Groundwater Sustainability Commission

for the San Luis Obispo Valley Groundwater Basin

NOTICE OF MEETING

NOTICE IS HEREBY GIVEN that the Groundwater Sustainability Commission will hold a **Regular Meeting** at **3:00 P.M.** on **Wednesday, May 5, 2021.** Based on the threat of COVID-19 as reflected in the Proclamations of Emergency issued by both the Governor of the State of California and the San Luis Obispo County Emergency Services Director, as well as the Governor's Executive Order N-29-20 issued on March 17, 2020 relating to the convening of public meetings in response to the COVID-19 pandemic, this meeting will be conducted as a phone-in/web-based meeting only. There will be no physical meeting location for this GSC Meeting. Members of the public can participate via phone or by logging into the web-based meeting.

TO JOIN THE MEETING FROM YOUR COMPUTER, TABLET OR SMARTPHONE, GO TO:
https://zoom.us/j/94992357683?pwd=THRzU29rK1cySkJuSXVnTHFUcCs4UT09
(This link will help connect both your browser and telephone to the call)
Passcode: 987904

YOU CAN ALSO DIAL IN USING YOUR PHONE:
Dial: +1 669 900 6833
Meeting ID: 949 9235 7683
Passcode: 987904

All persons desiring to speak during any Public Comment can submit a comment by:

- Email at dtzou@co.slo.ca.us by 5:00 PM on the day prior to the Commission meeting
- Teleconference meeting at link or phone number above
- Mail by 5:00 PM on the day prior to the Commission meeting to:
  County of San Luis Obispo Department of Public Works
  Attn: Dick Tzou
  County Government Center, Room 206
  San Luis Obispo, CA 93408
- Additional information on how to submit Public Comment is provided on page 3 of this Agenda

NOTE: The Groundwater Sustainability Commission reserves the right to limit each speaker to three (3) minutes per subject or topic. In compliance with the Americans with Disabilities Act and Executive Order N-29-20, all possible accommodations will be made for individuals with disabilities, so they may participate in the meeting. Persons who require accommodation for any audio, visual or other disability in order to participate in the meeting of the GSC are encouraged to request such accommodation 48 hours in advance of the meeting from Joey Steil at (805) 781-5252.

GROUNDWATER SUSTAINABILITY COMMISSION AGENDA

Dawn Ortiz-Legg, Member, County of San Luis Obispo	**Bruce Gibson**, Alternate, County of San Luis Obispo
Bob Schiebelhut, Chair, EVGMWC	**George Donati**, Alternate, EVGMWC
Dennis Fernandez, Member, ERMWC/VRMWC	**James Lokey**, Alternate, ERMWC/VRMWC
Mark Zimmer, Vice Chair, GSWC	**Toby Moore**, Alternate, GSWC
Andy Pease, Member, City of San Luis Obispo	**Aaron Floyd**, Alternate, City of San Luis Obispo

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1. **Call to Order** (Chair) **3:00**
2. **Roll Call** (City Staff: Mychal Boerman)
3. **Pledge of Allegiance** (Chair)

4. **Public Comment – Items not on Agenda** (Chair)

5. **Approval of Meeting Minutes** (Chair) **3:05 – 3:10 (5 mins)**
   a) March 31 and April 7, 2021

6. **GSP Review Process** (County Staff: Dick Tzou) **(3:10- 3:20 – 10 mins)**
   a) Receive a review on the procedures for GSP approval process.

7. **Draft GSP Chapter 8: Sustainable Management Criteria** (WSC Consultant Team: Dave O'Rourke) **(3:20- 3:50 – 30 mins)**

   Recommendation

   a) Consider recommending Draft GSP Chapter 8: Sustainable Management Criteria to be received and filed by the GSAs and released for public comment.

8. **Projects and Management Actions** (WSC Consultant Team: Dan Heimel) **3:50 – 4:20 (30 mins)**
   a) Receive a presentation on the estimated costs of the proposed projects and management actions presented at previous GSC meetings.

9. **Implementation Plan** (WSC Consultant Team: Michael Cruikshank & Dan Heimel**) (4:20 - 4:50 – 30 mins)**
   a) Receive a presentation introducing the Implementation Plan

10. **Future Items** (Chair) **(4:50- 4:55 – 5 mins)**
    a) GSC Meeting – June 16, 2021
    b) Draft Chapter 9 – Projects and Management Actions
    c) Draft Chapter 10 – Implementation Plan

11. **Next Regular Meeting: June 16, 2021**

12. **Adjourn** (Chair)

Groundwater Sustainability Commission

for the San Luis Obispo Valley Groundwater Basin

NOTICE OF MEETING

CONFERENCE CALL/WEBINAR ONLY

Wednesday, May 5, 2021 at 3:00 p.m.

Important Notice Regarding COVID-19 Based on guidance from the California Department of Public Health and the California Governor's Officer, in order to minimize the spread of the COVID-19 virus, please note the following:

1. The meeting will only be held telephonically and via internet via the number and website link information provided on the agenda. After each item is presented, Commission Members will have the opportunity to ask questions. Participants on the phone will then be provided an opportunity to speak for 3 minutes as public comment prior to Commission deliberations and/or actions or moving on to the next item. If a participant wants to provide public comment on an item, they should select the "Raise Hand" icon on the Zoom Online Meeting platform or press *9 if on the phone. The meeting host will then unmute the participant when it is their turn to speak and allow them to provide public comment.

2. The Commission's agenda and staff reports are available at the following website: https://www.slowaterbasin.com

3. If you choose not to participate in the meeting and wish to make a written comment on any matter within the Commission's subject matter jurisdiction, regardless of whether it is on the agenda for the Commission's consideration or action, please submit your comment via email or U.S. Mail by 5:00 p.m. on the Tuesday prior to the Committee meeting. Please submit your comment to Dick Tzou at dtzou@co.slo.ca.us. Your comment will be placed into the administrative record of the meeting.

   Mailing Address:
   County of San Luis Obispo Department of Public Works
   Attn: Dick Tzou
   County Government Center, Room 206
   San Luis Obispo, CA 93408

4. If you choose not to participate in the meeting and wish to submit verbal comment, please call (805) 781-5252 and ask for Dick Tzou. If leaving a message, state and spell your name, mention the agenda item number you are calling about and leave your comment. The verbal comments must be received by no later than 9:00 a.m. on the morning of the noticed meeting and will be limited to 3 minutes. Every effort will be made to include your comment into the record, but some comments may not be included due to time limitations.

NOTE: The Groundwater Sustainability Commission reserves the right to limit each speaker to three (3) minutes per subject or topic. In compliance with the Americans with Disabilities Act and Executive Order N-29-20, all possible accommodations will be made for individuals with disabilities, so they may participate in the meeting. Persons who require accommodation for any audio, visual or other disability in order to participate in the meeting of the GSC are encouraged to request such accommodation 48 hours in advance of the meeting from Joey Steil at (805) 781-5252.

The following members or alternates were present:

Bob Schiebelhut, Chair, EVGMWC
Toby Moore, Alternate Member, GSWC
Dawn Ortiz-Legg Member, County of San Luis Obispo
Dennis Fernandez, Member, ERMWC/VRMWC
Andy Pease, Member, City of San Luis Obispo

1. Call to Order	Chair Schiebelhut: calls the meeting to order at 3:00 PM.
2. Roll Call	City Staff, Mychal Boerman: calls roll.
3. Pledge of Allegiance	Chair Schiebelhut: leads the Pledge of Allegiance.
4. Public Comment – Items not on Agenda	Chair Schiebelhut: provides an update on recent discussions between Edna Valley Mutual Water Company members / agricultural users and the City of San Luis Obispo regarding a recent news article, recycled water, and potential future opportunities. Alternate Member, Aaron Floyd: comments that there have been constructive discussions about how the City of San Luis Obispo uses recycled water and is looking forward to future conversations. Chair Schiebelhut: opens the floor for public comment. Karen Meriam: comments on concerns over drought conditions and planting of new agricultural crops in the Edna Valley. Member Pease: suggests agendizing an informational update on existing County regulations and processes for new production/planting versus changing out crops.
5. Approval of Meeting Minutes: ▪ **February 17, 2021** ▪ **March 1, 2021**	Chair Schiebelhut: opens discussion for Agenda Item 5 - Approval of Meeting Minutes for the February 17, 2021 and March 1, 2021 Groundwater Sustainability Commission meetings and asks for comments from the Commission; there are none. **Motion By: Member Pease** **Second By: Member Ortiz-Legg** **Motion:** The Commission moves to approve the February 17, 2021 and March 1, 2021 meeting minutes.

Members	Ayes	Noes	Abstain	Recuse
Bob Schiebelhut (Chair)	X			
Toby Moore (Alternate Member)	X			
Dawn Ortiz-Legg (Member)	X			
Andy Pease (Member)	X			
Dennis Fernandez (Member)	X			

6. Responses to Comments Received on GSP Chapters 1-7

County Staff, Dick Tzou and Project Consultant, Dave O'Rourke: present on responses to comments received on GSP Draft Chapters 1-7.

Discussion Summary:
Commission Members and staff discuss:

- Well monitoring network data collection and funding, frequency of measurements, metering, and future implementation discussions.
- Disseminating the findings associated with the Righetti Reservoir study which is near complete, and the terms of the permit to divert surface water which is under the purview of the State Water Board.
- Written comment received on October 28, 2020 regarding environmental concerns and sustainable yield levels and staff's response which cites measurable objectives and minimum thresholds.
- Written comment received on January 27, 2021 regarding the official criteria for a monitoring well and the total number of agricultural wells in the network, which is approximately 45-50.
- Written comment received on September 30, 2020 regarding precipitation, level of infiltration/percolation, and soil types in the Edna Valley.

Chair Schiebelhut: opens the floor for public comment; there are none.

7. SLO County State Water Project Update

County Staff, Courtney Howard: presents on the SLO County State Water Project concepts for the SLO Basin.

Discussion Summary:
Commission Members and staff discuss:

- Capacity, infrastructure, and flexibility to exchange water through the CCWA between San Luis Obispo and Santa Barbara.

Chair Schiebelhut: opens the floor for public comment; there are none.

Motion By: Member Ortiz-Legg
Second By: Chair Schiebelhut
Motion: The Commission moves to receive and file the presentation on the SLO County State Water Project Update.

Members	Ayes	Noes	Abstain	Recuse
Bob Schiebelhut (Chair)	X			
Toby Moore (Alternate Member)	X			
Dawn Ortiz-Legg (Member)	X			
Andy Pease (Member)	X			
Dennis Fernandez (Member)	X			

8. Integrated Model Preliminary Results

Project Consultants, Michael Cruikshank and Dave O'Rourke: present on the Integrated Model Preliminary Results and Sustainable Management Criteria.

and Sustainable Management Criteria

Discussion Summary:
Commission Members and staff discuss:

- Modeling runs and considerations to pumping/extraction impacts and groundwater flow between the SLO Valley and Edna Valley areas of the basin.
- Model run results that incorporate reduced pumping, no reduced pumping, and the amount of pumping needed to augment or sustain current agriculture production.

Member Pease: comments on the minimum thresholds and measurable objective levels and suggests continuing the discussion for setting these levels during the proposed April 7th GSC meeting, having a future discussion on metering production wells, and the timing of sustainable management criteria implementation.

Chair Schiebelhut: opens the floor for public comment.

Rod Curb: speaks.

Project Consultants, Dave O'Rourke: responds to public comment regarding water level decline in the Edna Valley.

Motion By: Member Pease
Second By: Member Ortiz-Legg
Motion: The Commission moves to receive and file the presentation on the Integrated Model Preliminary Results and Sustainable Management Criteria and continue the discussion on Sustainable Management Criteria at the April 7, 2021 GSC meeting,

Members	Ayes	Noes	Abstain	Recuse
Bob Schiebelhut (Chair)	X			
Toby Moore (Alternate Member)	X			
Dawn Ortiz-Legg (Member)	X			
Andy Pease (Member)	X			
Dennis Fernandez (Member)	X			

9. Future Items

- GSC Meeting – April 7, 2021
- Draft Chapter 8 – Sustainable Management Criteria
- Draft Chapter 9 – Projects and Management Actions
- Draft Surface Water/Groundwater Modeling Calibration Technical Memorandum

10. Next Regular Meeting

April 7, 2021 at 3:00 p.m. via Zoom

11. Adjourn

The Commission adjourns the meeting at 5:05 PM.

DRAFTED BY: County Staff, Joey Steil

The following members or alternates were present:

Bob Schiebelhut, Chair, EVGMWC
Mark Zimmer, Vice Chair, GSWC
Dawn Ortiz-Legg Member, County of San Luis Obispo
Dennis Fernandez, Member, ERMWC/VRMWC
Andy Pease, Member, City of San Luis Obispo

1. Call to Order	Chair Schiebelhut: calls the meeting to order at 3:00 PM.
2. Roll Call	City Staff, Mychal Boerman: calls roll.
3. Pledge of Allegiance	Chair Schiebelhut: leads the Pledge of Allegiance.
4. Public Comment – Items not on Agenda	Chair Schiebelhut: opens the floor for public comment; comments on the amount of permanently retired acres of irrigated agriculture within the basin. Brent Burchett: comments on the collaborative process of GSP development for the SLO Basin, the efforts of Edna Valley farmers to provide input and data for the GSP, and the process of setting the minimum threshold (MT) levels for the basin. Member Pease: comments on cooperation and collaboration from basin stakeholders and the process of taking a productive approach in developing the GSP. Alternate Member, George Donati: comments on the amount of water previously pumped by the City of San Luis Obispo; asks if it possible to pump water from the San Luis Valley portion of the basin to the Edna Valley portion of the basin, what type of permitting would be needed to do so, and if extractions from one portion of the basin to the Edna Valley could be added to the augmentation list to assess feasibility. Project consultant, Dave O'Rourke: responds that it would not be considered an inter-basin transfer since water would be transferred from within the basin. City Staff, Mychal Boerman: comments on the amount of water pumped from the City of San Luis Obispo and the potential need for a technical and/or policy analysis regarding pumping from certain areas within the basin, and that additional discussion from the GSC members may be needed to analyze additional projects or management actions. Chair Schiebelhut: comments on the interests and distinctions between the San Luis Valley and Edna Valley portions of the basin.

