Management Information System (CIMIS) station in the Basin and installing additional CIMIS stations, performing aquifer tests, and installing piezometers in the vicinity of the streambed. Each of these is described below.

3.1 Develop Updated Land Use Estimates for 2018 to 2020

The CBGSA would develop updated land use dataset for years 2018 to 2020 to better understand current and cyclical land use trends and to facilitate updating of water use estimates in the Basin. Continuous cropping data reflecting representative historic Basin-wide land use will be developed on a monthly time scale for water years 2018 through 2020. The spatial scale and land use categorization of the developed data would be similar to what was previously developed in the Basin by DWR for water years 2014 and 2016. These land use estimates will be developed using satellite imagery and compared to land use information provided by Basin landowners for consistency, and to develop a comprehensive Basin-wide data set.

Approximate Estimated Cost: \$20,000

Recommendation: CBGSA should implement in FY 2021-22

3.2 Update Current Weather (CIMIS) Station in the Basin and Install Additional Weather Stations

The CBGSA would work with DWR’s Southern California CIMIS region to correct issues with the current weather (CIMIS) station in the Basin and install additional weather stations to improve the accuracy and geographic coverage of precipitation and ET measurements. The CBGSA and DWR would work with landowners to identify locations up to five new weather stations in the Basin. Activities would include the development of planning and design documents necessary to update the existing weather station and to develop up to five new weather stations in the Basin,

development and submittal of any required environmental permits, and the completion of CEQA documentation. It is assumed that the installation of the CIMIS stations will be performed by a representative from DWRs Southern California CIMIS Region.

Approximate Estimated Cost: \$80,000

Recommendation: CBGSA should implement in FY 2021-22 only if grant funding is procured

3.3 Perform Aquifer Tests to Improve Hydrogeological Characterization

The CBGSA would perform aquifer tests at select locations in the Basin to improve understanding of hydrogeological conditions in areas of the Basin that the GSP identified as having limited information for characterization. This task would include the selection of up to four suitable well site locations to perform aquifer tests. For each location, a candidate pumping well and up to two observation wells would be identified and evaluated. Testing at each well would include the following activities: (a) pre-pumping water level monitoring (i.e., baseline) to document any trends or patterns in the fluctuation of water levels in the pumping and observation wells; (b) selection of optimum pumping rate based on drawdown response in the pumping well; (c) constant rate discharge test at the selected pumping rate for a duration that meets the test objectives; and (d) recovery monitoring in the pumping and observation wells. During these activities, depth to groundwater in test wells will be monitored by programmable pressure transducers or by using an electronic sounder.

Approximate Estimated Cost: \$80,000

Recommendation: CBGSA should implement in FY 2021-22

3.4 Install Piezometers In Vicinity of the Streambed

The CBGSA would install piezometers to better understand the infiltration of surface water flows into the groundwater aquifer. This would be in addition to additional piezometers to be installed under a separate task to assess potential impacts of GSP actions on GDEs located in the Basin. The task would include stakeholder engagement and outreach to determine where the piezometers will be located and to obtain any easements or right of way access for the piezometers. New piezometers would be installed at up to six locations, with an assumed average depth of approximately 100 feet. Anticipated activities for installation of each piezometer include the development of a health and safety plan, obtaining subsurface utility clearance, well-hole drilling, installation of a casing for each completion, well installation, and drilling waste disposal.

Approximate Estimated Cost: \$200,000

Recommendation: CBGSA should implement in FY 2021-22 only if grant funding is procured

4. CBWRM MODEL UPDATES DURING FISCAL YEAR 2021-22

It is recommended that the calibration of the CBWRM model be updated to incorporate the data that has been collected by ongoing CBGSA programs and any additional data collected from the tasks described in section 2 above. The updated model would then be used to develop updated water budget estimates and updated sustainability estimates, and potentially to analyze

alternative scenarios related to sustainability and water management action analysis. Finally, a decision support tool is recommended to provide information on the state of the basin on a quarterly basis. These activities are described below.

4.1 Update CBWRM Calibration and Develop Updated Water Budget and Sustainability Estimates

The existing CBWRM would be updated to incorporate the data developed under the above tasks and under other ongoing CBGSA activities including the Basin monitoring program that has been in operation since the adoption of the GSP. This will result in improved model representation of the Basin as the model is used to help guide decision-making related to the implementation of GSP pumping allocation and water supply actions. The following activities would be performed: (a) Update model input data sets and model parameters as appropriate to reflect improved Basin understanding resulting from the additional data developed under the above tasks; (b) perform a re-calibration of the model based on additional data groundwater elevations data and other data collected since completion of the GSP; (c) develop updated estimates of historical and projected water budgets using the re-calibrated model; (d) develop updated sustainability estimates under projected conditions; and (e) evaluation of the range of uncertainty for the re-calibrated model. It is assumed that this effort will require engagement with Technical Forum members during the model update and re-calibration process and that updated model and water budget results will be included in presentation materials for CBGSA Board meetings.

Approximate Estimated Cost: \$150,000

Recommendation: CBGSA should implement in FY 2021-22

4.2 Additional CBWRM Development and Application Activities

This item includes additional lower-priority CBWRM development activities that were included in the SGMA implementation grant proposal, but would only be implemented if grant funding were procured by the GSA. If grant funding can be procured, the following additional activities are recommended: (a) revise and refine the root zone component of the IRWM demand calculator (IDC) with the additional time series from 2018-2020 water years; (b) update the CBWRM model documentation appendix to include CBWRM improvements that were implemented in FY 2021-22; and (c) use the updated CBWRM model developed in the above task as well as other data and information developed since completion of the GSP be used to explore additional options for pumping allocations in the Basin, as well as potentially evaluating additional options for implementation of GSP water supply options. The GSP included a single sustainability scenario for the implementation of pumping allocations in the Basin. This resulted in a schedule of pumping allocations and a management area boundary) that were included in the GSP. In this task, up to four additional scenarios would be developed that explore varying levels of pumping reduction, varying options for revised management area boundaries, and potentially additional options for water supply options. This task would include ongoing engagement with CBGSA Board members and the Technical Forum to discuss potential scenarios to be evaluated, the assumptions for potential water management options, and the implications for technical analysis results on CBGSA decisions regarding implementation of pumping allocations in the Basin. The assumptions and results of the water management action implementation options analysis would be included in presentation materials for CBGSA Board meetings and documented in the updated version of the CBWRM model documentation appendix.

Approximate Estimated Cost: \$200,000

Recommendation: CBGSA should implement in FY 2021-22 only if grant funding is procured

4.3 Develop a Decision Support Platform

The CBGSA would develop a Decision Support Platform (DSP), which would provide information on the state of the Basin on a quarterly basis based on the foundational information from the CBWRM model, and monthly data on groundwater pumping and hydrologic conditions. The DSP would tie the real-time data and model data in a more efficient, robust, and cost-effective manner in a dashboard to monitor the state of the Basin using the relevant sustainability indicators. Note that the DSP was not included in the SGMA implementation grant application; therefore, the DSP would either need to be included in a separate grant proposal or deferred for consideration in a future year.

Approximate Estimated Cost: \$60,000

Recommendation: CBGSA should implement in a future year or if grant funding is procured



TO: Standing Advisory Committee
Agenda Item No. 9e

FROM: Brian Van Lienden, Woodard & Curran

DATE: February 25, 2021

SUBJECT: Update on Monitoring Network Implementation

Issue

Update on Monitoring Network Implementation.

Recommended Motion

None – information only.

Discussion

An update regarding the monitoring network implementation is provided as Attachment 1.

Cuyama Basin Groundwater Sustainability Agency

Update on Monitoring Network Implementation

February 25, 2021









Groundwater Levels Monitoring Network Status Update – DWR TSS and Category 1

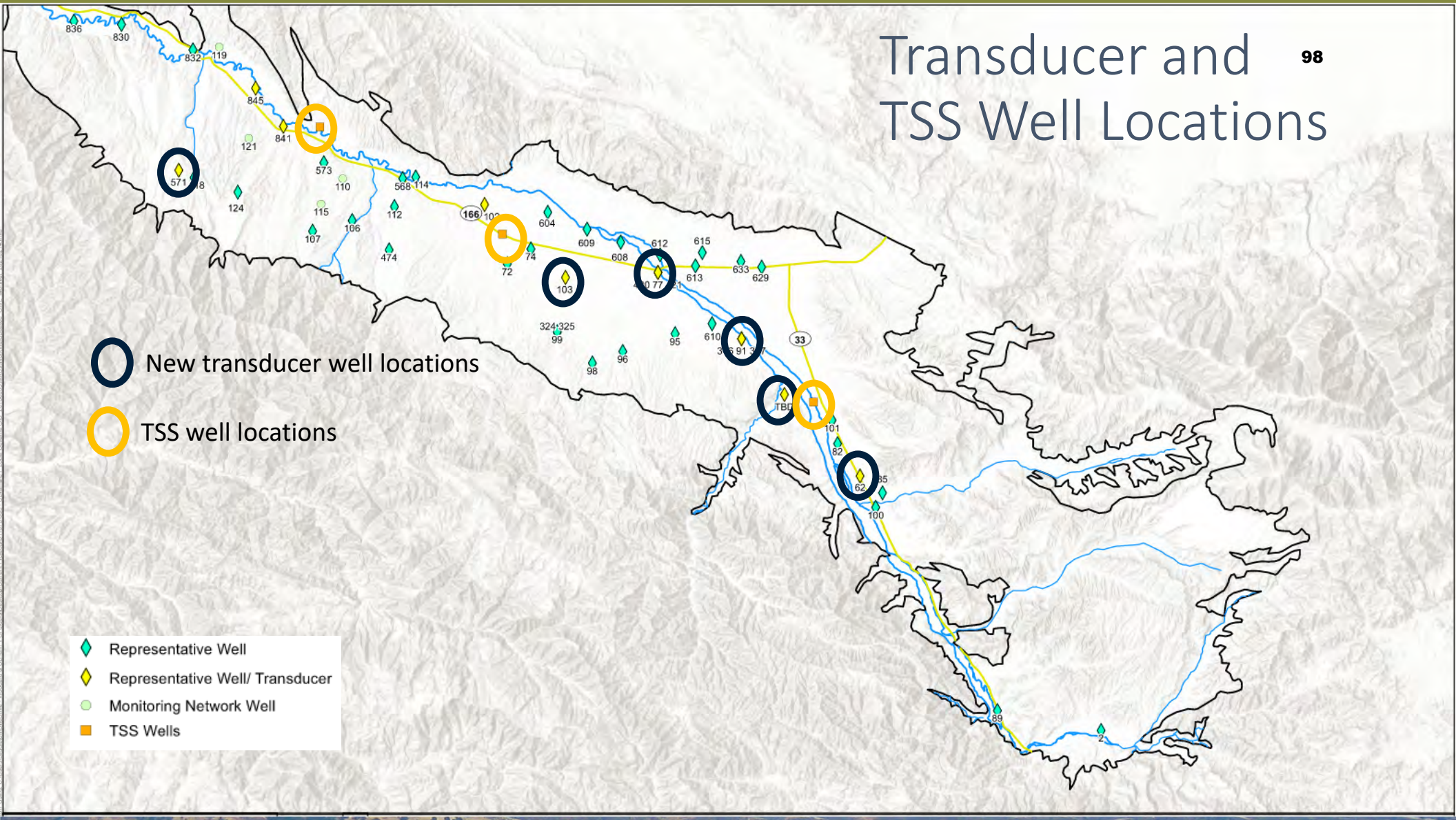
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- Installation of new wells by DWR Technical Support Services
 - Currently working with DWR and landowners to finalize permits and agreements
 - Installation is scheduled to start in February and to be completed by July
- Installation of transducers with DWR Category 1 grant funding
 - 8 of the 10 transducers were installed in February; the remaining 2 will be installed in March

Transducer and TSS Well Locations

-  New transducer well locations
-  TSS well locations

-  Representative Well
-  Representative Well/ Transducer
-  Monitoring Network Well
-  TSS Wells



Stream Gage Implementation – FY 2020-21

- 2 new streamflow gages will be installed by USGS using Category 1 grant funding from DWR:
 - Upstream of Ventucopa
 - Spanish Ranch
- Gage installation at both locations anticipated by end of March





TO: Standing Advisory Committee
Agenda Item No. 9f

FROM: Brian Van Lienden, Woodard & Curran

DATE: February 25, 2021

SUBJECT: Update on Monthly Groundwater Conditions Report

Issue

Update on Monthly Groundwater Conditions Report.

Recommended Motion

None – information only.

Discussion

An update regarding the groundwater levels monitoring network and select hydrographs is provided as Attachment 1. The detailed January 2021 Groundwater Conditions Report is provided as Attachment 2.

Staff has removed data comparing current levels to last year's (2019) levels since the limited data available is predominantly for March and October 2019. Since water levels fluctuate seasonally, staff will include comparisons to last years' levels once data is collected for like months.

Cuyama Basin Groundwater Sustainability Agency

Update on Groundwater Levels Monitoring

February 25, 2021



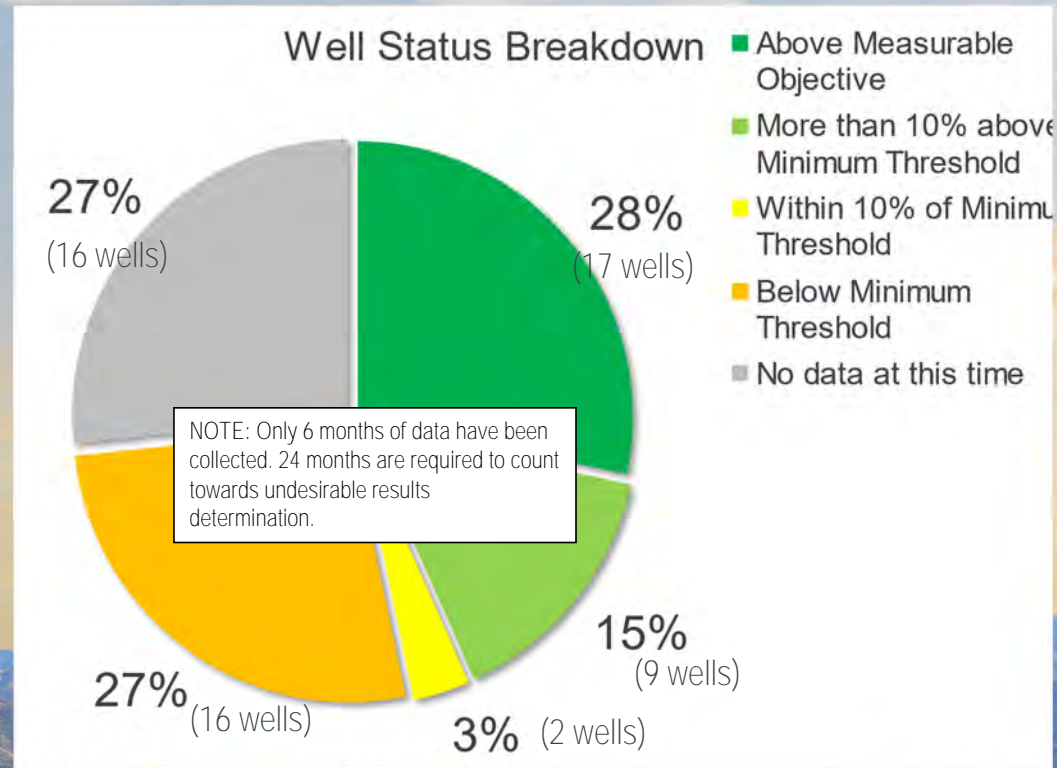
Groundwater Levels Monitoring Network Implementation – Status Update

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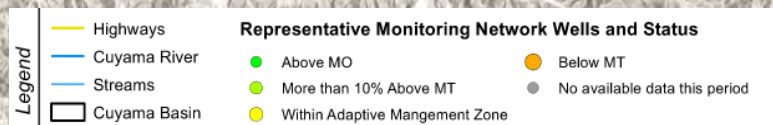
- Monitoring data from Nov-Jan for representative wells is included in Board packet monitoring summary report
- 44 of 60 representative monitoring wells have levels data in January
- Only small changes in conditions between December and January:
 - All of the same wells that were below the minimum threshold (MT) in December are still below the MT in January

Summary of Groundwater Well Levels as Compared To Sustainability Criteria

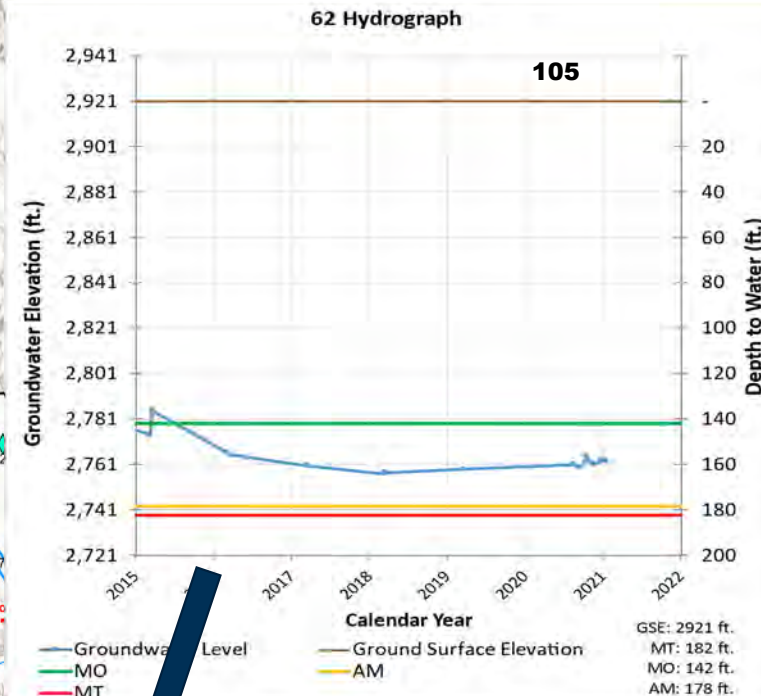
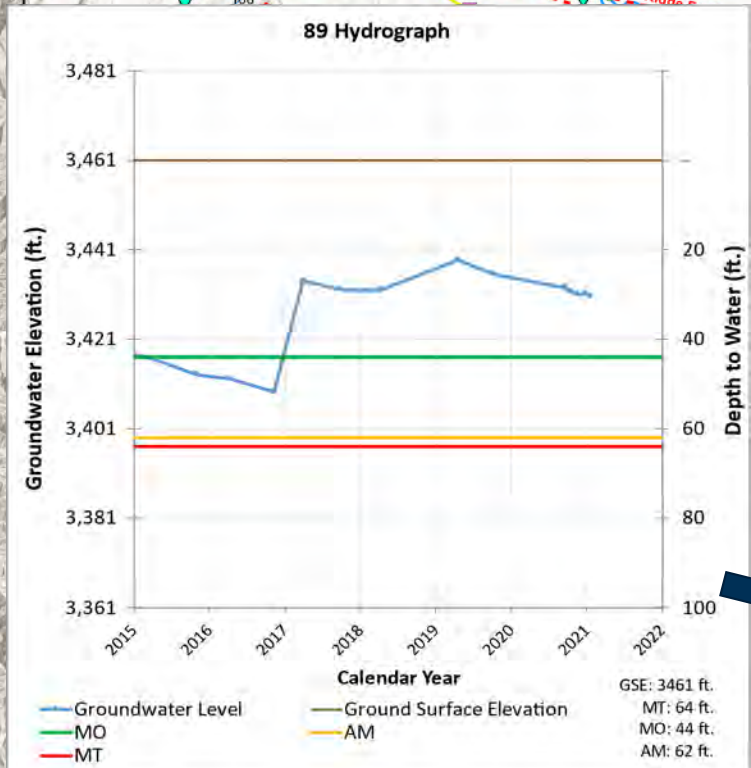
- 15 wells are currently below minimum threshold (MT)
 - 8 of these were already below MT at time of GSP adoption
- Adaptive management recommendation:
 - Continue monitoring to see how many wells recover in the Spring
 - Develop response options if needed