	Alternate Member, Toby Moore: comments on modeling the impacts of extractions from one portion of the basin to another and analyzing the basin as a whole.
5. Presentation on Existing County Regulatory Framework	County Staff, Mladen Bandov: presents on the County's existing regulatory framework related to land and groundwater management. Member Fernandez: asks if the County's offset ordinance applies only to specific basins, if the County could apply a similar ordinance to the SLO Basin, and why the offset ordinance was developed and implemented. County Staff, Mladen Bandov: responds that there are currently no offset ordinance restrictions on agriculture in the SLO Basin, that the County would have to pass a similar ordinance to apply to the SLO Basin, and summarizes of why the offset ordinance was originally developed and implemented. Chair Schiebelhut: opens the floor for public comment; there are none.
6. Continued Item (from March 31, 2021) Integrated Model Preliminary Results and Sustainable Management Criteria	County Staff, Mladen Bandov and Project Consultants, Michael Cruikshank and Dave O'Rourke: present on the continued item from the March 31, 2021 GSC meeting on Integrated Model Preliminary Results and Sustainable Management Criteria. <u>Discussion Summary:</u> Commission Members and staff discuss: • How DWR defines undesirable results and best management practices, expectations from DWR, and the importance of 5-year milestones for achieving sustainability. • The frequency of well measurements, observed trends, and the number of representative wells and monitoring wells in the GSP. • Guiding concepts for setting measurable objectives (MOs) and MTs, setting MT 3 levels for representative wells in the Edna Valley, adaptive management, and flexibility for agricultural growers to avoid significant loss and unintended consequences, metering of non de minimis wells, and the Edna Ranch MWC water management plan that prioritizes water use for lot owners. Chair Schiebelhut: proposes setting MT 3 levels for three representative wells in the Edna Valley and incorporating water level changes at 10 feet below the levels currently proposed. Member Pease: comments on considerations given to preventing future wells from going dry.

	Member Fernandez: comments on the historical water levels in the Edna Valley, the level of water remaining in the basin, and the depths of wells drilled throughout the valley. Chair Schiebelhut: opens the floor for public comment. Rod Curb and Jean-Pierre Wolff: speak. Alternate Member, George Donati: supports the proposed MT 3 levels for the representative wells in Edna Valley. Chair Schiebelhut suggests that Commission Members provide direction to staff regarding preferred MT levels; Commission Members deliberate and provide direction to staff as suggested, which will be considered for Draft Chapter 8 – Sustainable Management Criteria.
7. Future Items	• Draft Chapter 8 – Sustainable Management Criteria • Draft Chapter 9 – Projects and Management Actions • Draft Surface Water/Groundwater Modeling Calibration Technical Memorandum
8. Next Regular Meeting	May 5, 2021 at 3:00 p.m. via Zoom
9. Adjourn	**Motion By: Member Fernandez** **Second By: Vice Chair Zimmer** **Motion:** The Commission moves to adjourn the meeting at 5:05 PM

Members	Ayes	Noes	Abstain	Recuse
Bob Schiebelhut (Chair)	X			
Mark Zimmer (Vice Chair)	X			
Dawn Ortiz-Legg (Member)	X			
Andy Pease (Member)	X			
Dennis Fernandez (Member)	X			

DRAFTED BY: County Staff, Joey Steil

GROUNDWATER SUSTAINABILITY COMMISSION
for the San Luis Obispo Valley Groundwater Basin
May 5, 2021

Agenda Item 6 – GSP Review Process
(Presentation Item)

Recommendation
a) Receive a review on the procedures for GSP approval process.

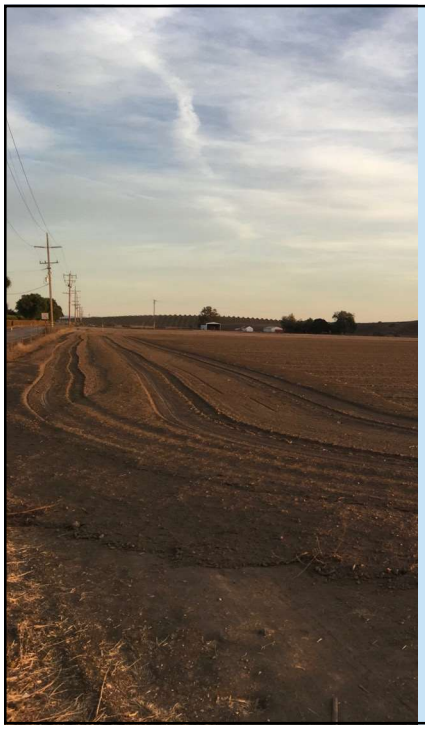
Prepared by
Dick Tzou, County Staff

Discussion
This presentation is to provide a better understanding and clarification on GSP chapter and the whole GSP document review and approval process. The Consultant Team initially develops draft GSP Chapters to publicly vet information, findings, and approaches. Each draft GSP chapter is presented at GSC meetings to be recommended that the draft GSP chapters are received and filed by each GSA. Upon GSC's recommendation, the draft GSP chapters are posted online for public comments and each GSA receives and files the draft GSP section/chapter.

The draft GSP section/chapter, and corresponding public input from web "Comment Forms" are all posted to www.slowaterbasin.com and the County GSA website. Within the duration of the comment period, the public, the GSAs, and individual GSC Members/Alternates may provide comments using the posted webform ("Comment Form") or alternative, if necessary. Public or GSA comments received during each draft GSP chapter's comment period will be considered when chapters are compiled into a public Draft GSP document, which will be again presented to the GSC for consideration for recommendation to the GSAs to receive and file and released for public comment. After all the comments have been considered and incorporated to the draft GSP document, the Final GSP document will come before the GSC for consideration for recommendation to adopt by the GSAs. Once this GSC approval is complete, the Final GSP will then go before the GSAs for adoption.

A timeline of the GSP review process will be shown in the presentation.

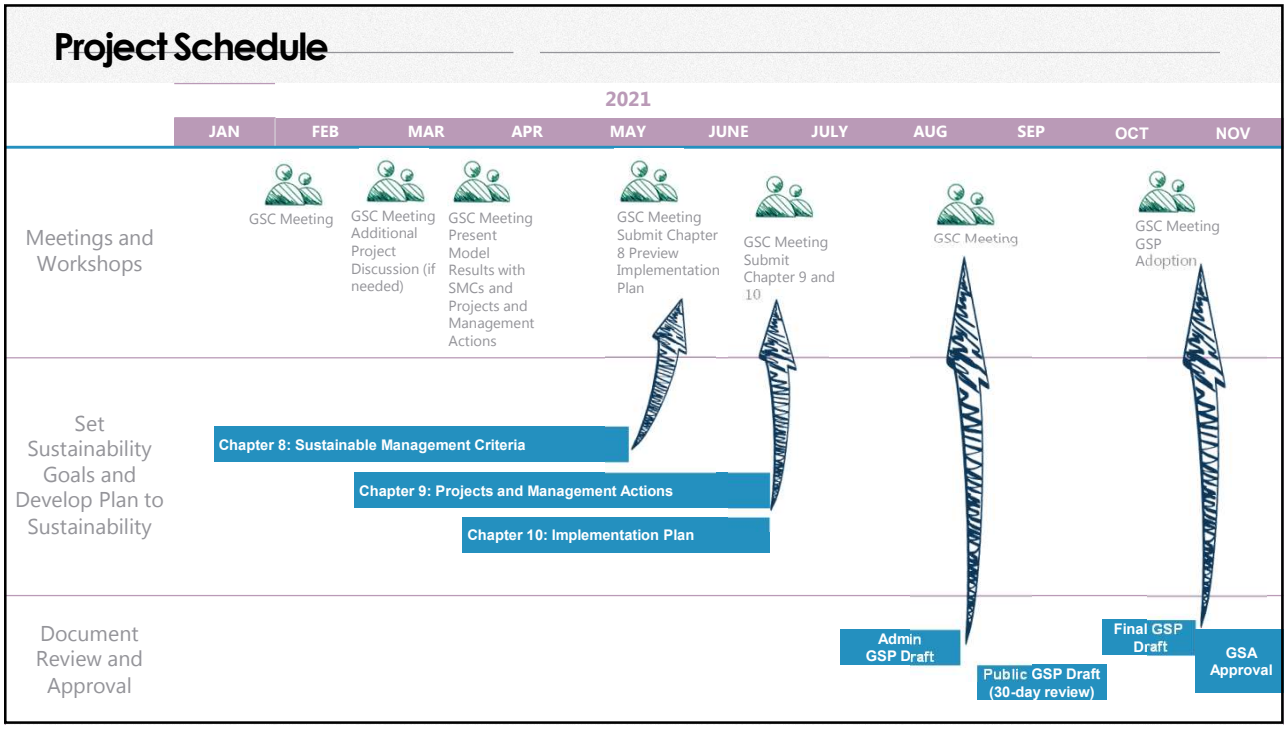
Attachments:
1. Presentation



GSP Review Process

Dick Tzou

Project Schedule



GROUNDWATER SUSTAINABILITY COMMISSION
for the San Luis Obispo Valley Groundwater Basin
May 5, 2021

Agenda Item 7 – Draft GSP Chapter 8: Sustainable Management Criteria for Review and Comment (Action Item)

Recommendation

a) Consider recommending Draft GSP Chapter 8: Sustainable Management Criteria to be received and filed by the GSAs and released for public comment.

Prepared by

Michael Cruikshank, WSC
Dave O'Rourke, GSI

Discussion

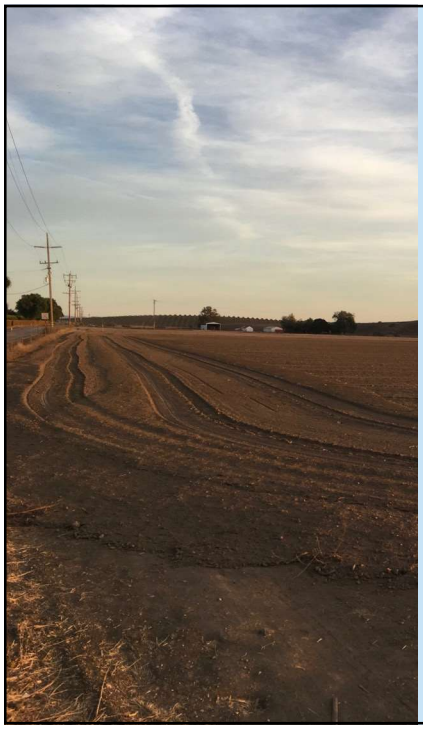
The WSC Team, has been tasked with the preparation of the Groundwater Sustainability Plan (GSP) for the SLO Basin to meet the requirements of SGMA. Chapter 8 – Sustainable Management Criteria, has been drafted and is included in your Agenda Packet. Chapter 8 defines the conditions specified at each of the Representative Monitoring Sites (RMSs) that constitute Sustainable Management Criteria (SMCs), discusses the process by which the GSAs in the Basin will characterize undesirable results, and establishes minimum thresholds and measurable objectives for each Sustainability Indicator. The chapter defines sustainability in the Basin for the purposes of managing groundwater in compliance with SGMA, and it addresses the regulatory requirements involved. The Measurable Objectives (MOs), Minimum Thresholds (MTs), and undesirable results presented in this chapter define the future sustainable conditions in the Basin and guide the GSAs in development of policies, implementation of projects, and promulgation of management actions that will achieve these future conditions.

SMCs for the Basin were developed after technical analysis of hydrogeologic and geotechnical data by the consulting team, input from the GSC members, public input received in public meetings, written public comments in response to GSC meeting and workshop presentations, and meetings with GSA staff and GSC members. Public comments on alternative SMCs discussed during GSC meetings and responses to those comments were also discussed. Presentations and discussion of SMCs occurred at eleven meetings in the Basin between March 2020 and May 2021 and all of the presentations made at public meetings are available for review at www.slowaterbasin.com. The process further built on the Basin Groundwater Sustainability Agencies' history of involving interested parties – including the City, the County, environmental stakeholders, rural residents, agricultural stakeholders, water purveyors, and mutual water companies – in public meetings focused on groundwater resource planning.

Chapter 8 will be uploaded to SLOWaterBasin.com for review and public comment after the GSC has recommended that each GSA receives and files the draft chapter. The WSC Team will present an overview of Chapter 8.

Attachments:

1. Presentation
2. Draft Chapter 8



Sustainable Management Criteria Chapter

Dave O'Rourke

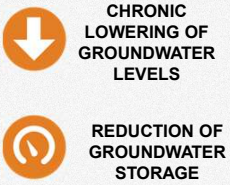
Sustainable Management Criteria Summary

- Sustainable Management Criteria in the 2021 SLO Basin GSP is a starting point
- No single rationale or method works across the entire basin
- Limited data (streamflow, groundwater production, water levels) may cause uncertainty in defining thresholds and will require updates as more data is collected over time
- The SMCs can be updated in the 5-year GSP update

Sustainable Management Criteria Chapter Outlines

- Introduction to SMCs
- Sustainability Goal
- *Undesirable Results (One for each of 5 applicable Sustainability Indicator)*
  - *Combination of MTs*
  - *Minimum Thresholds*
    - *Information and Data Used*
    - *Effect of MTs on other Sustainability Indicators*
    - *Effect of MTs on Neighboring Basins*
    - *Effect of MTs on Beneficial Users*
    - *Relevant Federal, State, and Local Standards*
    - *Method of Measurement*
  - *Measurable Objectives*
    - *Information and Data Used*
    - *Interim Milestones*

Proposed Undesirable Results



The Basin will be considered to have undesirable results if two representative wells within a defined area of the Basin display exceedances of the minimum threshold values for two consecutive Fall measurements. Geographically isolated exceedances will require investigation to determine if local or Basin wide actions are required in response.

Proposed Undesirable Results

LAND SUBSIDENCE

The Basin will be considered to have undesirable results if measured subsidence using InSAR data, between June of one year and June of the subsequent year, exceeds 0.1 foot in any 1-year or a cumulative 0.5 foot in any 5-year period, as a result of groundwater management under the GSP, and shall not result in long-term permanent subsidence.

Proposed Undesirable Results

WATER QUALITY DEGRADATION

The Basin will be considered to have undesirable results if for any year, groundwater quality minimum threshold exceedances at 20% of the representative monitoring sites is observed, in relation to 2015 Basin conditions, as a result of projects and management actions implemented as part of the GSP.

Proposed Undesirable Results

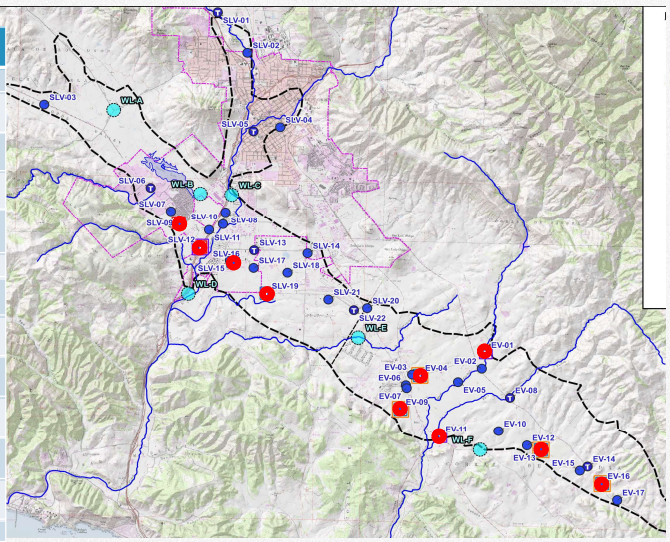
INTER-CONNECTED SURFACE WATER DEPLETIONS

The Basin will be considered to have undesirable results if any of the representative wells monitoring groundwater/surface water interaction display exceedances of the minimum threshold values for two consecutive Fall measurements.

Sustainable Management Criteria - Groundwater Levels and Storage

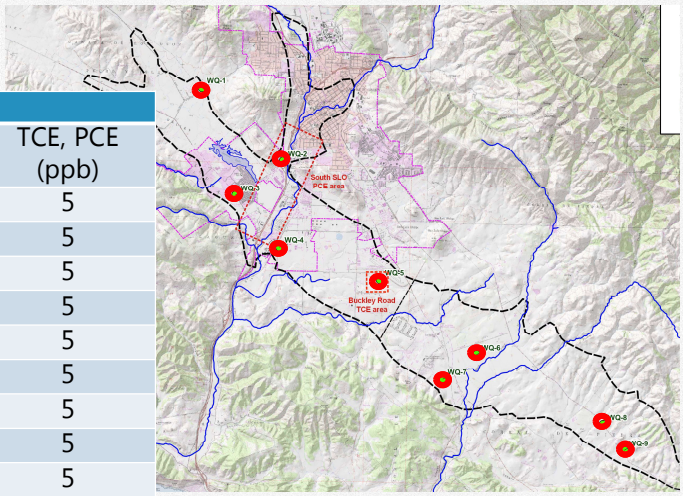
RMS	MT	MO	2020 WL	2027 IM	2032 IM	2037 IM	Sustainability Indicator
San Luis Valley							
SLV-09	102	110	119	110	110	110	Subsidence/Water Levels
SLV-16	70	100	111	100	100	100	Water Levels/ Storage
SLV-19	80	110	123	110	110	110	Water Levels/ Storage
SLV-12	85	100	107	100	100	100	SWGW Interaction/ Water Levels
Edna Valley							
EV-09	82	164	146	150	155	160	Water Levels/Storage
EV-04	160	247	209	219	229	239	Water Levels/Storage
EV-13	172	248	215	223	231	238	Water Levels/Storage
EV-16	150	190	180	175	180	185	Water Levels/Storage
EV-01	263	314	290	314	314	314	SW-GW Interaction /Water levels
EV-11	177	227	219	227	227	227	SW-GW Interaction /Water levels

Note: All water level and interim milestone measurements refer to fall measurements.



Sustainable Management Criteria – Water Quality

SLO Groundwater Basin				
ID	TDS MT (ppm)	NO3 MT (ppm)	Arsenic MT (ppb)	TCE, PCE (ppb)
WQ-1	900	10	10	5
WQ-2	900	10	10	5
WQ-3	900	10	10	5
WQ-4	900	10	10	5
WQ-5	900	10	10	5
WQ-6	900	10	10	5
WQ-7	900	10	10	5
WQ-8	900	10	10	5
WQ-9	900	10	10	5



HOW TO SUBMIT PUBLIC COMMENT

REVIEW AND COMMENT.

Chapter 8: Sustainable Management Criteria
Public Comment period will be open tomorrow upon GSC approval and closes 06/5/21 30—days.

Go to **SLOWaterBasin.com** click on "Review Documents"

PUBLIC MEETINGS.

GSC Public Meeting
06/16/21 • 3:00pm-5:00pm

Learn more or register at **SLOWaterBasin.com**, click on "Calendar"

DRAFT

Chapter 8 - Sustainable Management Criteria

San Luis Obispo Valley Basin Groundwater Sustainability Plan

Available for viewing in the May 5, 2021 Agenda Packet:	**April 28, 2021**
Recommended the GSAs to receive and file for public comments:	**May 5, 2021**
Available for public comments on www.slowaterbasin.com:	**May 6, 2021**
Close of public comment period:	**June 5, 2021**

Per the GSC's recommendation on May 5, 2021, GSP Draft Chapter 8 - Sustainable Management Criteria will be distributed to the City and County GSAs to receive and file. This draft document is now posted on the web portal: www.slowaterbasin.com for public comments. Comments from the public are being collected using a comment form available at www.slowaterbasin.com by clicking on "Submit Comment". If you require a paper form to submit by postal mail, please contact your local Groundwater Sustainability Agency (GSA). All comments submitted will also be posted online for viewing.

DRAFT

Groundwater Sustainability Plan
Chapter 8 – Sustainable Management Criteria

for the

San Luis Obispo Valley Groundwater Basin
Groundwater Sustainability Agencies

Prepared by

4/28/2021

TABLE OF CONTENTS

The grey highlighted sections in the Table of Contents (TOC) indicate that the section has been previously released (Chapters 1 through 7) or will be released in the future (Chapters 9 through 14). The complete list of the anticipated TOC is presented to give the reader context as to how Chapter 8 – Sustainable Management Criteria, connects with the complete Groundwater Sustainability Plan.

LIST OF FIGURES

TABLES

No table of figures entries found.

APPENDICES

Appendix A - City of San Luis Obispo Resolution to form GSA
Appendix B - County of San Luis Obispo Resolution to form GSA
Appendix C - Memorandum of Agreement – Preparation of GSP
Appendix D Communications and Engagement Plan
Appendix E Surface Water/Groundwater Modeling Approach
Appendix F Stakeholder Workshop Summary – Building a Shared Vision for a "Sustainable SLO Basin"
Appendix G Sustainable Goal Setting Workshop
Appendix H Groundwater-Dependent Ecosystems in the San Luis Obispo Valley Groundwater Basin
Appendix I Groundwater Level Measurement Procedures for the San Luis Obispo Valley Groundwater Basin GSP
Appendix J Streamflow Measurement in Natural Channels
Appendix K Data Management Plan
Appendix L Response to Public Comments

LIST OF TERMS USED

Abbreviation	Definition
AB	Assembly Bill
ADD	Average Day Demand
AF	Acre Feet
AFY	Acre Feet per Year
AMSL	Above Mean Sea Level
Basin Plan	Water Quality Control Plan for the Central Coast Basin
Cal Poly	California Polytechnic State University
CASGEM	California State Groundwater Elevation Monitoring program
CCR	California Code of Regulations
CCRWQCB	Central Coast Regional Water Quality Control Board
CCGC	Central Coast Groundwater Coalition
CDFM	Cumulative departure from the mean
CDPH	California Department of Public Health
CIMIS	California Irrigation Management Information System
City	City of San Luis Obispo
County	County of San Luis Obispo
CPUC	California Public Utilities Commission
CPWS-52	Cal Poly Weather Station 52
CRWQCB	California Regional Water Quality Control Board
CWC	California Water Code
DDW	Division of Drinking Water
Du/ac	Dwelling Units per Acre
DWR	Department of Water Resources
EPA	Environmental Protection Agency
ERMWC	Edna Ranch Mutual Water Company
ET_0	Evapotranspiration
EVGMWC	Edna Valley Growers Ranch Mutual Water Company
°F	Degrees Fahrenheit
FAR	Floor Area Ratio
FY	Fiscal Year
GAMA	Groundwater Ambient Monitoring and Assessment program
GHG	Greenhouse Gas
GMP	Groundwater Management Plan
GPM	Gallons per Minute
GSA	Groundwater Sustainability Agency
GSC	Groundwater Sustainability Commission
GSP	Groundwater Sustainability Plan
GSWC	Golden State Water Company
IRWMP	San Luis Obispo County Integrated Regional Water Management Plan
kWh	Kilowatt-Hour
LUCE	Land Use and Circulation Element
LUFTs	Leaky Underground Fuel Tanks
MAF	Million Acre Feet
MCL	Maximum Contaminant Level

Abbreviation	Definition
MG	Million Gallons
MGD	Million Gallons per Day
Mg/L	Milligrams per Liter
MOA	Memorandum of Agreement
MOU	Memorandum of Understanding
MWR	Master Water Report
NCDC	National Climate Data Center
NOAA	National Oceanic and Atmospheric Administration
NWIS	National Water Information System
RW	Recycled Water
RWQCB	Regional Water Quality Control Board
SB	Senate Bill
SGMA	Sustainable Groundwater Management Act
SGMP	Sustainable Groundwater Management Planning
SGWP	Sustainable Groundwater Planning
SLO Basin	San Luis Obispo Valley Groundwater Basin
SLOFCWCD	San Luis Obispo County Flood Control and Water Conservation District
SCML	Secondary Maximum Contaminant Level
SOI	Sphere of Influence
SNMP	Salt and Nutrient Management Plan
SWRCB	California State Water Resources Control Board
TDS	Total Dissolved Solids
TMDL	Total Maximum Daily Load
USGS	United States Geological Survey
USFW	United States Fish and Wildlife Service
USTs	Underground Storage Tanks
UWMP	Urban Water Management Plan
UWMP Act	Urban Water Management Planning Act
UWMP Guidebook	Department of Water Resources 2015 Urban Water Management Plan Guidebook
VRMWC	Varian Ranch Mutual Water Company
WCS	Water Code Section
WMP	Water Master Plan
WPA	Water Planning Areas
WRF	Water Reclamation Facility
WRCC	Western Regional Climate Center
WRRF	Water Resource Recovery Facility
WSA	Water Supply Assessment
WTP	Water Treatment Plant
WWTP	Wastewater Treatment Plant

EXECUTIVE SUMMARY

This section to be completed after GSP is complete.

8 SUSTAINABLE MANAGEMENT CRITERIA (§ 354.22)

This chapter defines the conditions specified at each of the Representative Monitoring Sites (RMSs) that constitute Sustainable Management Criteria (SMCs), discusses the process by which the GSAs in the Basin will characterize undesirable results, and establishes minimum thresholds and measurable objectives for each Sustainability Indicator. The chapter defines sustainability in the Basin for the purposes of managing groundwater in compliance with SGMA, and it addresses the regulatory requirements involved. The Measurable Objectives (MOs), Minimum Thresholds (MTs), and undesirable results presented in this chapter define the future sustainable conditions in the Basin and guide the GSAs in development of policies, implementation of projects, and promulgation of management actions that will achieve these future conditions.

Defining Sustainable Management Criteria (SMC) requires technical analysis of historical data, and input from the affected stakeholders in the Basin. This chapter presents the data and methods used to develop the SMC and demonstrate how they influence beneficial uses and users. The SMCs presented in this chapter are based on currently available data and application of the best available science. As noted in this GSP, data gaps exist in the hydrogeologic conceptual model. Uncertainty caused by these data gaps was considered when developing the SMC. Due to uncertainty in the hydrogeologic conceptual model, these SMCs are considered initial criteria and will be reevaluated and potentially modified in the future as new data become available.

The discussion of SMC in this chapter is organized by Sustainability Indicators. The following Sustainability Indicators are applicable in the Basin:

- Chronic lowering of groundwater elevations
- Reduction in groundwater storage
- Degraded water quality
- Land subsidence
- Depletion of interconnected surface water

The sixth Sustainability Indicator, sea water intrusion, only applies to coastal basins, and is not applicable in the Basin.

To maintain an organized approach throughout the text, this chapter follows the same structure for each Sustainability Indicator. The description of each SMC contains all the information required by Section 354.22 et. seq of the SGMA regulations and outlined in the Sustainable Management Criteria BMP (DWR, 2017), including:

- How undesirable results were developed, including:
    - The criteria defining when and where the effects of the groundwater conditions that cause undesirable results based on a quantitative description of the combination of minimum threshold exceedances (§354.26 (b)(2))
    - The potential causes of undesirable results (§354.26 (b)(1))
    - The effects of these undesirable results on the beneficial users and uses (§354.26 (b)(3))
- How minimum thresholds were developed, including:
    - The information and methodology used to develop minimum thresholds (§354.28 (b)(1))
    - The relationship between minimum thresholds and the relationship of these minimum thresholds to other Sustainability Indicators (§354.28 (b)(2))
    - The effect of minimum thresholds on neighboring basins (§354.28 (b)(3))
    - The effect of minimum thresholds on beneficial uses and users (§354.28 (b)(4))

  - How minimum thresholds relate to relevant Federal, State, or local standards (§354.28 (b)(5))
  - The method for quantitatively measuring minimum thresholds (§354.28 (b)(6))
- How measurable objectives were developed, including:
  - The methodology for setting measurable objectives (§354.30)
  - Interim milestones (§354.30 (a), §354.30 (e), §354.34 (g)(3))

The SGMA regulations address minimum thresholds before measurable objectives. This order was maintained for the discussion of all applicable Sustainability Indicators.

8.1 DEFINITIONS (§ 351)

The SGMA legislation and regulations contain a number of new terms relevant to the SMCs. These terms are defined below using the definitions included in the SGMA regulations (§ 351, Article 2). Where appropriate, additional explanatory text is added in italics. This explanatory text is not part of the official definitions of these terms. To the extent possible, plain language, including limited use of overly technical terms and acronyms, was used so that a broad audience will understand the development process and implications of the SMCs.