Current Status of Representative Monitoring Wells

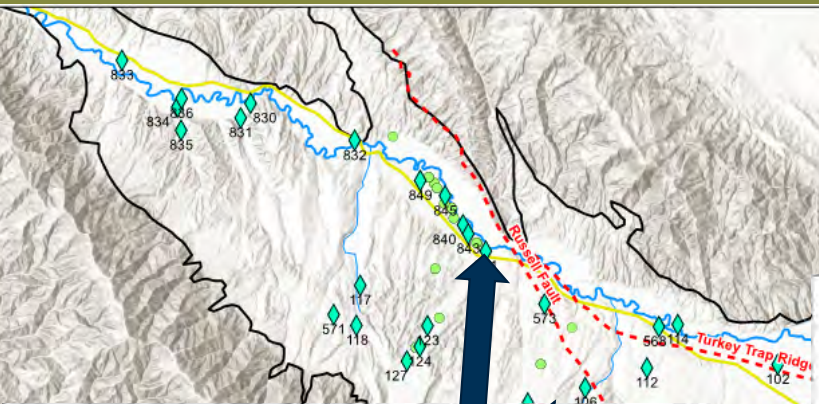


Updated Hydrographs for Selected Monitoring Wells

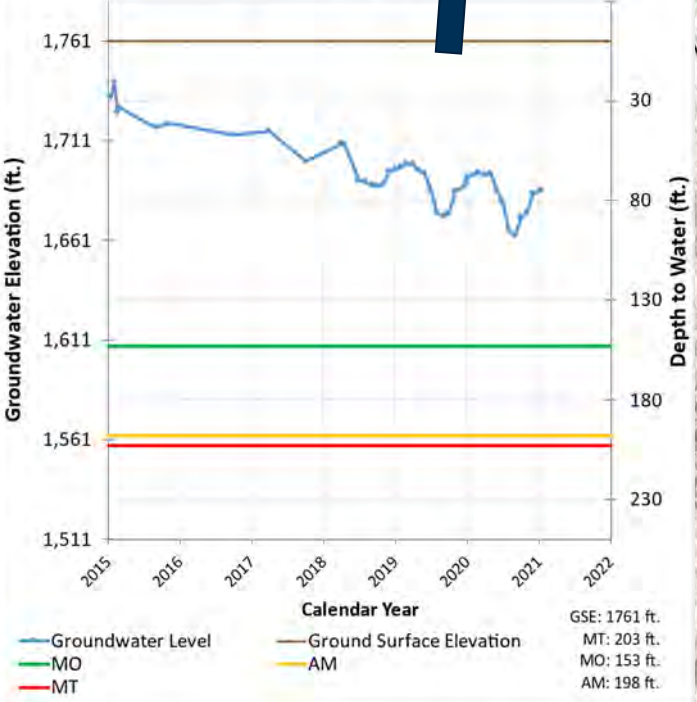


Updated Hydrographs for Selected Monitoring Wells

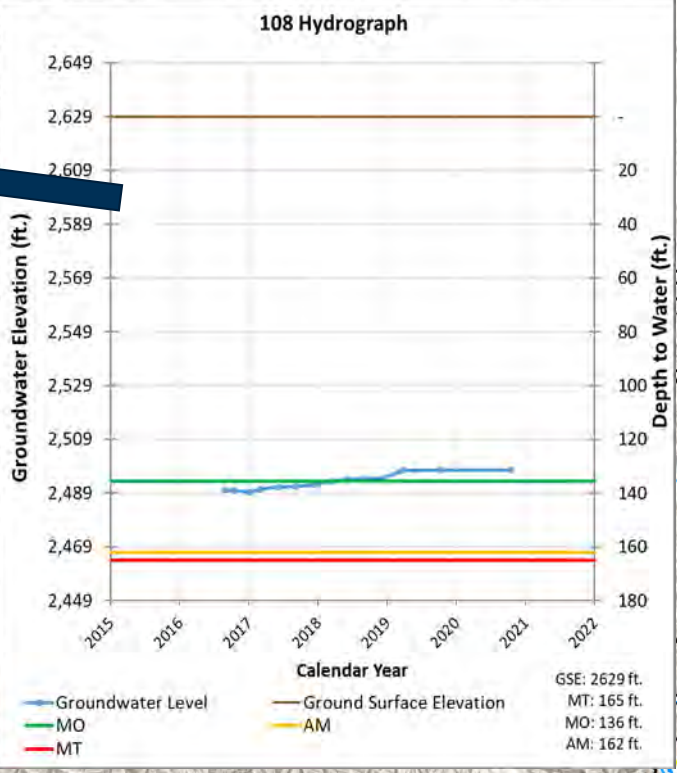
107



841 Hydrograph



108 Hydrograph



GSE: 2629 ft.
MT: 165 ft.
MO: 136 ft.
AM: 162 ft.



GROUNDWATER
CONDITIONS
REPORT –
CUYAMA VALLEY
GROUNDWATER
BASIN

January 2021

801 T Street
Sacramento, CA.
916.999.8700

woodardcurran.com

COMMITMENT & INTEGRITY DRIVE RESULTS

Cuyama Valley
Groundwater
Sustainability Agency

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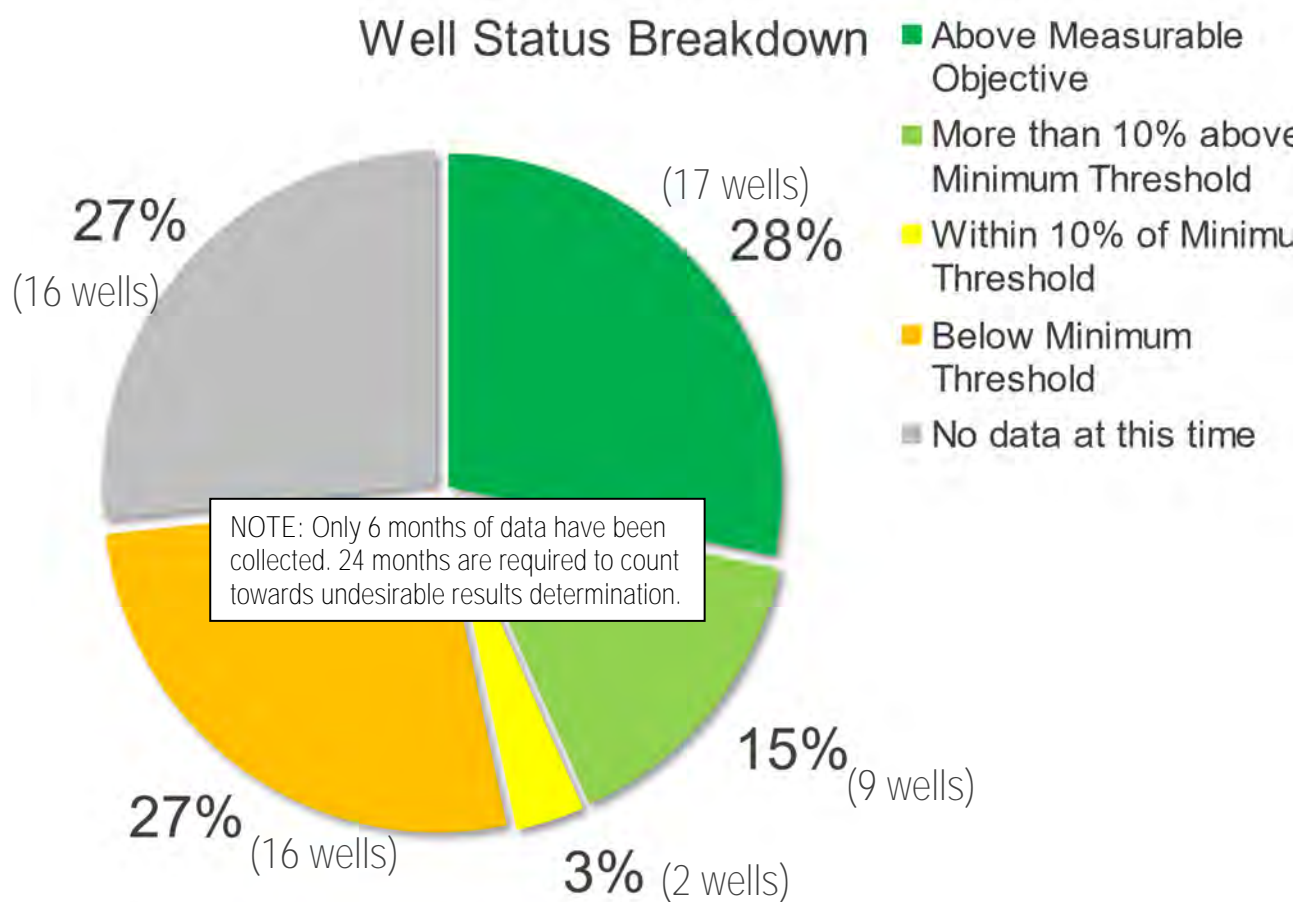
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1. INTRODUCTION

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 Groundwater Sustainability Agency, in compliance with the Sustainable Groundwater Management Act.

2. SUMMARY STATISTICS



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).

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. The change in elevation is from approximately one year previous to the most current measurement. Table 2 includes all of the wells and their current status in relation to the thresholds applied to each well, while Figure 1 shows the all wells and their statuses.