1. Interconnected surface water (ISW) refers to surface water that is hydraulically connected at any point by a continuous saturated zone between the underlying aquifer and the overlying surface water. Interconnected surface waters are parts of streams, lakes, or wetlands where the groundwater table is at or near the ground surface and there is water in the lakes, streams, or wetlands.
2. Interim milestone (IM) refers to a target value representing measurable groundwater conditions, in increments of five years, set by an Agency as part of a Plan. Interim milestones are targets such as groundwater elevations that will be achieved every five years to demonstrate progress towards sustainability.
3. Management area refers to an area within a basin for which the Plan may identify different minimum thresholds, measurable objectives, monitoring, or projects and management actions based on differences in water use sector, water source type, geology, aquifer characteristics, or other factors.
4. Measurable objectives (MOs) refer to specific, quantifiable goals for the maintenance or improvement of specified groundwater conditions that have been included in an adopted Plan to achieve the sustainability goal for the basin. Measurable objectives are goals that the GSP is designed to achieve.
5. Minimum thresholds (MTs) refer to numeric values for each Sustainability Indicator used to define undesirable results. Minimum thresholds are established at representative monitoring sites. Minimum thresholds are indicators of where an unreasonable condition might occur. For example, a particular groundwater elevation might be a minimum threshold if lower groundwater elevations would result in a significant and unreasonable reduction in groundwater storage.
6. Representative monitoring site (RMS) refers to a monitoring site within a broader network of sites that typifies one or more conditions within the basin or an area of the basin.
7. Sustainability Indicator refers to any of the effects caused by groundwater conditions occurring throughout the basin that, when significant and unreasonable, cause undesirable results, as described in Water Code Section 10721(x). The five Sustainability Indicators relevant to the Basin are listed in the introductory section of Chapter 8.
8. Uncertainty refers to a lack of understanding of the basin setting that significantly affects an Agency's ability to develop sustainable management criteria and appropriate projects and management actions in a Plan, or to evaluate the efficacy of Plan implementation, and therefore may limit the ability to assess whether a basin is being sustainably managed.

9. Undesirable Result Section 10721 of the Sustainable Groundwater Management Act states that Undesirable result means one or more of the following effects caused by groundwater conditions occurring throughout the basin:
    a. Chronic lowering of groundwater levels indicating a significant and unreasonable depletion of supply if continued over the planning and implementation horizon. Overdraft during a period of drought is not sufficient to establish a chronic lowering of groundwater levels if extractions and groundwater recharge are managed as necessary to ensure that reductions in groundwater levels or storage during a period of drought are offset by increases in groundwater levels or storage during other periods.
    b. Significant and unreasonable reduction of groundwater storage.
    c. Significant and unreasonable seawater intrusion.
    d. Significant and unreasonable degraded water quality, including the migration of contaminant plumes that impair water supplies.
    e. Significant and unreasonable land subsidence that substantially interferes with surface land uses.
    f. Depletions of interconnected surface water that have significant and unreasonable adverse impacts on beneficial uses of the surface water.
10. Section § 354.26 of the SGMA regulations states that "The criteria used to define when and where the effects of the groundwater conditions cause undesirable results shall be based on a quantitative description of the combination of minimum threshold exceedances that cause significant and unreasonable effects in the basin."

8.2 SUSTAINABILITY GOAL (§ 354.24)

The sustainability goal for the San Luis Obispo Basin is a comprehensive statement that describes the important factors to be considered during the SGMA planning horizon. The sustainability goal was developed over a series of public meetings and public workshops with input from the City, County, and affected stakeholders. The June 10, 2020 Stakeholder Workshop, Groundwater Management Vision, was dedicated to obtaining information to be used to develop a sustainability goal for the Basin. In the workshop, stakeholders participated in an interactive visioning exercise where they helped populate a virtual white board to answer the question, "What is our shared vision of what a 'sustainable SLO Basin' means?" Stakeholders added ideas, perceptions, outcomes, and values onto the white board across the following categories:

- Available Groundwater Supply: What needs/uses does our groundwater supply always need to be able to serve?
- Available Groundwater Storage: What needs/uses does our stored groundwater need to serve or prepare us for?
- Groundwater Dependent Ecosystem Health: What outcomes do we want for surface water ecosystems and prevention of land subsidence?
- Cost to Users: If we achieve a "sustainable Basin," how does it look to ratepayers?
- Groundwater Quality: What is the quality of groundwater we aim to sustain?

During the September 9, 2020 GSC meeting, the results of the interactive exercise from the June workshop were presented in an organized fashion to stakeholders. Significant concepts from the visioning exercise are incorporated into the Sustainability Goal presented herein and are represented as guiding principles that underpin the Basin sustainability goal. The SGMA regulations require the sustainability goal to culminate in the absence of undesirable results within 20 years of the applicable statutory deadline. Per Section § 354.24 of the SGMA regulations the Sustainability goal has three parts:

- Description of the sustainability goal
- A discussion of the measures that will be implemented to ensure the Basin will be operated within sustainable yield, and
- An explanation of how the sustainability goal is likely to be achieved.

8.2.1 Description of Sustainability Goal

The sustainability goal for the Basin is to manage the Basin to ensure beneficial uses and basin users have access to a safe and reliable groundwater supply that meets current and future demand without causing undesirable results. Guiding principles of this goal are:

- Available groundwater supply supports diverse needs reliably and equitably.
- Stored groundwater equitably supports supply resilience and evolving needs.
- Groundwater levels support the sustained health of groundwater dependent ecosystems.
- Cost of maintaining sustainable groundwater levels is equitably distributed.
- Groundwater quality is maintained to a safe standard to meet diverse basin needs.

8.2.2 Sustainability Strategy

The sustainability strategy will be developed and discussed at the upcoming GSC meetings. This section will include a discussion of the measures that will be implemented to ensure the basin will be operated within the sustainable yield, ***to be completed after Chapter 9 -Projects and Management Actions is approved and will be included in the Public Draft of the GSP***, and an explanation of how the sustainability goal is likely to be achieved, ***to be completed after Chapter 10 -Implementation Plan is approved and will be included in the Public Draft of the GSP.***

8.3 GENERALIZED PROCESS FOR ESTABLISHING SUSTAINABLE MANAGEMENT CRITERIA (§ 354.22-30)

SMCs for the Basin were developed after technical analysis of hydrogeologic and geotechnical data by the consulting team, input from the GSC members, public input received in public meetings, written public comments in response to GSC meeting and workshop presentations, and meetings with GSA staff and GSC members. Public comments on alternative SMCs discussed during GSC meetings and responses to those comments are included in Appendix M. All presentations made at public meetings are available for review at the SLO Basin web site created for this GSP, www.slowaterbasin.com. The process further built on the Basin Groundwater Sustainability Agencies' history of involving interested parties – including the City, the County, environmental stakeholders, rural residents, agricultural stakeholders, water purveyors, and mutual water companies – in public meetings focused on groundwater resource planning.

The general process for establishing minimum thresholds and measurable objectives for the SMC and assessing significant and unreasonable conditions constituting undesirable results in the Basin was iterative and included the following:

- Evaluating historical data on groundwater elevations from wells monitored by the City and County.
- Evaluating water budget information presented in Chapter 6, including sustainable yield estimates and average deficits for the San Luis Valley and Edna Valley parts of the basin.
- Holding a series of public outreach meetings that outlined the GSP development process and introduced stakeholders to SMC, MOs, MTs, and other related information.
- Soliciting public comment and input on several alternative minimum threshold and measurable options based upon preliminary technical analysis presented at GSC meetings.
- Evaluating public comment to assess what are significant and unreasonable effects relevant to SMC. Public comments from outreach meetings was analyzed to assess if different areas in the Basin had different perspectives for what constitutes an undesirable result in the Basin and how minimum thresholds and measurable objectives are established.
- Combining public comment, outreach efforts, hydrogeologic data and considering the interests of beneficial uses and groundwater users, land uses, and property interests in the Basin to describe undesirable results and setting preliminary conceptual MTs and MOs.
- Performing groundwater model simulations that incorporate projects and management actions discussed in Chapter 9 to assess if the SMC are achievable.
- Conducting public meetings to present recommended preliminary conceptual minimum thresholds and measurable objectives and receiving additional public input. Presentations and discussion of SMCs occurred at eleven meetings in the Basin between March 2020 and May 2021.
- Reviewing and considering public and GSC input on recommended preliminary SMCs with GSA staff.
- GSC recommended final SMCs to GSAs for approval.

A number of alternative options for both MTs and MOs were considered for each RMS after evaluation of the historical record of groundwater elevations at each well, assessment of trends of groundwater elevation decline (where applicable), and input from stakeholders regarding their desired conditions.

Details regarding the specific SMCs for each Sustainability Indicator are included in the following sections of this chapter describing each indicator.

For all applicable Sustainability Indicators except for water quality (I.e., chronic lowering of groundwater levels, reduction of storage, land subsidence, and depletion of interconnected surface water), this GSP uses water levels as a proxy measurement metric to assess the SMCs for each indicator. Water levels are measured directly at each RMS. For the land subsidence Sustainability Indicator, direct measurement of changes in land surface elevation data (InSAR data) published by DWR define the SMCs, and water levels will be monitored in an RMS in the area of documented past subsidence to monitor groundwater conditions (SLV-09), and to manage such that water levels do not approach the levels observed in 1991-1992.

8.4 CHRONIC LOWERING OF GROUNDWATER LEVELS SUSTAINABILITY INDICATOR

This section of the GSP describes the SMC for the Chronic Lowering of Groundwater Levels Sustainability Indicator. The definition of Undesirable Results is presented, and MTs and MOs are presented for each RMS in the monitoring network.

8.4.1 Undesirable Results (§ 354.26)

The definition of undesired conditions for the Chronic Lowering of Groundwater Indicator for the purposes of this GSP is as follows:

> *The Basin will be considered to have undesirable results if two or more RMSs for water levels within a defined area of the Basin (i.e., San Luis Valley or Edna Valley) display exceedances of the minimum threshold groundwater elevation values for two consecutive fall measurements. Geographically isolated exceedances (i.e., conditions in a single well) will require investigation to determine if local or basin wide actions are required in response.*

Details addressing specific MTs and MOs are presented in the following sections. A summary of MTs and MOs used in the definition of Undesirable Conditions for the Chronic Lowering of Groundwater Sustainability Indicator are presented along with other indicators in Table 8-1.

Table 8-1 . Summary of MTs, MOs, and IMs for SLO Basin RMSs.

RMS	MT	MO	2020 WL	2027 IM	2032 IM	2037 IM	Sustainability Indicator
San Luis Valley							
SLV-09	102	110	119	110	110	110	Subsidence/Water Levels
SLV-16	70	100	111	100	100	100	Water Levels/Storage
SLV-19	80	110	123	110	110	110	Water Levels/Storage
SLV-12	85	100	107	100	100	100	SW-GW Interaction/Water Levels
Edna Valley							
EV-09	82	164	146	150	155	160	Water Levels/Storage
EV-04	160	247	209	219	229	239	Water Levels/Storage
EV-13	172	248	215	223	231	238	Water Levels/Storage
EV-16	150	190	180	175	180	185	Water Levels/Storage
EV-01	263	314	290	314	314	314	SW-GW Interaction /Water levels
EV-11	177	227	219	227	227	227	SW-GW Interaction /Water levels
Note: All water level and interim milestone measurements refer to fall measurements.							

8.4.1.1 *Criteria for Establishing Undesirable Results §354.26(b)(2)*

Significant and unreasonable Chronic Lowering of Groundwater Levels in the Basin are those that:

- Reduce the ability of existing domestic wells of average depth to produce adequate water for domestic purposes (drought resilience).
- Cause significant financial burden to those who rely on the groundwater basin.
- Interfere with other SGMA Sustainability Indicators.

8.4.1.2 *Potential Causes of Undesirable Results - §354.26(b)(1)*

Conditions that could theoretically lead to an undesirable result include the following:

- Continuation of current levels of Edna Valley pumpage without development of additional water supply projects, or development of additional municipal or agricultural pumping at significantly higher rates than are currently practiced. Maintenance of current or additional non-de minimis pumping may result in continued decline in groundwater elevations and exceedance of the proxy minimum threshold.
- Expansion of de minimis pumping. Adding domestic de minimis pumpers in the areas of the Basin administered by the County may result in lower groundwater elevations, and an exceedance of the proxy minimum threshold.
- Extensive, unanticipated drought. Minimum thresholds are established based on reasonable anticipated future climatic conditions. Extensive, unanticipated droughts more severe than those on record may lead to excessively low groundwater recharge and unanticipated high pumping rates that could cause an exceedance of the proxy minimum threshold.

8.4.1.3 *Effects of Undesirable Results on Beneficial Users and Land Uses - §354.26 (b)(3)*

The primary effects on the beneficial users occurs from allowing multiple exceedances of the MTs in a small geographic area. Allowing two exceedances in a network of 10 RMS wells is reasonable if the exceedances are distributed throughout the Basin. If the exceedances are clustered in a limited area, it indicates that significant unreasonable effects are being experienced by a localized group of landowners. Any exceedances will require investigation to determine the significance and causes of the observed conditions.

8.4.2 Minimum Thresholds - §354.28(c)(1)

Section §354.28(c)(1) of the SGMA regulations states that "The minimum threshold for chronic lowering of groundwater levels shall be the groundwater elevation indicating a depletion of supply at a given location that may lead to undesirable results".

After the 10 RMS had been selected and discussed at public meetings, numerous alternative draft MTs were developed based on the evaluation of historical groundwater elevations over the available period of record (including consideration of average water levels over various time periods, long term trends, response to the recent drought, etc.), consideration of likely future use of groundwater, well construction data, assessment of remaining available saturated thickness, and public input from stakeholders. The following sections present details on the development of MTs for specific RMSs in the Basin.

8.4.2.1 *Information and Methods Used for Establishing Chronic Lowering of Groundwater Level Minimum Thresholds - §354.28(b)(1)*

The primary source of data that was evaluated for the Sustainability Indicator of chronic lowering of groundwater levels is historical groundwater elevation data collected by the County. The information used for establishing the MOs and MTs for the chronic lowering of groundwater levels Sustainability Indicator included:

- Historical groundwater elevation data from wells monitored by the County of San Luis Obispo.
- Depths and locations of existing wells.
- Maps of current and historical groundwater elevation data.
- Input from stakeholders regarding significant and unreasonable conditions and desired current and future groundwater elevations communicated during public meetings and solicitation of public comment on various options of MTs and MOs presented in the public forum.
- Results of modeling of various project scenarios of future groundwater level conditions.