All measurements have also be 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	Nov-20	Dec-20	Jan-20	Last Year		Annual Elevation Change
		GWL (ft. msl)	GWL (ft. msl)	GWL (ft. msl)	GWL (ft. msl)	Month/Year	
72	Central	-	-	-			
74	Central	1939	1940	1945			
77	Central	1793	1819	1822			
91	Central	1816	1794	1822			
95	Central	1852	1854	1854			
96	Central	2271	2272	2272			
98	Central	-	-	-			
99	Central	2161	2219	2222			
102	Central	-	-	1776			
103	Central	1960	1988	1994			
112	Central	2055	-	-			
114	Central	1754	-	-			
316	Central	1811	1818	1820			
317	Central	1811	1819	1820			
322	Central	2158	2221	2222			
324	Central	2174	2219	2220			
325	Central	2197	2221	2222			
420	Central	1792	1818	1821			
421	Central	1796	1816	1819			
422	Central	1830	-	-			

Well	Region	Nov-20	Dec-20	Jan-20	Last Year		Annual Elevation Change
		GWL (ft. msl)	GWL (ft. msl)	GWL (ft. msl)	GWL (ft. msl)	Month/Year	
474	Central	2197	-	-			
568	Central	1867	1868	1869			
604	Central	1641	1646	1654			
608	Central	1809	1788	1790			
609	Central	1791	1802	1807			
610	Central	1813	1820	1818			
612	Central	1808	1800	1801			
613	Central	-	1816	1804			
615	Central	1818	1822	1821			
620	Central	1836	1814	1814			
629	Central	1882	1823	1822			
633	Central	-	1803	1801			
62	Eastern	2764	2763	2763			
85	Eastern	2844	2845	2845			
100	Eastern	2852	2852	2853			
101	Eastern	-	2633	2634			
840	Northwestern	-	-	-			
841	Northwestern	1761	1684	1686			
843	Northwestern	-	-	-			
845	Northwestern	1712	1649	1650			
849	Northwestern	-	-	-			

Well	Region	Nov-20	Dec-20	Jan-20	Last Year		Annual Elevation Change
		GWL (ft. msl)	GWL (ft. msl)	GWL (ft. msl)	GWL (ft. msl)	Month/Year	
2	Southeastern	3695	3689	3690			
89	Southeastern	3432	3432	3431			
106	Western	2184	2184	2184			
107	Western	2399	2399	2399			
108	Western	2498	-	-			
117	Western	-	-	-			
118	Western	2215	2214	2214			
123	Western	-	-	-			
124	Western	-	-	-			
127	Western	-	-	-			
571	Western	2178	2187	2188			
573	Western	2014	-	-			
830	Far-West Northwestern	-	1515	1515			
831	Far-West Northwestern	-	1505	1494			
832	Far-West Northwestern	1593	1592	1593			
833	Far-West Northwestern	1405	-	-			

Well	Region	Nov-20	Dec-20	Jan-20	Last Year		Annual Elevation Change
		GWL (ft. msl)	GWL (ft. msl)	GWL (ft. msl)	GWL (ft. msl)	Month/Year	
834	Far-West Northwestern	-	1467	1467			
835	Far-West Northwestern	-	1518	1519			
836	Far-West Northwestern	-	1448	1450			

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)	Month/Year						
72	Central	-	-	169	165	124	790	No available data this period	No
74	Central	248	1/18/2021	256	255	243	n/a	More than 10% above Minimum Threshold	No
77	Central	464	1/19/2021	450	445	400	980	Below Minimum Threshold (5 months)	No
91	Central	652	1/18/2021	625	620	576	980	Below Minimum Threshold (5 months)	No
95	Central	595	1/18/2021	573	570	538	805	Below Minimum Threshold (6 months)	No
96	Central	334	1/18/2021	333	332	325	500	Below Minimum Threshold (2 months)	No
98	Central	-	-	450	449	439	750	No available data this period	No
99	Central	291	1/19/2021	311	310	300	750	Above Measurable Objective	No
102	Central	270	1/18/2021	235	231	197	n/a	Below Minimum Threshold (1 month)	No
103	Central	295	1/18/2021	290	285	235	1030	Below Minimum Threshold (6 months)	No
112	Central	-	-	87	87	85	441	No available data this period	No
114	Central	-	-	47	47	45	58	No available data this period	No
316	Central	654	1/19/2021	623	618	574	830	Below Minimum Threshold (5 months)	No
317	Central	654	1/19/2021	623	618	573	700	Below Minimum Threshold (5 months)	No
322	Central	291	1/19/2021	307	306	298	850	Above Measurable Objective	No
324	Central	293	1/19/2021	311	310	299	560	Above Measurable Objective	No
325	Central	291	1/19/2021	300	299	292	380	Above Measurable Objective	No
420	Central	465	1/19/2021	450	445	400	780	Below Minimum Threshold (5 months)	No
421	Central	467	1/19/2021	446	441	398	620	Below Minimum Threshold (5 months)	No
422	Central	-	1/19/2021	444	439	397	460	No available data this period	No

Well	Region	Current Month		Minimum Threshold	Within 10% Minimum Threshold	Measurable Objective	Well Depth	Status	GSA Action Required?
		GWL (DTW)	Month/Year						
474	Central	-	-	188	186	169	213	No available data this period	No
568	Central	36	1/18/2021	37	37	36	188	Above Measurable Objective	No
604	Central	471	1/18/2021	526	522	487	924	Above Measurable Objective	No
608	Central	434	1/18/2021	436	433	407	745	Within Adaptive Management Zone	No
609	Central	360	1/18/2021	458	454	421	970	Above Measurable Objective	No
610	Central	624	1/18/2021	621	618	591	780	Below Minimum Threshold (6 months)	No
612	Central	465	1/18/2021	463	461	440	1070	Below Minimum Threshold (2 months)	No
613	Central	526	1/18/2021	503	500	475	830	Below Minimum Threshold (3 months)	No
615	Central	506	1/18/2021	500	497	468	865	Below Minimum Threshold (2 months)	No
620	Central	618	1/21/2021	606	602	566	1035	Below Minimum Threshold (3 months)	No
629	Central	557	1/18/2021	559	556	527	1000	Within Adaptive Management Zone	No
633	Central	563	1/18/2021	547	542	493	1000	Below Minimum Threshold (6 months)	No
62	Eastern	158	1/18/2021	182	178	142	212	More than 10% above Minimum Threshold	No
85	Eastern	202	1/18/2021	233	225	147	233	More than 10% above Minimum Threshold	No
100	Eastern	151	1/18/2021	181	175	125	284	More than 10% above Minimum Threshold	No
101	Eastern	107	1/18/2021	111	108	81	200	More than 10% above Minimum Threshold	No
840	Northwestern	-	-	203	198	153	900	No available data this period	No
841	Northwestern	75	1/15/2021	203	198	153	600	Above Measurable Objective	No
843	Northwestern	-	-	203	198	153	620	No available data this period	No
845	Northwestern	62	1/15/2021	203	198	153	380	Above Measurable Objective	No

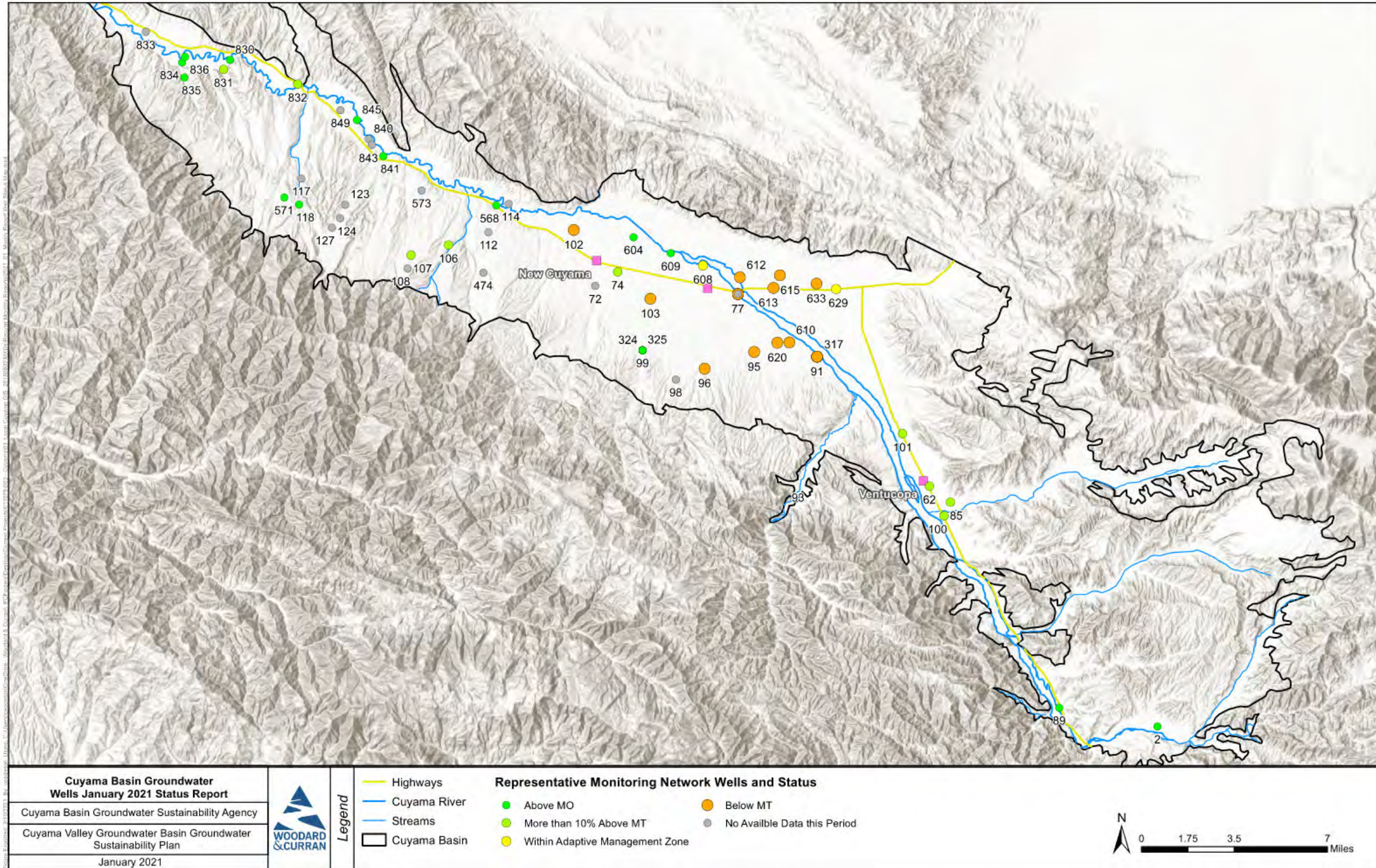
Well	Region	Current Month		Minimum Threshold	Within 10% Minimum Threshold	Measurable Objective	Well Depth	Status	GSA Action Required?
		GWL (DTW)	Month/Year						
849	Northwestern	-	-	203	198	153	570	No available data this period	No
2	Southeastern	30	1/18/2021	72	70	55	73	Above Measurable Objective	No
89	Southeastern	30	1/18/2021	64	62	44	125	Above Measurable Objective	No
106	Western	143	1/19/2021	154	153	141	228	More than 10% above Minimum Threshold	No
107	Western	83	1/19/2021	91	89	72	200	More than 10% above Minimum Threshold	No
108	Western	-	-	165	162	136	329	No available data this period	No
117	Western	-	-	160	159	151	212	No available data this period	No
118	Western	56	1/21/2021	124	117	57	500	Above Measurable Objective	No
123	Western	-	-	31	29	13	138	No available data this period	No
124	Western	-	-	73	71	57	161	No available data this period	No
127	Western	-	-	42	41	32	100	No available data this period	No
571	Western	119	1/21/2021	144	142	121	280	Above Measurable Objective	No
573	Western	-	-	118	113	68	404	No available data this period	No
830	Far-West Northwestern	56	1/19/2021	59	59	56	77	Above Measurable Objective	No
831	Far-West Northwestern	63	1/19/2021	77	75	52	214	More than 10% above Minimum Threshold	No
832	Far-West Northwestern	37	1/19/2021	45	44	30	132	More than 10% above Minimum Threshold	No
833	Far-West Northwestern	-	-	96	89	24	504	No available data this period	No