It is observed that historical trends of water levels are significantly different in the San Luis Valley and the Edna Valley. For this reason, the approach for setting MTs is different in the San Luis Valley than in the Edna Valley.

San Luis Valley

In the San Luis Valley, there have been no long-term water level declines in any of the monitoring wells or RMS (Figure 5-11). All four of the RMS hydrographs in San Luis Valley (SLV-09, SLV-12, SLV-16, and SLV-19) display a significant temporary decline in water levels in the early 1990s. This corresponds to the period when the City increased pumping from their wells during the drought of the late 1980s and early 1990s. After 1992-1993, the City reduced pumping and water levels have been in relative equilibrium since seasonal fluctuations continue, but water levels have been essentially stable. However, City staff and City GSA participants have communicated their desire to maintain flexibility to develop groundwater in the future to potentially augment their water supply portfolio to supply the public with drinking water in their service area. Therefore, the City wishes to avoid the definition of MTs that would prevent this. For this reason, MTs in the San Luis Valley are set 10 to 20 feet lower than previously observed low water levels, to allow for potential future groundwater development by the City. The GSAs will coordinate during GSP implementation to ensure such future development does not lead to undesirable results in the Basin. The GSAs considered historical groundwater elevations, available saturated thickness, proximity of nearby wells, and general hydrogeologic judgement when setting these MTs. Figure 7-1 displays the locations of representative wells in the Basin. MTs are presented in Table 8-1. Figures 8-1 through 8-4 present historically observed water levels in the four RMS in the San Luis Valley portion of the basin, and the MTs set at these wells.

Edna Valley

In Edna Valley, by contrast, four wells show water level declines over the past 20-30 years (EV-04, EV-09, EV-12, and EV-16). Various alternative approaches were considered to establish MTs including designation of current water levels, water levels higher than current water levels, historical low water levels (usually those that occurred in 2015 at the end of the recent drought), and levels lower than the historical low. Not all of the Edna Valley hydrographs show the same trends. Each hydrograph has unique characteristics depending on the local hydrogeologic setting in the immediate vicinity of the well, and this leads to the consideration of different definitions of MTs for different wells, as discussed below.

RMS EV-12, EV-04, and EV-09 display declining water levels over the past 20-25 years, with historical low elevations occurring around Fall 2015 at the end of the recent drought. The hydrographs for all three of these wells display recovery of water levels since then (Figures 8-5, 8-6, 8-7). Agricultural stakeholders in the Edna Valley communicated concern that setting the MT at the 2015 water levels in these wells would not provide them adequate operational flexibility to protect their long investments in the production of agriculture in the area. At the April 7, 2021 GSC meeting they requested consideration of an MT for these three RMSs to be defined 10 feet lower than 2015 drought water level. They communicated their desire for a slightly greater factor of safety for their operations and investments in the event of another drought during the planning horizon of SGMA activities. Members of the GSC were polled, and a majority of the GSC members agreed that this was a reasonable request to protect the significant investments in vineyard agriculture in the valley, and would not be considered an undesirable condition in this part of Edna Valley. Therefore, for these three wells, the MTs were defined to be 10 feet lower than the historical low groundwater elevation observed in 2015, at the height of the recent drought. (The measurement for EV-04 represents the Spring 2015 measurement; the Fall measurement was not collected. It is assumed that the Fall measurement would be lower than the Spring measurement, so the MT is set slightly lower than the Spring measurement.)

In order to assess the risk of having groundwater elevations lower than recent drought low levels, an analysis was performed to evaluate potential water level of MTs compared to the depths of private domestic wells identified in County data. The basin-wide Fall 2015 groundwater elevations were mapped and compared to the total depths of domestic wells in the County's well permitting database. Then the

2015 groundwater elevation arrays were reduced by 25 feet, and then 50 feet, to project conditions of lowered water levels. These revised lowered groundwater elevations were then compared to the total depths of the identified domestic wells. If in any of these comparison evaluations, the water level was below the total depth of a domestic well, that well was marked as "dry" in the analysis. The objective of this analysis is to assess the level of impact to domestic wells associated with water level reduction of these magnitudes. This is not intended to be a definitive analysis, given that depth and location data of the domestic wells are imperfect (many wells in the database are placed on the same point location, an artifact of the practice of assigning locations to the center of a section if better information is not available.) However, it is intended to provide a general indication of how many additional domestic wells might be impacted if water levels were decreased.

For the analysis of 2015 water levels, the data indicated 15 wells as "dry". (In reality, anecdotal information indicates knowledge of four known wells that needed to be replaced or stopped being used during the drought in Edna Valley). For water levels 25 feet lower than 2015 water levels, 29 wells were identified as "dry". For water levels 50 feet lower than 2015 water levels, 40 wells were identified as "dry". This evaluation was performed to give a relative idea as to the potential impact on domestic wells of lowered water levels. The conclusion of this analysis was that water levels 25 feet and 50 feet lower than the drought minimums would result in an unacceptable condition in which the number of domestic supply wells at risk of adverse operating conditions was too high. Afterward, an additional iteration of this analysis was performed in which water levels 10 feet lower than the 2015 water levels were assessed. At 10 feet of groundwater elevation reduction, no domestic wells in the County database were indicated as "dry", beyond those identified as dry using 2015 water levels. Therefore, the conclusion of this analysis is that lowering water levels 25 to 50 feet below 2015 conditions constitutes an unreasonable risk to domestic well owners, but that water levels 10 feet below the 2015 drought levels constitutes an acceptable level of risk for all stakeholders, and the definition of MTs for wells in this area 10 feet lower than 2015 levels does not constitute unreasonable or undesirable conditions.

RMS EV-16 displays a relatively steady decline in water levels of about 3.25 feet/year at the Varian Ranch Mutual Water Company (VRMWC) service area since the year 2000. The 2011-2015 drought is not apparent in this hydrograph as a period of historical low groundwater elevations. For this well, the MT was set at an elevation of 150 feet, lower than current groundwater elevations of about 180 feet, to allow for the various mutual water companies in the area to implement projects to slow and stabilize the observed water level declines (Figure 8-10). Consideration of the recent rate of groundwater elevation decline, amount of available saturated thickness, and hydrogeologic judgement regarding the amount of time likely required to mitigate this trend, were used in defining the MTs at this well. (VRMWC owns property and wells in the adjacent Arroyo Grande sub-basin of the Santa Maria Valley Groundwater Basin, which may be useful in reversing this trend, and will be discussed in Chapter 9.)

8.4.2.2 *Relationship between Individual Minimum Thresholds and Relationship to Other Sustainability Indicators - §354.28(b)(2)*

Section 354.28 of the SGMA regulations requires that the description of all MTs include a discussion of the relationship between the MTs for each Sustainability Indicator. In the SMC Best Management Practices document (DWR, 2017), DWR has clarified this requirement. First, the GSP must describe the relationship between each Sustainability Indicator's MT by describing why or how a water level MT set at a particular RMS is similar to or different to water level thresholds in a nearby RMS. Second, the GSP must describe the relationship between the selected MT and MTs for other Sustainability Indicators; in other words, describe how (for example) a water level minimum threshold would not trigger an undesirable result for land subsidence.

Groundwater elevation MTs are derived from examination of the historical record reflected in hydrographs at the RMS. They were tested for achievability through model simulations (as described in Chapter 9). Because the MOs are largely based on observed historical groundwater conditions, the minimum thresholds derived from these objectives are not expected to conflict with each other. Groundwater elevation MTs can theoretically influence other Sustainability Indicators. Examples are listed below:

1. **Change in groundwater storage.** Changes in groundwater elevations are directly correlated to changes in the amount of stored groundwater. Pumping at or less than the sustainable yield will maintain or raise average groundwater elevations in the Basin. The groundwater elevation MTs are set to establish a minimum elevation that will not lead to undesirable conditions, and that are acceptable to the stakeholders in the area. Therefore, if the groundwater elevation MTs are met, they will not result in long term significant or unreasonable changes in groundwater storage.
2. **Subsidence.** A significant and unreasonable condition for subsidence is permanent pumping-induced subsidence that substantially interferes with surface land use. One cause for subsidence is dewatering and compaction of clay-or peat-rich sediments in response to lowered groundwater levels. As discussed in Chapter 5, significant subsidence was observed along Los Osos Valley Road in the early 1990s, which resulted in the City paying significant damages to affected local businesses. No observed subsidence has been reported in the Edna Valley. If MTs are maintained higher than the historically low water levels that were observed during the subsidence episode, this will minimize the risk of additional subsidence in the Basin. The groundwater elevation MT in RMS SLV-09 along Los Osos Valley Road is set 15 feet higher than the historically low groundwater elevation observed in the early 1990s. Therefore, if this MT is met, it should minimize the risk of further subsidence along Los Osos Valley Road. No subsidence MTs based on water levels are established in Edna Valley (the actual MTs for subsidence will be based on InSAR data provided annually by DWR, and are discussed later in this chapter). Should new subsidence be observed due to lower groundwater elevations, the groundwater elevation MTs will be raised to mitigate this subsidence and avoid future subsidence.
3. **Degraded water quality.** Protecting groundwater quality is critically important to all groundwater users in the Basin, particularly for drinking water and agricultural uses. Maintaining groundwater levels protects against degradation of water quality or exceeding regulatory limits for constituents of concern in supply wells due to actions proposed in the GSP. Water quality in the Basin could theoretically be affected through two processes:
    a. Low groundwater elevations in an area could theoretically cause deeper, poorer-quality groundwater to flow upward from bedrock into existing supply wells. Should groundwater quality degrade due to lowered groundwater elevations, the groundwater elevation MTs may be raised to avoid this degradation. However, since MTs are set to avoid significant declines of groundwater elevations below historically observed levels, and the historical low water levels did not result in water quality degradation, this is not expected to occur.
    b. Changes in groundwater elevation due to actions implemented to achieve sustainability could change groundwater gradients, which could cause poor quality groundwater to flow towards supply wells that would not have otherwise been impacted. However, MTs are established so as not to change the basin patterns or gradients of groundwater flow, so this is not expected to occur in the Basin.
4. **Depletion of Interconnected Surface Water.** Groundwater levels measured at representative monitoring wells (SLV-12, EV-01, EV-11) will serve as a proxy for depletion of interconnected surface water. In addition, stream flow gages along SLO Creek will continue to measure surface water conditions in San Luis Valley, and proposed stream gages along Corral de Piedras Creek will serve to generate information on surface water inflow and outflow in Edna Valley, allowing for direct measurement of surface water gains and losses to the groundwater systems based on future hydrologic and pumping conditions in the Basin. However, MTs along the Creeks are defined at

levels designed to avoid significant water declines in these areas, with the goal of minimizing any potential significant depletion of interconnected surface water flows.

5. **Seawater intrusion.** This Sustainability Indicator is not applicable to this Groundwater Basin.

8.4.2.3 *Effect of Minimum Thresholds on Neighboring Basins - §354.28(b)(3)*

Two neighboring groundwater basins share a boundary with the San Luis Obispo Basin; the Los Osos Basin to the northwest, and the Arroyo Grande Subbasin of the Santa Maria Valley Groundwater Basin to the southeast. The shared boundary with both of these basins is not extensive, and the Hydrogeologic Conceptual Model (HCM) posits that a groundwater divide separates the groundwater between those basins and the San Luis Obispo Basin. In the San Luis Valley there have been no trends indicating groundwater declines that would affect the Los Osos Basin. In Edna Valley the areas with observed declines are over two miles downgradient from the Arroyo Grande Subbasin boundary. It is not anticipated that actions associated with the GSP will have any significant impact on either the Los Osos Basin or the Arroyo Grande Subbasin.

Additionally, the SLO Basin GSAs have developed a cooperative working relationship with both the Los Osos Groundwater Basin – Basin Management Committee and the GSAs working in the Arroyo Grande Subbasin. Hydrogeologic conditions near the basin boundaries will be monitored, and any issues potentially affecting those basins will be communicated.

8.4.2.4 *Effects of Minimum Thresholds on Beneficial Users and Land Uses - §354.28(b)(4)*

Agricultural land uses and users

The agricultural stakeholders in the Edna Valley have maintained an active role during the development of this GSP. The groundwater elevation MTs place a practical limit on the acceptable lowering of groundwater levels in the Basin, thus conceptually restricting the current level of agriculture in the region without projects to supplement water supply to the Basin, or management actions to reduce current pumping. In the absence of other mitigating measures, this has been the practical effect of potentially limiting the amount of groundwater pumping in the Basin. Limiting the amount of groundwater pumping could limit the additional amount and type of crops that can be grown in the Basin, which could result in a reduction of economic viability for some properties. The groundwater elevation MTs could therefore limit the Basin's agricultural economy. This could have various effects on beneficial users and land uses:

- There could be an economic impact to agricultural employees and suppliers of agricultural production products and materials, as well as the tourism industry supported by the wineries in the Basin. Many parts of the local economy rely on a vibrant agricultural industry and they too will be hurt proportional to the losses imparted to agricultural businesses.
- Growth of city, county, and state tax rolls could be slowed or reduced due to the limitations imposed on agricultural growth and associated activities.

However, it should be noted that projects and management actions discussed in Chapter 9 will be pursued to allow for alternatives to reductions in agricultural pumping.

Urban land uses and users

The groundwater elevation MTs effectively limit the amount of groundwater pumping in the Basin. However, the MTs in the San Luis Valley are established below currently observed groundwater elevations to allow for reasonable future development of groundwater for potable supply to City residents. If groundwater elevations decline in the immediate vicinity of SLO Creek, this could potentially result in less groundwater discharge to the creek due to areas of interconnected groundwater and surface water.

Impacts to stream flows will be monitored with the augmentation of current data collection programs in San Luis Valley, and the addition of new stream gauges in the Basin.

Domestic land uses and users
The groundwater elevation MTs are established to protect as many domestic wells as possible. Therefore, the MTs will likely have an overall beneficial effect on existing domestic land uses by protecting the ability to pump from domestic wells within the Edna Valley portion of the Basin. However, limited saturated thickness in some localized areas in the Basin of the shallowest domestic wells may require owners to drill deeper wells if water levels are decreased. Additionally, the groundwater elevation MTs may limit the increase of non-de minimis groundwater use in order to limit future declines in groundwater levels caused by non-de minimis domestic pumping.

Ecological land uses and users
Groundwater elevation MTs protect the groundwater resource and the existing ecological habitats that rely upon it because they are set to avoid long term declines in groundwater levels. As noted above, groundwater level MTs may limit increases in non-de minimis and agricultural groundwater uses. Ecological land uses and users may benefit by this reduction in non-de minimis and agricultural groundwater uses.

8.4.2.5 *Relevant Federal, State, or Local Standards - §354.28(b)(5)*
No Federal, State, or local standards exist for chronic lowering of groundwater elevations.

8.4.2.6 *Method for Quantitative Measurement of Minimum Thresholds - §354.28(b)(6)*
Conformance of Basin conditions to the established groundwater elevation MTs will be assessed through direct measurement of water levels from existing RMS. During planned 5-year revisions to this GSP, additional RMS may be stablished for the SMC evaluations, and direct water level measurements at these wells will be the method for quantitative measurement of MTs in the future. Groundwater level monitoring will be conducted in accordance with the monitoring plan outlined in Chapter 7 and will comply with the requirements of the technical and reporting standards included in SGMA regulations.

As noted in Chapter 7, the existing groundwater monitoring network in the Basin includes 12 wells. The GSP monitoring network developed in Chapter 7 increases the groundwater monitoring network to 40 wells to be used for water level measurements.

8.4.3 Measurable Objectives - §354.30(a)-(g)
The MOs for chronic lowering of groundwater levels represent target groundwater elevations that are established to achieve the sustainability goal by 2042. MOs are groundwater levels established at each RMS. MO groundwater levels are higher than MT groundwater levels, and provide operational flexibility above MTs to ensure that the Basin be sustainably managed over a range of climate and hydrologic variability. MOs are subject to change by the GSAs after GSP adoption as new information and hydrologic data become available.

8.4.3.1 *Information and Methods Used for Establishing Chronic Lowering of Groundwater Level Measurable Objectives §354.30(b)*
Preliminary MOs were established based on historical groundwater level data, along with input and desired future groundwater levels from domestic groundwater users, agricultural interests, environmental interests, and other Basin stakeholders. The input and desired conditions were used to formulate a range of alternative MO options, which were discussed by the GSAs and the GSC. Final MOs were voted on by the GSC members to recommend to the GSAs for approval as part of the full GSP.

Preliminary MOs were established based on historical groundwater level data and input regarding desired future groundwater levels from domestic groundwater users, agricultural interests, environmental

interests, and other public stakeholders. The input and desired conditions were used to formulate a range of conceptual MO scenarios. These scenarios were evaluated using the groundwater model developed during this GSP preparation to project the effects of future Basin operation and to select measurable objectives for the GSP.

As previously discussed in Chapter 5 and Section 8.4.2, groundwater conditions in San Luis Valley and Edna Valley are significantly different. Therefore, as with the MTs, the approach to the MOs is different in the two valleys.

San Luis Valley

In San Luis Valley, definition of MOs within the historically observed range of groundwater elevations, but about 20 feet lower than fall 2020 water levels, was considered to preserve the City's desired flexibility to pursue reasonable and managed groundwater development to augment its potable water supply portfolio to serve its customer base. MOs for SLV-09, SLV-16, SLV-19, and SLV-12 were set within the range of historical data, but lower than current water levels (Table 8-1) (Figures 8-1 through 8-4).

Edna Valley

In Edna Valley, if recovery from drought levels is evident (EV-04, EV-09, EV-12), MOs were set at the high-water levels observed immediately prior to the drought (Spring 2011, in most cases) (Figures 8-5 through 8-7). The rationale for this selection was that if the antecedent conditions before the recent drought are replicated, and no significant new groundwater pumping is occurring in the Basin, then the water level declines observed from 2012-2015 in the Basin will not be significantly exceeded in a similar drought. To the extent that groundwater elevations can recover to levels higher than the 2011 levels, the Basin will be more resilient to drought.

For the wells in Edna Valley to monitor surface water/groundwater conditions (EV-01, EV-11), MOs were set at approximately the average of seasonal high water levels over the period of record (Figures 8-8, 8-9). RMS EV-01 shows that similar high water levels occur with regularity during wet periods, going back to the late 1950s. Therefore, this level was selected for the MOs for these wells because they are the naturally occurring water levels that have been observed for decades.

The MO for RMS EV-16, located in the southeast area of Tiffany Ranch Road near the upgradient extent of the Basin, was set slightly below current water levels (Figure 8-7). This approach is to try to prevent further significant reductions in water levels at this location, since it does not appear to have experienced any recovery of water levels since 2015, and needs to maintain sufficient saturated thickness to sustain production for the service area.

Since there is data uncertainty due to significant data gaps, MTs and MOs will be reviewed every 5 years during GSP updates throughout the twenty-year SGMA planning horizon to assess if the RMSs and the assigned MOs and MTs remain protective of sustainable conditions in the Basin. MTs and MOs may be modified in the future as hydrogeologic conditions are monitored through the implementation phase of SGMA.

8.4.3.2 *Interim Milestones §354.30(a)(e)*

Interim milestones (IMs) are required to be included in the GSP. IMs at 5-year intervals for the MOs established at each RMS are included on Table 8-1.

Preliminary IMs were developed for the 10 RMS established for the basin. In San Luis Valley, because there have been no historic declines in water levels, IMs were simply defined as being numerically equivalent to the MO throughout the SGMA period. In Edna Valley, Interim milestones were generally selected to define

a smooth linear increase in water levels between the observed groundwater elevation at the RMS in 2020, and the MO as presented in Table 8-1.

IMs may be adjusted at any time during the SGMA timeline. It is expected that they will be reconsidered at 5-year intervals when the Basin GSP is revised and updated. The monitoring of basin conditions during the initial 5-year period will provide good indicators on if the IMs are close to being met. Failure to meet IMs is not in and of itself an indication of undesired conditions, but is meant to provide information determining whether the 20-year goals are on track to being achieved. Alternative projects and management actions may be considered or pursued if the IMs are not being met. Table 8-1 summarizes the interim milestones for the RMS.

8.5 REDUCTION OF GROUNDWATER STORAGE SUSTAINABILITY INDICATOR §354.28(C)(2)

8.5.1 Undesirable Results

As per §354.26 of the SGMA regulations, locally defined significant and unreasonable conditions were assessed based on review of historical groundwater data and stakeholder input during numerous public meetings, analysis of available data, and discussions with GSA staff. It is recognized based on well-established hydrogeologic principles that the Reduction of Groundwater Storage Sustainability Indicator is directly correlated to the lowering of water level Sustainability Indicator. Significant and unreasonable changes in groundwater storage in the Basin are those that:

- Lead to long-term reduction in groundwater storage.
- Interfere with other Sustainability Indicators.

Assessment of groundwater in storage will initially be evaluated with the same RMS and associated water level MTs and MOs as the chronic lowering of groundwater levels sustainability criteria. As additional data is collected in the monitoring network described in Chapter 7, new RMS may be established, and appropriate SMCs determined by the GSAs.

For the purposes of this GSP, the definition of undesired conditions for the Reduction of Groundwater Storage Sustainability Indicator is as follows:

> *The Basin will be considered to have undesirable results if two or more than two RMS for groundwater storage within a defined area of the Basin (I.e., San Luis Valley or Edna Valley) display exceedances of the MTs for two consecutive Fall measurements. Geographically isolated exceedances will require investigation to determine if local or basin wide actions are required in response.*

8.5.1.1 *Criteria for Establishing Undesirable Results §354.2(b)(2)*

Significant and unreasonable Reduction of Groundwater Storage in the Basin are those that:

- Reduce the ability of existing domestic wells of average depth to produce adequate water for domestic purposes (drought resilience).
- Cause significant financial burden to those who rely on the groundwater basin.
- Interfere with other SGMA Sustainability Indicators.

8.5.1.2 *Potential Causes of Undesirable Results §354.2(b)(1)*

Conditions that could theoretically lead to an undesirable result include the following:

- Continuation of current levels of Edna Valley pumpage without development of additional water supply projects, or development of additional municipal or agricultural pumping at significantly higher rates than are currently practiced. Maintenance of current or additional non-de minimis pumping may result in continued decline in groundwater elevations and exceedance of the proxy minimum threshold..
- Expansion of de minimis pumping. Adding domestic de minimis pumpers in the areas of the Basin administered by the County may result in lower groundwater elevations, and an exceedance of the proxy minimum threshold.
- Extensive, unanticipated drought. Minimum thresholds are established based on reasonable anticipated future climatic conditions. Extensive, unanticipated droughts more severe than those on record may lead to excessively low groundwater recharge and unanticipated high pumping rates that could cause an exceedance of the proxy minimum threshold.

8.5.1.3 *Effects of Undesirable Results on Beneficial Users and Land Uses §354.2(b)(3)*

The effects of these undesirable results on the beneficial users and uses are the same effects as those discussed for the Chronic Lowering of Groundwater Levels Sustainability Indicator.
The primary effects on the beneficial users (§354.26 (b)(3)) occurs from allowing multiple exceedances of the MTs in a small geographic are. Allowing a minimum of two exceedances in a network of 10 RMS wells is reasonable if the exceedances are distributed throughout the Basin. If the exceedances are clustered in a limited area, it indicates that significant unreasonable effects are being experienced by a localized group of landowners. Any exceedances will require investigation to determine the significance and causes of the observed conditions.

8.5.2 Minimum Thresholds §354.28(c)(2)

Section §354.28(c)(2) of the SGMA regulations states that "The minimum threshold for reduction of groundwater storage shall be a total volume of groundwater that can be withdrawn from the basin without causing conditions that may lead to undesirable results. Minimum thresholds for reduction of groundwater storage shall be supported by the sustainable yield of the basin, calculated based on historical trends, water year type, and projected water use in the basin."

This GSP will monitor changes in groundwater level at the RMSs as a proxy for the change in groundwater storage metric. As allowed in §354.36(b)(1) of the SGMA regulations, groundwater elevation data at the RMS will be reported annually as a proxy to track changes in the amount of groundwater in storage.

Based on well-established hydrogeologic principles, stable groundwater elevations maintained above the MTs will limit depletion of groundwater from storage. Therefore, using groundwater elevations as a proxy, the MT is that the groundwater surface elevation averaged across all the wells in the groundwater level monitoring network will remain stable above the MT for chronic lowering of groundwater levels.

In accordance with the SGMA regulation cited above, GSAs have the option of defining the MT metric as a calculated volume of groundwater in storage. As discussed in Chapter 6, separate estimates for total groundwater in storage were generated for the San Luis Valley and Edna Valley using methodology described in Chapter 6. Figure 6-21 presents these estimates. After the monitoring network described in Chapter 7 is established, and several years of water level data have been collected, a robust and repeatable method for directly quantifying groundwater in storage using the monitoring network may be developed and finalized. It is possible that in future versions of the GSP, the MT may be changed to be defined as the directly calculated amount of groundwater in storage. However, for the current 5-year planning horizon, water levels at the RMS will be used as a proxy for the groundwater in storage Sustainability Indicator.

8.5.2.1 *Information and Methods Used for Establishing Reduction of Storage Minimum Thresholds §354.28(b)(1)*

As with the chronic reduction of groundwater levels Sustainability Indicator, the primary source of data that was evaluated for the Sustainability Indicator of reduction of groundwater storage is historical groundwater elevation data maintained by the County. The information used for establishing the MOs and MTs for the chronic lowering of groundwater levels Sustainability Indicator included:

- Historical groundwater elevation data from wells monitored by the County of San Luis Obispo.
- Depths and locations of existing wells.
- Maps of current and historical groundwater elevation data.
- Input from stakeholders regarding significant and unreasonable conditions and desired current and future groundwater elevations communicated during public meetings and solicitation of public comment on various options of MTs and MOs presented in the public forum.
- Results of modeling various project scenarios of future groundwater level conditions.

Storage MTs will be measured by collecting water level measurements at the RMS sites in the monitoring network. The monitoring network and protocols used to measure groundwater elevations at the RMS are presented in Chapter 7. The Water Level Monitoring Network is presented in Figure 7-1. This data will be used to monitor groundwater elevations and assess changes in groundwater storage.

8.5.2.2 *Relationship between Individual Minimum Thresholds and Other Sustainability Indicators §354.28(b)(2)*

The MTs for reduction in groundwater storage is a single value of average groundwater elevation over the entire Basin. Therefore, the concept of potential conflict between MTs at different locations in the Basin is not applicable. The reduction in groundwater storage MT could influence other Sustainability Indicators. The reduction in groundwater storage MT was selected to avoid undesirable results for other Sustainability Indicators, as outlined below:

- **Chronic lowering of groundwater levels.** Because groundwater elevations will be used as a proxy for estimating groundwater pumping and changes in groundwater storage, the reduction in groundwater storage would not cause undesirable results for this Sustainability Indicator.
- **Seawater intrusion.** This Sustainability Indicator is not applicable to this Basin.
- **Degraded water quality.** The minimum threshold proxy of stable groundwater levels is not expected to lead to a degradation of groundwater quality.
- **Subsidence.** Because future average groundwater levels will be stable, they will not induce any additional subsidence.
- **Depletion of interconnected surface waters.** Groundwater levels measured at representative monitoring wells (SLV-12, EV-01, EV-11) will serve as a proxy for depletion of interconnected surface water. In addition, stream flow gages along SLO Creek will continue to measure surface water conditions in San Luis Valley, and proposed stream gages along Corral de Piedras Creek will serve to generate information on surface water inflow and outflow in Edna Valley, allowing for direct measurement of surface water gains and losses to the groundwater systems based on future hydrologic and pumping conditions in the Basin. However, MTs along the creeks are defined to avoid significant water declines in these areas, with the goal of minimizing any potential significant depletion of interconnected surface water flows.

8.5.2.3 *Effects of Minimum Thresholds on Neighboring Basins §354.28(b)(3)*

Two neighboring groundwater basins share a boundary with the SLO Basin; the Los Osos Basin to the northwest, and the Arroyo Grande sub-basin of the Santa Maria Valley Groundwater Basin to the southeast. Neither of these shared boundaries are extensive, and the HCM posits that a groundwater divide separates the groundwater between them and the SLO Basin. In the San Luis Valley there have been no

trends indicating groundwater declines that would affect the Los Osos Basin. In Edna Valley the areas with observed declines are one to two miles from the Arroyo Grande Basin boundary in a downgradient direction. It is not anticipated that actions associated with the GSP will have any significant impact on either the Los Osos Basin or the Arroyo Grande Basin.