Well	Region	Current Month		Minimum Threshold	Within 10% Minimum Threshold	Measurable Objective	Well Depth	Status	GSA Action Required?
		GWL (DTW)	Month/Year						
834	Far-West Northwestern	41	1/21/2021	84	80	42	320	Above Measurable Objective	No
835	Far-West Northwestern	36	1/21/2021	55	53	36	162	Above Measurable Objective	No
836	Far-West Northwestern	36	1/21/2021	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



4. HYDROGRAPHS

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

Figure 2: Southeast Region – Well 89

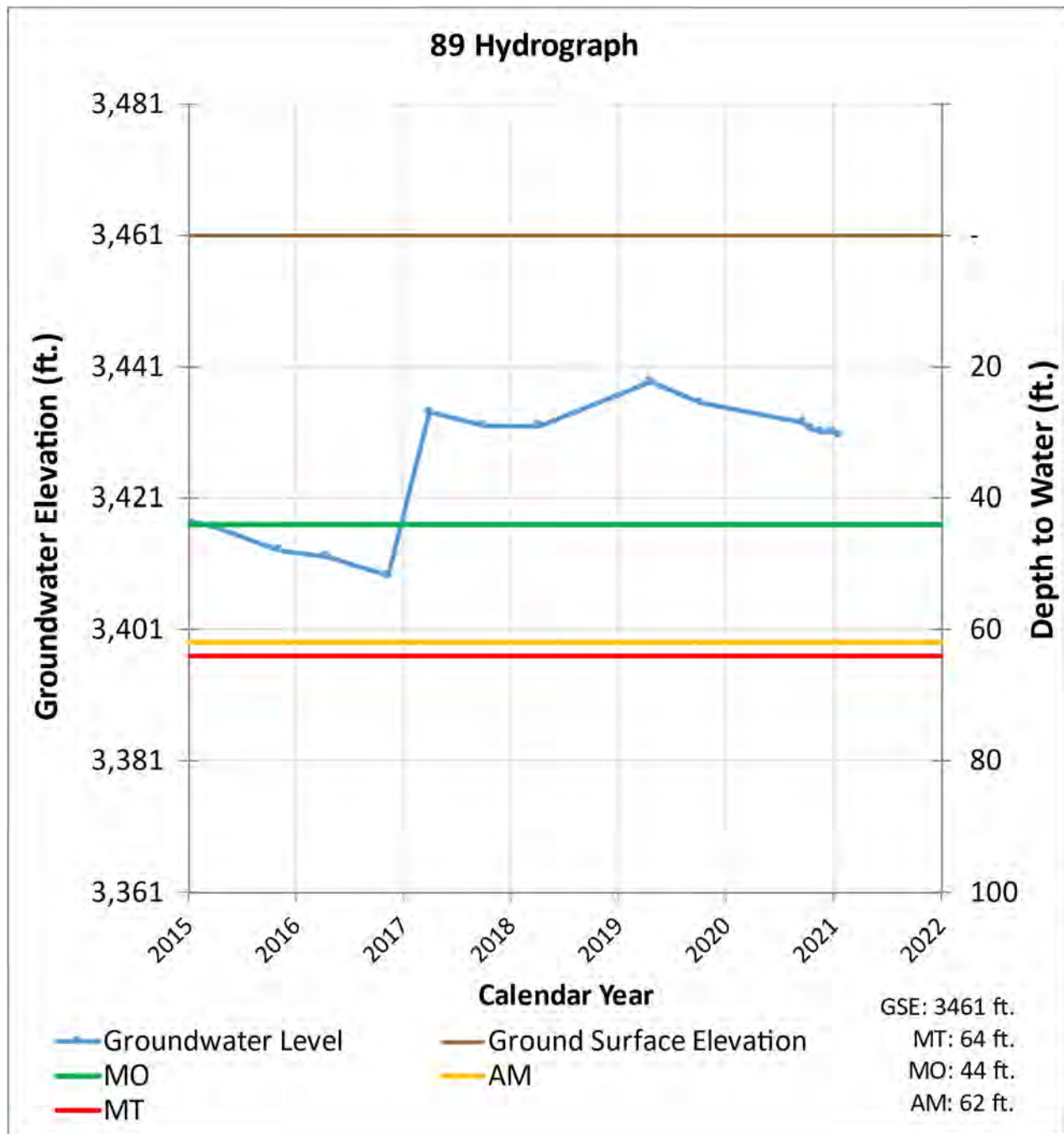


Figure 3: Eastern Region – Well 62

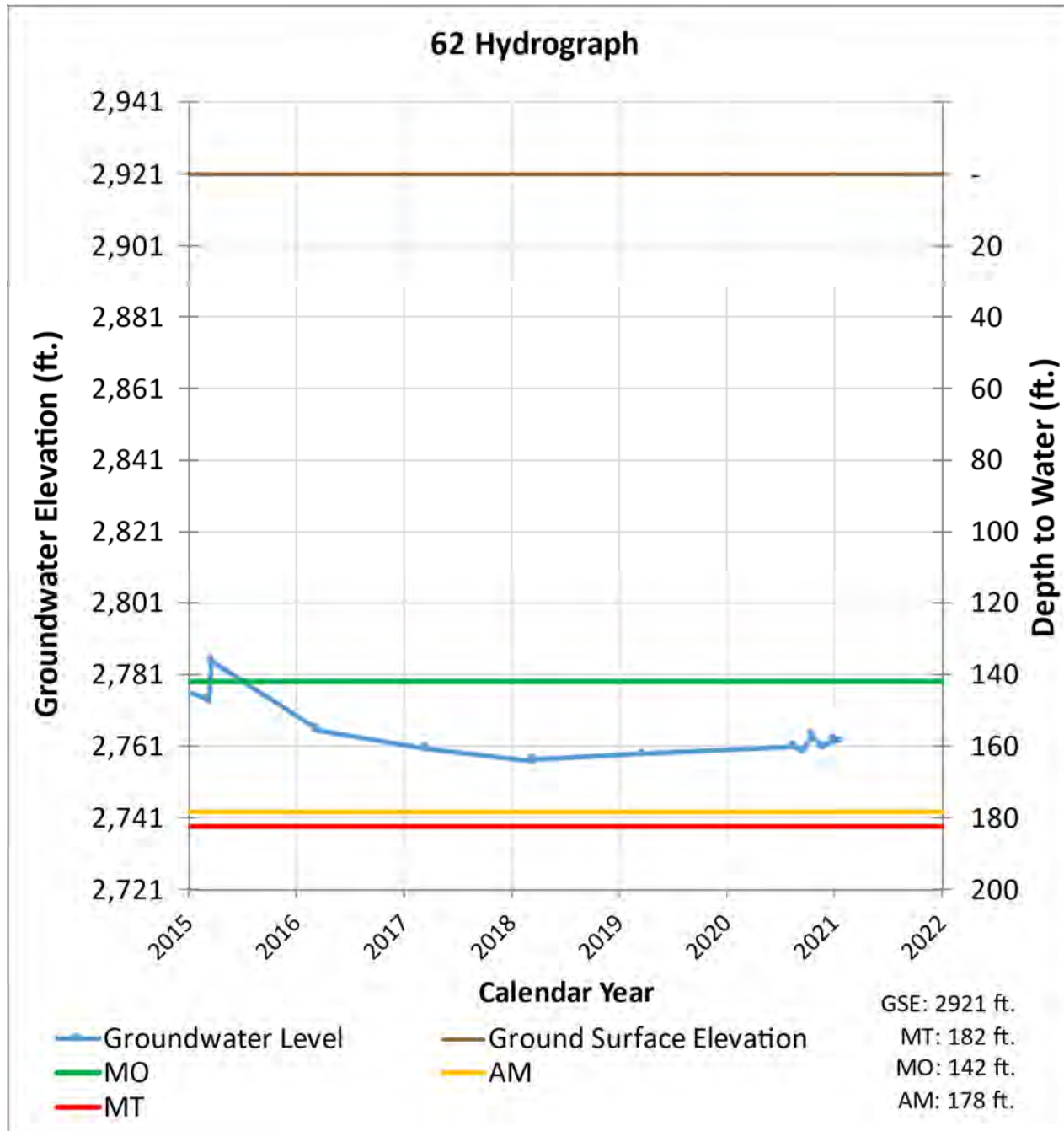


Figure 4: Central Region – Well 91

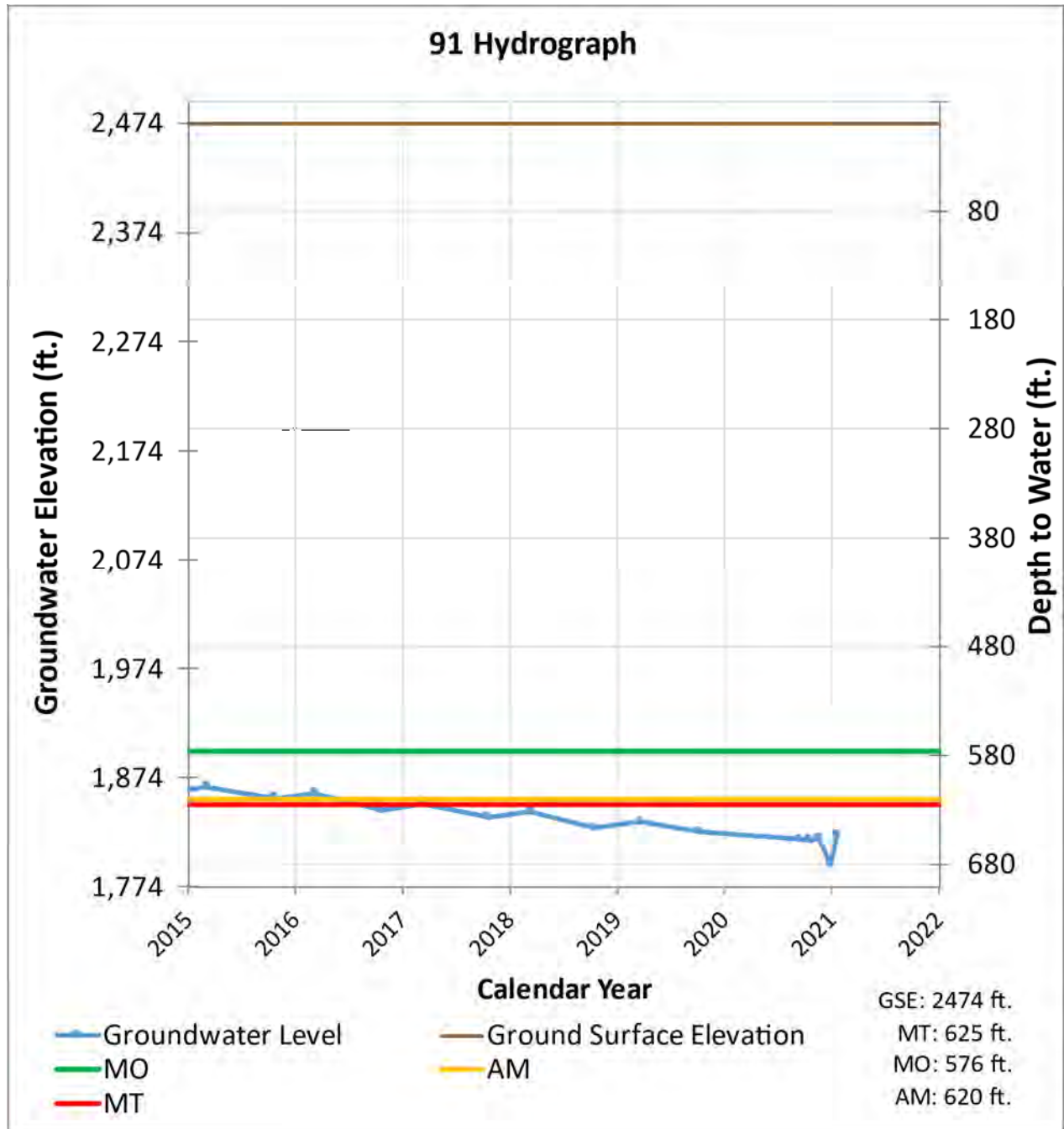


Figure 5: Central Region – Well 74

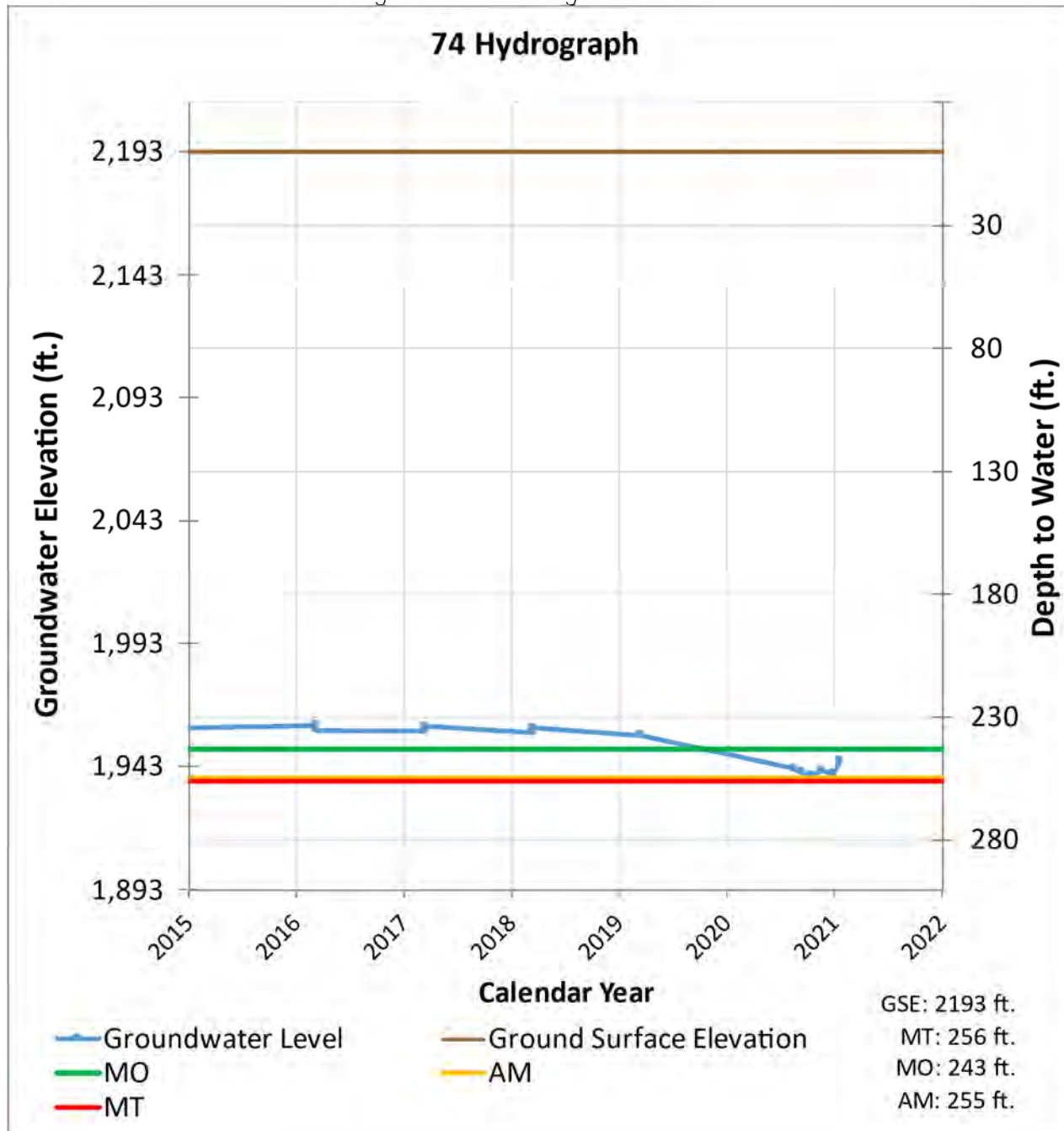


Figure 6: Western Region – Well 108

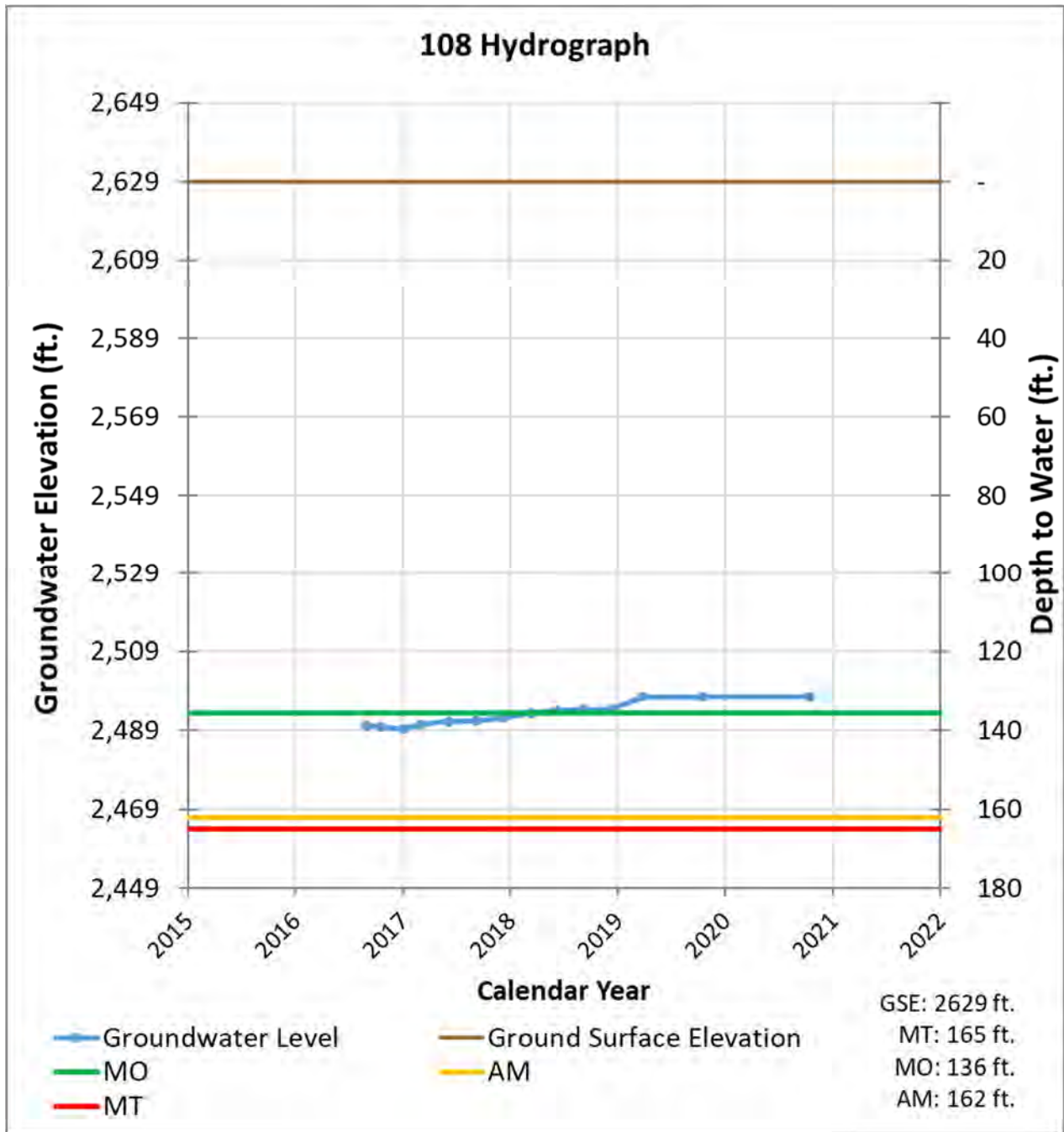
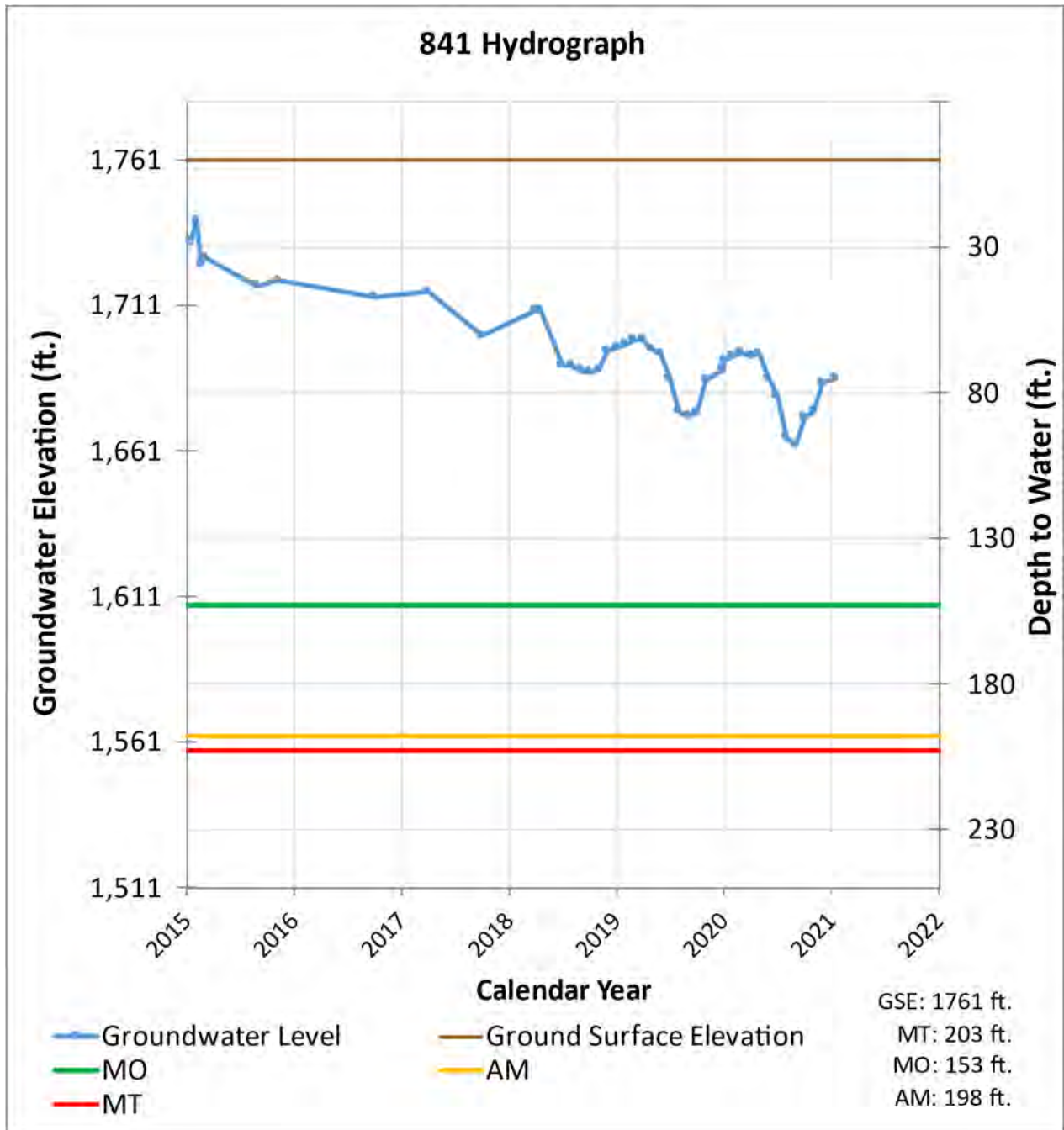


Figure 7: Northwestern Region – Well 841



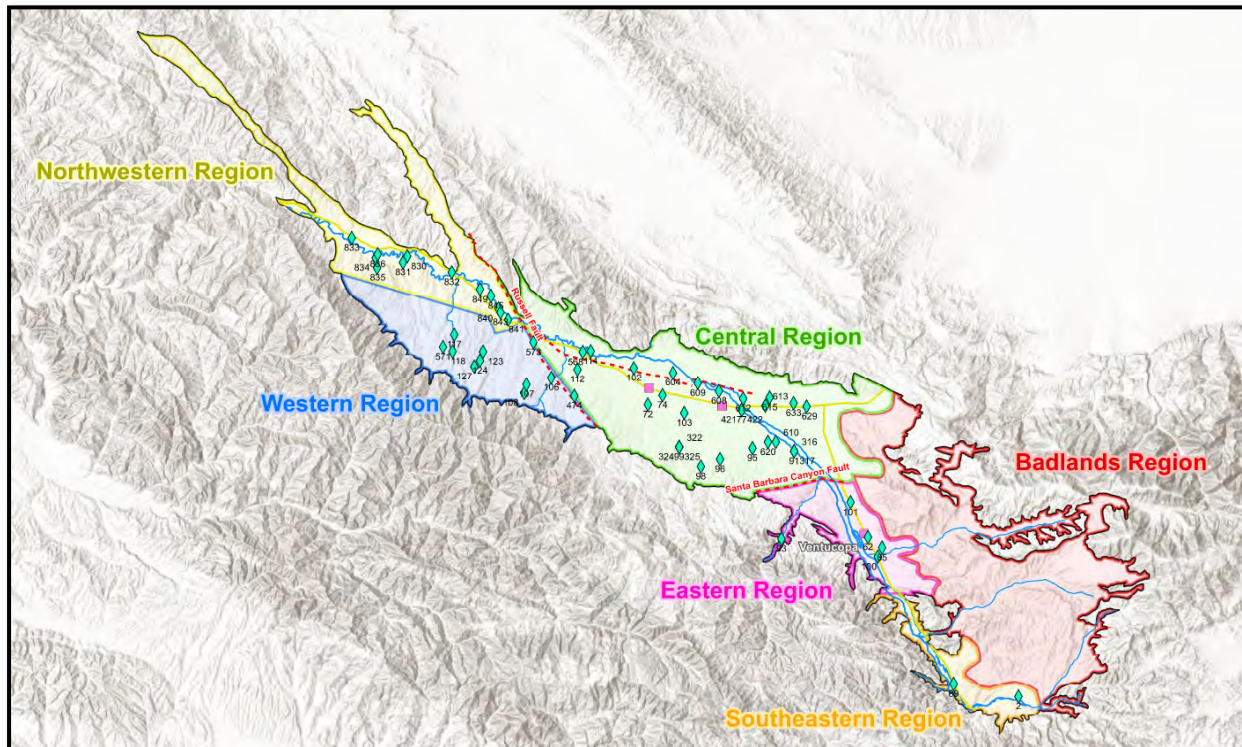


Figure 8: Threshold Regions in the Cuyama Groundwater Basin

5. MONITORING NETWORK UPDATES

As shown in the Summary Statistics Section, there are 16 wells without current measurements. These “no measurement codes” can generally be caused by four different reasons as shown below.