The SLO Basin GSAs have developed a cooperative working relationship with the Los Osos Groundwater Basin – Basin Management Committee and the GSAs working in the Arroyo Grande Subbasin. Groundwater conditions near the borders with these basins will be monitored and shared.

8.5.2.4 *Effects of Minimum Thresholds on Beneficial Uses and Users §354.28(b)(4)*

The MT for reduction in groundwater storage will maintain stable average groundwater elevations, but may require a reduction in the amount of groundwater pumping in the Basin, or development of sources of supplemental water as discussed in Chapter 9. Reducing pumping may impact the beneficial uses and users of groundwater in the Basin.

The practical effect of this GSP for protecting against the reduction in groundwater storage undesirable result is that it encourages minimal long-term net change in groundwater elevations and storage. Seasonal and drought cycle variations are expected, but during average conditions and over the long-term, beneficial users will have access to adequate volumes of water from the aquifer to service the needs of all water use sectors. The beneficial users of groundwater are protected from undesirable results.

Agricultural Land Uses and Users

The MT for reduction in groundwater storage may limit or reduce non-de minimis production in the Basin by reducing the amount of available water. The practical effect of these MTs on agricultural users is that current levels of agricultural pumping may not be sustainable without development of additional sources of water to the Basin. Owners of undeveloped agricultural lands that are currently not irrigated may be particularly impacted because the additional groundwater pumping needed to irrigate these lands could increase the Basin pumping beyond the sustainable yield, violating the MT. Existing agricultural operations may also be limited in their use of more water-intensive crops, expansion of existing irrigated lands, and by periods of extended drought that decrease the quantity of water naturally returning to the basin.

Urban Land Uses and Users

Potential future increases of groundwater pumping in the City of San Luis Obispo could decrease the cost of water for municipal users in the City, because groundwater may be the cheapest water supply alternative. However, in order to avoid undesirable results, the City is unlikely to pursue groundwater pumping in the quantity that it did during the 1980s-90s drought without the use of groundwater recharge.

Domestic Land Uses and Users

Existing domestic groundwater users may generally benefit from this MT. Many domestic groundwater users are de-minimis users whose pumping may not be restricted by the projects and management actions adopted in this GSP. By restricting the amount of groundwater that is pumped from the Basin, the de-minimis users would be protected from overdraft that could impact their ability to pump groundwater or require them to drill deeper wells.

Ecological Land Uses and Users.

Groundwater dependent ecosystems would generally benefit from this MT. Maintaining groundwater levels close to current levels keeps groundwater supplies near present levels, which will continue to support groundwater dependent ecosystems.

8.5.2.5 *Relation to State, Federal, or Local Standards §354.28(b)(5)*

No federal, state, or local standards exist for reductions in groundwater storage.

8.5.2.6 *Methods for Quantitative Measurement of Minimum Threshold §354.28(b)(6)*

The quantitative metric for assessing compliance with the reduction in groundwater storage MT is monitoring groundwater elevations. The approach for quantitatively evaluating compliance with the MT for reduction in groundwater storage will be based on evaluating groundwater elevations semi-annually. All groundwater elevations collected from the groundwater level monitoring network will be analyzed and averaged.

In the future, after the monitoring network is established and multiple years of data are available for analysis, a robust and repeatable method for calculating groundwater in storage utilizing the monitoring well network may be developed and finalized. At that time, the metric for defining the SMC of reduction of groundwater in storage may possibly be changed to direct calculation of groundwater in storage for the two areas of the basin, but this will be reviewed after additional data has been collected during the implementation phase of the GSP.

8.5.3 Measurable Objectives §354.30(a)-(g)

The change in storage Sustainability Indicator uses groundwater levels as a proxy for direct calculation of groundwater in storage. The same MTs and MOs are used as are defined in the chronic lowering of groundwater level indicator to protect against significant and unreasonable reduction in groundwater storage.

8.5.3.1 *Information and Methods Used for Establishing Reduction of Groundwater Storage Measurable Objectives §354.30(b)*

Input from stakeholders suggested that they would prefer more groundwater in storage to maintain resiliency against future droughts. Therefore, the conservative approach of simply maintaining stable groundwater levels was adopted for the MO. MOs for the RMS are identical to the MOs for the chronic lowering of groundwater elevations MOs (Table 8-1).

8.5.3.2 *Interim Milestones §354.30(a)(e)*

Interim milestones for groundwater storage are the same as those established for chronic lowering of groundwater elevations. Achieving the groundwater elevation interim milestones will also eliminate long term reductions in groundwater in storage. Interim milestones are included on Table 8-1.

8.6 SEAWATER INTRUSION SUSTAINABILITY INDICATOR §354.28(C)(3)

This Sustainability Indicator does not apply to the Basin since the Basin is not a coastal basin.

8.7 DEGRADATION OF GROUNDWATER QUALITY SUSTAINABILITY INDICATOR §354.28(C)(4)

The purpose of the Degraded Water Quality Indicator in SGMA is to prevent any degradation in groundwater quality as a result of groundwater management under the GSP. SGMA is not intended to serve as impetus to improve water quality within the Basin. The Basin's current water quality is not considered degraded. For these reasons, the SMC in this section are set to maintain current conditions in the Basin, protecting from potential degradation as a result of groundwater management under this GSP.

8.7.1 Undesirable Results §354.26(a)-(d)

Section §354.28(c)(2) of the SGMA regulations states that "The minimum threshold shall be based on the number of supply wells, a volume of water, or a location of an isocontour that exceeds concentrations of constituents determined by the Agency to be of concern for the basin."

By SGMA regulations, the Degraded Groundwater Quality undesirable result is a quantitative combination of groundwater quality minimum threshold exceedances. The undesirable results for the Degraded Water Quality Sustainability Indicator as defined for the purposes of this GSP are as follows:

> *The Basin will be considered to have Undesirable Results if, for any year, an increase in groundwater quality minimum threshold exceedances are observed at 20 percent or more of the representative monitoring sites in the Basin, in relation to 2015 Basin conditions, as a result of groundwater management implemented as part of the GSP.*

The undesirable conditions for degraded water quality in the Basin are based on the goal of fewer than 20% of the RMSs for water quality exceedances that can occur as a result of GSP groundwater management activities over the next 5-year management period. Based on the current number of wells in the existing water quality monitoring network described in Chapter 7, the percentage defined equates to a maximum of two wells that can exceed the minimum thresholds.

Specifics regarding the definition of the MTs used in defining the Undesirable Results are detailed in the following sections. A summary of the MTs defined for the Degradation of Water Quality Sustainability Indicator are presented in Table 8.2.

Table 8-2. San Luis Obispo Basin Groundwater Basin Water Quality Minimum Thresholds

SLO Groundwater Basin				
ID	TDS MT (ppm)	NO3 MT (ppm)	Arsenic MT (ppb)	TCE, PCE (ppb)
WQ-1	900	10	10	5
WQ-2	900	10	10	5
WQ-3	900	10	10	5
WQ-4	900	10	10	5
WQ-5	900	10	10	5
WQ-6	900	10	10	5
WQ-7	900	10	10	5
WQ-8	900	10	10	5
WQ-9	900	10	10	5

8.7.1.1 *Criteria for Establishing Undesirable Results §354.26(b)(2)*

Criteria used to establish the Undesirable Results for Degraded Water Quality Sustainability Indicator are observed water quality data and trends that:

- Reduce capacity of public water supply systems or unreasonably increase costs for public or private water supply.
- Reduce crop production.
- Result in constituent concentrations above regulatory primary drinking water standards at supply wells.
- Results in constituent concentrations above the RWQCB Basin Objectives for secondary standards (TDS)

8.7.1.2 *Potential Causes of Undesirable Results §354.26(b)(1)*

Conditions that may lead to an undesirable result include the following:

- Changes to Basin Pumping: If the location and rates of groundwater pumping change as a result of projects implemented under the GSP, these changes could cause movement of one of the constituents of concern towards a supply well at concentrations that exceed relevant water quality standards.
- Groundwater Recharge: Active recharge with imported water or captured runoff could cause movement of one of the constituents of concern towards a supply well in concentrations that exceed relevant water quality standards.
- Recharge of Poor-Quality Water: Recharging the Basin with water that exceeds a primary or secondary MCL or concentration that reduces crop production could lead to an undesirable result. However, permitting requirements generally preclude this circumstance.

8.7.1.3 *Effects of Undesirable Results on Beneficial Users and Land Uses §354.26(b)(3)*

As defined in this GSP, undesirable results are established to prevent degradation of water quality within the Basin prior to the implementation of any actions inherent in the management of groundwater in the Basin. This limits the potential impacts of undesirable water quality on beneficial users in the Basin. However, potential effects of undesirable results include:

- Increased water treatment costs for public or private supply wells
- Reduced agricultural production

8.7.2 Minimum Thresholds § 354.28(c)(4)

8.7.2.1 *Information and Methods Used for Establishing Degradation of Water Quality Minimum Thresholds § 354.28 (b)(1)*

Locally defined significant and unreasonable conditions were assessed based on federal and state mandated drinking water and groundwater quality regulations, the Sustainable Management Criteria survey, public meetings, and discussions with GSA staff. Significant and unreasonable changes in groundwater quality in the Basin are increases in a chemical constituent that either:

- Result in groundwater concentrations in a public supply well above an established primary or secondary MCL, or
- Lead to reduced crop production.

The information used for establishing the degraded groundwater quality minimum thresholds included:

- Historical groundwater quality data from production wells in the Basin
- Federal and state primary drinking water quality standards
- RWQCB Basin objectives for groundwater quality (2019) for TDS
- Feedback about significant and unreasonable conditions from GSC members, GSA staff members, and public stakeholders

The historical groundwater quality data used to evaluate groundwater quality minimum thresholds are presented in Chapter 5 (Figures 5-16 through 5-18).

As stated in Section 8.7.1, the SGMA regulations allow three options to develop an approach for setting degraded water quality minimum thresholds (number of wells, volume of water, or location of concentration isocontour). In the Basin, degraded water quality minimum thresholds are based on EPA-published water quality standards (EPA, 2018) for constituents of concern with a primary or secondary MCL is to avoid degrading the existing water quality with respect to these constituents in the Basin. (Primary standards refer to chemical constituents in groundwater with a potential impact on human health; secondary standards refer to constituents that may affect taste or odor of drinking water.)

As noted in Section 354.28 (c)(4) of the SGMA regulations, minimum thresholds are based on a degradation of groundwater quality, not an improvement of groundwater quality. Therefore, this GSP was developed to avoid taking actions that may inadvertently move groundwater constituents that have already been identified in the Basin in such a way that they have a significant and unreasonable impact that would not otherwise occur.

Based on the review of groundwater quality in Chapter 5, water quality in the basin is generally good. The primary constituents of concern that exist for both agricultural wells and public supply wells are:

- Total Dissolved Solids (TDS)
- Nitrate
- Arsenic
- Volatile Organic Compounds (PCE and TCE)

As noted in Section 5.6.3, based on available information there are two known groundwater contamination plumes in the Basin: The TCE plume along Buckley Road south of the airport, and a PCE plume within the City. Both of these cases are under active investigation with oversight by the RWQCB.

The MTs for the constituents of concern are presented in Table 8-2.

8.7.2.2 *Relation of Minimum Thresholds to Other Sustainability Indicators § 354.28(b)(2)*

The groundwater quality minimum thresholds were set for each of four constituents previously discussed. These minimum thresholds were derived from existing data measured at individual wells and applicable regulatory criteria. There are no conflicts between the existing groundwater quality data. Because the underlying groundwater quality distribution is reasonable and realistic, there is no conflict that prevents the Basin from simultaneously achieving all minimum thresholds.

No actions regarding the MTs for Water Quality will directly influence other Sustainability Indicators. However, preventing migration of poor groundwater quality (for example, actions required to prevent additional migration of contaminant plumes) could theoretically limit activities needed to achieve minimum thresholds for other Sustainability Indicators, as discussed below:

- **Change in groundwater levels.** Groundwater quality minimum thresholds could influence groundwater level minimum thresholds by limiting the types of water that can be used for recharge to raise groundwater levels or locations where it could be recharged. Water used for recharge cannot exceed any of the groundwater quality minimum thresholds.
- **Change in groundwater storage.** Nothing in the groundwater quality minimum thresholds promotes pumping in excess of the sustainable yield. The groundwater quality minimum thresholds will not result in an exceedance of the groundwater storage minimum threshold.
- **Seawater intrusion.** This Sustainability Indicator is not applicable to this basin.
- **Subsidence.** Nothing in the groundwater quality minimum thresholds promotes a condition that will lead to additional subsidence and therefore, the groundwater quality minimum thresholds will not result in a significant or unreasonable level of subsidence.
- **Depletion of interconnected surface waters.** Nothing in the groundwater quality minimum thresholds promotes additional pumping or lower groundwater elevations in areas where interconnected surface waters may exist. Therefore, the groundwater quality minimum thresholds will not result in a significant or unreasonable depletion of interconnected surface waters.

8.7.2.3 *Effect of Minimum Thresholds on Neighboring Basins § 354.28(b)(3)*

Because there is a groundwater divide between the SLO Basin and the adjacent Los Osos Basin and Arroyo Grande sub-basin, there is no anticipated effect of the degraded groundwater quality minimum thresholds on each of the two neighboring Basins.

8.7.2.4 *Effects of Minimum Thresholds on Beneficial Users and Land Uses § 354.28(b)(4)*

The practical effect of the MTs for the Degraded Groundwater Quality Sustainability Indicator is that it deters any significant long-term changes to groundwater quality in the Basin. Therefore, Basin management that prevents the undesirable results from occurring will not constrain the use of groundwater, nor have a negative effect on the beneficial users and uses of groundwater.

Agricultural land uses and users. The degraded groundwater quality minimum thresholds generally benefit the agricultural water users in the Basin by maintaining groundwater quality suitable for use in agriculture. For example, limiting the number of additional agricultural supply wells that may exceed constituent of concern concentrations (for example, TDS) that could reduce crop production ensures that a supply of usable groundwater will exist for beneficial agricultural use.