- Access agreements have not yet been established with the landowner, access has not been granted yet, or no access at time of measurement:
 - Wells 72, 98, 117, 123, 124, 127, 840, 843, 849
- Well transducer data is not yet available:
 - None
- Measurement was not possible at the time when the field technician went to take measurements:
 - 108, 112, 114, 474, 573, 833
- Wells that have gone dry:
 - 422



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COMMITMENT & INTEGRITY DRIVE RESULTS



TO: Standing Advisory Committee
Agenda Item No. 9g

FROM: Brian Van Lienden, Woodard & Curran

DATE: February 25, 2021

SUBJECT: Update on Modifications to the Groundwater Level Monitoring Network

Issue

Modifications to the Groundwater Level Monitoring Network.

Recommended Motion

None – information only.

Discussion

On January 7 and January 13, 2021, the Cuyama Basin Groundwater Sustainability Agency Standing Advisory Committee (SAC) and Board of Directors voted to reduce the 101-groundwater level monitoring network to 58 wells, respectively.

Staff informed the SAC and Board of Directors that it would provide an update on the potential impacts on thresholds, etc. and discussion of those issues is provided as Attachment 1.

Cuyama Basin Groundwater Sustainability Agency

Update on Modifications to the Groundwater Level
Monitoring Network

February 25, 2021



Update on Modifications to the Groundwater Levels Monitoring Network

- Original Monitoring Network included 101 wells at 95 locations (including 2 multi-completion wells)
- Staff discussed potential changes with DWR SGMA staff and received the following feedback:
 - The reduced size of the monitoring network approved by the CBGSA Board in January will still be well above DWR requirements
 - DWR staff also think moving to a quarterly monitoring schedule would be acceptable, but recommended a full year of monthly monitoring first
 - Each of the above changes can be reported to DWR in our Annual Report
 - Changes to the sustainability criteria could be more complicated and may require a GSP amendment

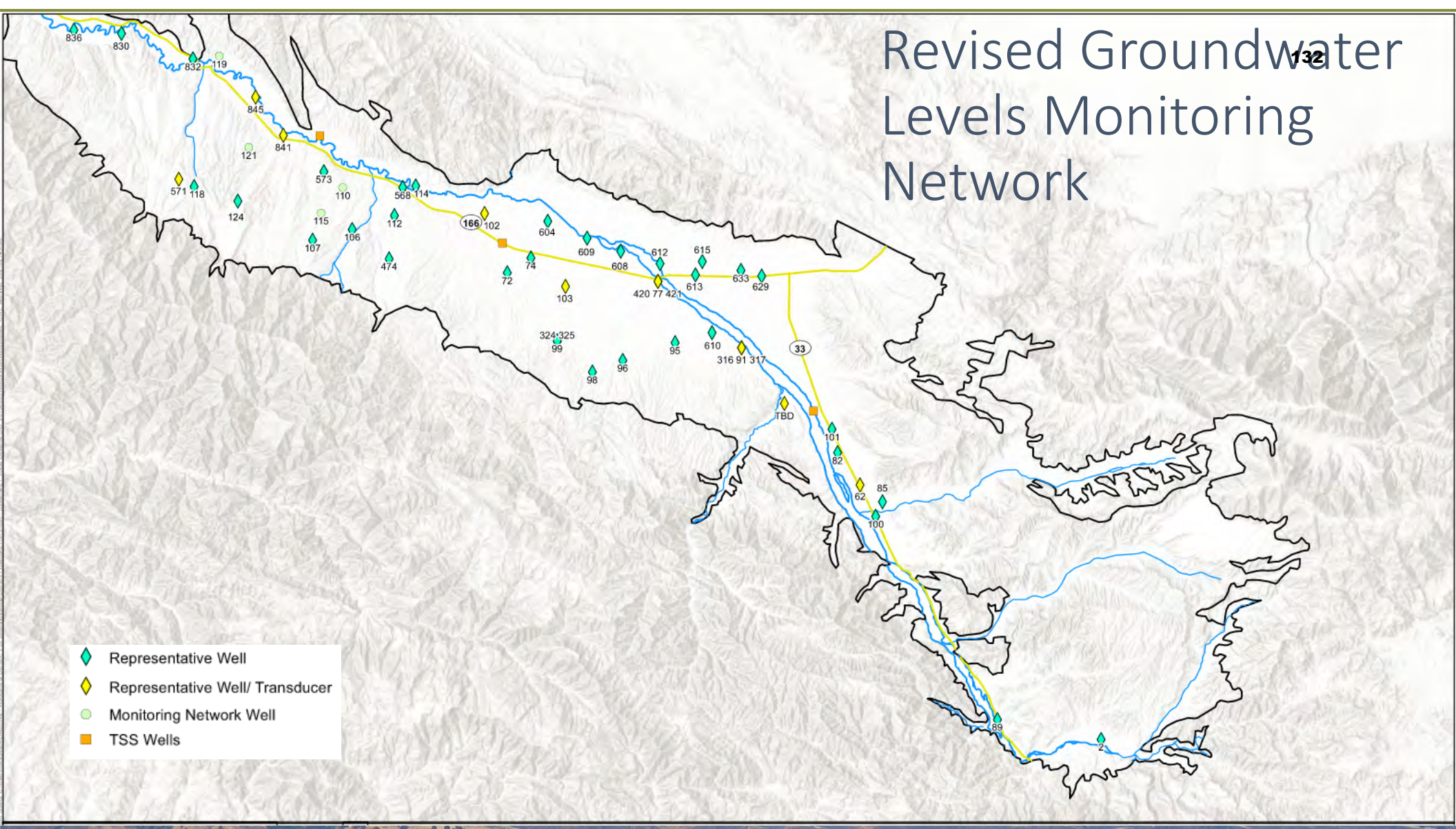
Update on Modifications to the Groundwater Levels Monitoring Network

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- Following Board direction at the January Board meeting, and adding in new well locations, the revised groundwater levels network will include 62 wells at 50 locations:
 - Adding in the 3 TSS wells (with 3 completions each) will make for 6 total multi-completion wells
 - Transducers will be located in 5 of the 6 multi-completion wells and at 7 additional locations
- Based on DWR feedback, we recommend commencing quarterly monitoring in August
- The GSA will continue to look for opportunities to fill spatial gaps in the monitoring network

Revised Groundwater Levels Monitoring Network

- ◆ Representative Well
- ◆ Representative Well/ Transducer
- Monitoring Network Well
- TSS Wells



Effect of Modifications to the Groundwater Levels Monitoring Network on Sustainability Criteria ¹³³

- Identification of Undesirable Results (3.2.1):

The 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

- Currently 32 of 60 representative wells are in the central region
 - 18/32 (56%) of central region wells would need to exceed MTs for 2 years to trigger an identification of undesirable results
- With the updated monitoring network (including TSS wells), 34 of 65 representative wells are in the central region
 - 20/34 (59%) of central region wells would need to exceed MTs for 2 years to trigger an identification of undesirable results



TO: Standing Advisory Committee
Agenda Item No. 10c

FROM: Jim Beck, Executive Director

DATE: February 25, 2021

SUBJECT: Board of Directors Agenda Review

Issue

Board of Directors Agenda Review.

Recommended Motion

None – information only.

Discussion

Provided as Attachment 1 is the Cuyama Basin Groundwater Sustainability Agency Board of Directors agenda for the March 3, 2021 regular meeting.



CUYAMA BASIN GROUNDWATER SUSTAINABILITY AGENCY BOARD OF DIRECTORS

Board of Directors

Derek Yurosek Chair, Cuyama Basin Water District
Lynn Compton Vice Chair, County of San Luis Obispo
Das Williams Santa Barbara County Water Agency
Cory Bantilan Santa Barbara County Water Agency
Glenn Shephard County of Ventura
Zack Scrivner County of Kern

Paul Chounet Cuyama Community Services District
George Cappello Cuyama Basin Water District
Byron Albano Cuyama Basin Water District
Jane Wooster Cuyama Basin Water District
Vacant Cuyama Basin Water District

AGENDA

MARCH 3, 2021

Agenda for a meeting of the Cuyama Basin Groundwater Sustainability Agency Board of Directors to be held on Wednesday, March 3, 2021 at 4:00 PM. ***Due to COVID-19 pandemic restrictions and resulting suspension of certain components of the Brown Act per Executive Order Nos. N-25-20 and N-29-20, this meeting will be a remote-only meeting.*** To hear the session live call (646) 749-3122, 203-153-453 or logon to <https://global.gotomeeting.com/join/203153453> to view meeting materials.

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. Public comments should be emailed to Taylor Blakslee at tblakslee@hgcpm.com by close of business on Tuesday, March 2, 2021 to assist in facilitating this remote meeting, but may still be provided at the meeting.

1. Call to Order
2. Roll Call
3. Pledge of Allegiance
4. Annual Appointment of SAC Members
5. Report on SAC Role Ad hoc
6. Standing Advisory Committee Meeting Report

CONSENT AGENDA

7. Approval of Minutes – January 13, 2021
8. Approval of Payment of Bills for January and February 2021
9. Approval of Financial Reports for January and February 2021

ACTION ITEMS

10. Consider Options for Long-Term Fee Equity – Verbal
11. Approval of the 2021 Annual Report

12. Adopt Model Refinement Technical Memo
13. Consider Applying for a USBR WaterSMART Grant

REPORT ITEMS

14. Administrative Updates
 - a) Report of the Executive Director
 - b) Report of the General Counsel
 - c) Update on Administration of FY 21-22 Groundwater Extraction Fee
 - d) Update on FY 21-22 Budget
15. Technical Updates
 - a) Update on Groundwater Sustainability Plan Activities
 - b) Options for CBGSA Administration of New Development and Changes in Water Use
 - c) Presentation on Cannabis Development in the Cuyama Basin (Amy Steinfeld, Cannabis Industry Representative)
 - d) Update on Monitoring Network Implementation
 - e) Update on Monthly Groundwater Conditions Report
 - f) Update on Modifications to the Groundwater Level Monitoring Network

CLOSED SESSION

16. Closed Session, Government Code, §54956.9(d)(4):
 - a) Potential Litigation: 1 Case
17. Report of the Ad Hoc Committee
18. Directors' Forum
19. Public comment for items not on the Agenda
20. Correspondence
21. Adjourn