Urban land uses and users. The degraded groundwater quality minimum thresholds generally benefit the urban water users in the Basin. Limiting the number of additional wells where constituents of concern could exceed primary or secondary MCLs ensures an adequate supply of quality groundwater for municipal use. Management of the Basin to prevent occurrences of these MTs may also result in lowered costs for water treatment. Existing State, Federal, Public Health or Municipal regulations may require that a well not be used if MCLs are exceeded and may supersede any actions related to SGMA-related MT exceedances. Wells in violation of federal, state, and local water quality regulations will have to comply with the specific regulations.

Domestic land uses and users. The degraded groundwater quality minimum thresholds generally benefit the domestic water users in the Basin by maintaining current and acceptable water quality.

Ecological land uses and users. Although the groundwater quality minimum thresholds do not directly benefit ecological uses, it can be inferred that the degraded groundwater quality minimum thresholds generally benefit the ecological water uses in the Basin. Preventing constituents of concern from migrating will prevent unwanted contaminants from impacting ecological groundwater supply.

8.7.2.5 *Relevant Federal, State, or Local Standards § 354.28(b)(5)*

The Degraded Groundwater Quality minimum thresholds specifically incorporate federal and state drinking water standards.

8.7.2.6 *Method for Quantitative Measurement of Minimum Thresholds § 354.28(b)(6)*

The Degraded Groundwater Quality minimum thresholds will be directly measured using analytical laboratory results of sampling conducted at the RMSs of the Water Quality Monitoring Network presented in Chapter 7. Groundwater quality will initially be measured using existing monitoring programs.

- Exceedances of primary or secondary MCLs will be monitored by reviewing water quality reports submitted to the California Division of Drinking Water by municipalities and small water systems for the wells that are included in the Water Quality Monitoring Network.

8.7.3 Measurable Objectives § 354.30(a)-(g)

Groundwater quality should not be degraded due to actions taken under this GSP and, therefore, the measurable objectives are defined as zero exceedances as a result of groundwater management, in samples from the Water Quality Monitoring Network wells over the 20-year SGMA planning horizon.

8.7.3.1 *Information and Methods Used for Establishing Degradation of Water Quality Measurable Objectives § 354.30(b)*

Because protecting groundwater quality is important to the beneficial users and uses of the resource, the measurable objective for the Degradation of Water Quality Sustainability Indicator is defined as zero exceedances of the MTs over the 20-year SGMA planning horizon. Any exceedance will be reviewed by the GSAs to determine its significance and potential responses.

8.7.3.2 *Interim Milestones § 354.28(a)(e)*

Interim milestones show how the GSAs anticipate moving from current conditions to meeting the measurable objectives. For water quality, measurable objectives are set at the current number of water quality exceedances, which in this case is zero. Interim milestones are set for each five-year interval following GSP adoption. The interim milestones for degraded groundwater quality are defined as zero exceedances of the MT for each constituent of concern for 5, 10 and 15 years after GSP adoption.

8.8 LAND SUBSIDENCE SUSTAINABILITY INDICATOR § 354.28(C)(5)

8.8.1 Undesirable Results § 354.26(a)-(d)

Locally defined significant and unreasonable conditions for the Land Subsidence Sustainability Indicator were assessed based on public meetings and discussions with GSA staff. Significant and unreasonable rates of land subsidence in the Basin are those that lead to a permanent subsidence of land surface elevations that impact infrastructure. For clarity, this Sustainable Management Criterion references two related concepts:

- Land Subsidence is a gradual settling of the land surface caused by, among other processes, compaction of subsurface materials due to lowering of groundwater elevations from groundwater pumping. Land subsidence from dewatering subsurface clay layers can be an inelastic process, and the potential decline in land surface could be permanent.

- Land Surface Fluctuation is the periodic or annual measurement of the ground surface elevation. Land surface may rise or fall in any one year. Declining land surface fluctuation may or may not indicate long-term permanent subsidence.

Subsidence was documented in the Los Osos Valley in the early 1990s. Currently, InSAR data provided by DWR shows that significant land subsidence did not occur in the Basin during the period between June 2015 and June 2018.

By regulation, the ground surface Land Subsidence undesirable result is a quantitative combination of subsidence minimum threshold exceedances. For the Basin, no long-term subsidence that impacts infrastructure (including commercial buildings, homes, utility infrastructure, etc.) is acceptable. The Undesirable Results for the land subsidence Sustainability Indicator as defined for the purposes of this GSP are as follows:

> *The Basin will be considered to have Undesirable Results if measured subsidence using InSAR data, between June of one year and June of the subsequent year is greater than 0.1 foot in any 1-year, or a cumulative 0.5 foot in any 5-year period, as a result of groundwater management under the GSP, or any long-term permanent subsidence is attributable to groundwater management.*

Should potential subsidence be observed, the GSAs will first assess whether the subsidence may be due to elastic processes. If the subsidence is not elastic, the GSAs will undertake a program to correlate the observed subsidence with measured groundwater levels.

8.8.1.1 *Criteria for Establishing Undesirable Results § 354.26(b)(2)*
Criteria used to establish the Undesirable Results for Land Subsidence Sustainability Indicator are satellite-measured subsidence data (InSAR data) collected by DWR.

8.8.1.2 *Potential Causes of Undesirable Results § 354.26(b)(1)*
Conditions that may lead to an undesirable result include:

- A shift in pumping locations, which could lead to a substantial decline in groundwater levels.
- Shifting a significant amount of pumping and causing groundwater levels to fall in an area that is susceptible to subsidence, such as certain areas underlaying the City, could trigger subsidence in excess of the minimum threshold.

8.8.1.3 *Effects of Undesirable Results on Beneficial Users and Land Uses § 354.26(b)(3)*
The effects of these undesirable results on the beneficial users and uses (§354.26 (b)(3)) include the damage of critical infrastructure, and the damage of private or commercial structures that would adversely affect their uses. Staying above the minimum threshold will avoid the subsidence undesirable conditions.

8.8.2 Minimum Thresholds § 354.28(c)(5)
Section 354.28(c)(5) of the SGMA regulations states that "The minimum threshold for land subsidence shall be the rate and extent of subsidence that substantially interferes with surface land uses and may lead to undesirable results."

Based on an analysis of potential errors in the InSAR data, as discussed in the following section, the subsidence minimum threshold is: The InSAR measured subsidence between June of one year and June of the subsequent year shall be no more than 0.1 foot in any single year and a cumulative 0.5 foot in any five-year period, resulting in no long-term permanent subsidence.

Although InSAR data is the official minimum threshold value for the land subsidence Sustainability Indicator, the GSAs have included one well to monitor for water levels as a proxy for potential subsidence. Regular data collection from this well could alert the GSAs to conditions that may lead to subsidence before InSAR data are available. RMS SLV-09 along Los Osos Valley Road is in the area of the basin that experienced significant subsidence in the early 1990s. Therefore, this well has been selected to monitor for conditions that could lead to subsidence. The minimum threshold for this well is set at 102 feet, 15 feet higher than the observed low water level in the early 1990s.

8.8.2.1 *Information and Methods Used for Establishing Land Subsidence Minimum Thresholds § 354.28(b)(1)*
Minimum thresholds were established to protect groundwater supply, land uses and property interests from substantial subsidence that may lead to undesirable results. Changes in surface elevation are measured using InSAR data available from DWR. The general minimum threshold is the absence of long-term land subsidence due to pumping in the Basin. The InSAR data provided by DWR, however, are subject to measurement error. DWR has stated that, on a statewide level, for the total vertical displacement measurements between June 2015 and June 2018, the errors are as follows (GSP, Paso Robles Basin, 2020):

1. The error between InSAR data and continuous GPS data is 16 mm (0.052 feet) with a 95% confidence level.
2. The measurement accuracy when converting from the raw InSAR data to the maps provided by DWR is 0.048 feet with 95% confidence level.

For the purposes of this GSP, the errors for InSAR data is considered the sum of errors 1 and 2, combined total error of 0.1 foot. Thus, measured land surface change of greater than 0.1 feet will be assessed as potential subsidence. As discussed previously, land surface elevations can fluctuate naturally. Therefore, subsidence will be monitored at the same time each year to reduce the effect of general fluctuations of elevation on observed data. Additionally, if subsidence is observed, a correlation to lowered groundwater elevations at RMS SLV-09 must exist for the minimum threshold to be exceeded.

Locally defined significant and unreasonable conditions are assessed based on historically observed water levels in areas of known past land subsidence, satellite-based measurements of land subsidence provided by DWR, public meetings, and discussions with GSA staff.

8.8.2.2 *Relation of Minimum Thresholds to Other Sustainability Indicators § 354.28(b)(2)*
Land Subsidence minimum thresholds have little or no impact on other minimum thresholds, as described below:

- **Chronic lowering of groundwater elevations.** The Land Subsidence minimum thresholds will not result in significant or unreasonable groundwater elevations.
- **Change in groundwater storage.** The Land Subsidence minimum thresholds will not change the amount of pumping, and will not result in a significant or unreasonable change in groundwater storage.
- **Seawater intrusion.** This Sustainability Indicator is not applicable in the Basin.
- **Degraded water quality.** The Land Subsidence minimum thresholds will not change the groundwater flow directions or rates, and therefore and will not result in a significant or unreasonable change in groundwater quality.
- **Depletion of interconnected surface waters.** The Land Subsidence minimum thresholds will not change the amount or location of pumping and will not result in a significant or unreasonable depletion of interconnected surface waters.

8.8.2.3 *Effect of Minimum Thresholds on Neighboring Basins § 354.28(b)(3)*
The ground surface subsidence minimum thresholds are set to prevent any long-term subsidence that could harm infrastructure. Therefore, the subsidence minimum thresholds will not prevent the Los Osos Basin or the Arroyo Grande Basin from achieving sustainability.

8.8.2.4 *Effects of Minimum Thresholds on Beneficial Users and Land Uses § 354.28(b)(4)*
The Land Subsidence minimum thresholds are set to prevent subsidence that could harm infrastructure. Available data indicate that there is currently no subsidence occurring in the Basin that affects infrastructure, and reductions in pumping are already required by the reduction in groundwater storage Sustainability Indicator. Therefore, the Land Subsidence minimum thresholds do not require any additional reductions in pumping. However, in general the amount of pumping in the Los Osos Valley Road area must be kept at levels significantly lower than implemented in the 1990s.

Staying above the minimum threshold will avoid the Land Subsidence undesirable result and protect the beneficial uses and users from impacts to infrastructure and interference with surface land uses.

8.8.2.5 *Relevant Federal, State, or Local Standard § 354.28(b)(5)*
There are no federal, state, or local regulations related to subsidence.

8.8.2.6 *Method for Quantitative Measurement of Minimum Thresholds § 354.28(b)(6)*
Minimum thresholds will be assessed using DWR-supplied InSAR data.

8.8.3 Measurable Objectives § 354.30(a)-(g)

The measurable objectives for subsidence represent target subsidence rates in the Basin. Long-term ground surface elevation data do not suggest the occurrence of permanent subsidence in the Basin. Therefore, the measurable objective for subsidence is maintenance of current ground surface elevations.

8.8.3.1 *Information and Methods Used for Establishing Land Subsidence Measurable Objectives 0§ 354.3(b)*

The measurable objectives are set based on maintaining current conditions and changes are measured by DWR-supplied InSAR data.

8.8.3.2 *Interim Milestones § 354.28(a)(e)*

Interim milestones show how the GSAs anticipate moving from current conditions to meeting the measurable objectives. Interim milestones are set for each five-year interval following GSP adoption. Land Subsidence measurable objectives are set at current conditions of no long-term subsidence. There is no change between current conditions and sustainable conditions. Therefore, the interim milestones are identical to the minimum thresholds and measurable objectives.

8.9 DEPLETION OF INTERCONNECTED SURFACE WATER SUSTAINABILITY INDICATOR § 354.28(C)(6)

Natural hydraulic connections can exist between shallow groundwater systems and some surface water bodies. These surface water bodies can be gaining (receiving discharge from the alluvial aquifer) or losing (discharging water to the alluvial aquifer). These relationships may change in magnitude and direction across wet and dry cycles, and in response to changes in surface water operations or groundwater management practices.

Depletions of interconnected surface water occurs when there are decreased gains or increased losses in volumes of streamflow caused by lowered groundwater elevations associated with groundwater use. At certain levels, depletions may have adverse impacts on beneficial uses of the surface water and may lead to undesirable results.

Direct measurement of flux between an aquifer and an interconnected stream is not feasible using currently available data. A number of proposals to improve the collection of surface water and interconnected groundwater data are discussed in Chapter 7 (Monitoring Networks), and proposed details for these tasks are discussed in Chapter 10 (Implementation Plan). Until immediately adjacent such time as this data is available, this GSP uses water level measurements in representative wells located immediately adjacent to Basin creeks as the SMCs for the Depletion of Interconnected Surface Water Sustainability Indicator.

8.9.1 Undesirable Results § 354.26(a)-(d)

The undesirable result for Depletions of Interconnected Surface Water is a result that causes significant and unreasonable adverse effects on beneficial uses of interconnected surface water within the Basin over the planning and implementation horizon of this GSP. As discussed in Section 8.9, measurement of the fluxes between the aquifer and Basin creeks is not feasible with currently available data. Therefore, water level measurements at the RMSs designated for the Depletion of Interconnected Surface Water Sustainability Indicator will be used as the basis MTs and Undesirable Results until better data becomes available under future monitoring activities.

The statement defining undesirable results for the Depletion of Interconnected Surface Water for this GSP is as follows:

The Basin will be considered to have undesirable results if any of the representative wells monitoring groundwater/surface water interaction display exceedances of the minimum threshold values for two consecutive Fall measurements.

8.9.1.1 *Criteria for Establishing Undesirable Results § 354.26(b)(2)*

Criteria used to define undesired conditions for this Sustainability Indicator are those that:

- Impact the ability of the stream system to meet instream flow requirements and maintain groundwater dependent ecosystems (GDEs)
- Impact the ability to provide surface water supplies to direct diverters
- Interfere with other SGMA Sustainability Indicators.

The information used for establishing the criteria for undesirable results for the Depletion of Interconnected Surface Water Sustainability Indicator is water levels data collected from three RMS wells (i.e., SLV-12 and EV-01, and EV-11) that are located immediately adjacent to San Luis Obispo and Corral de Piedras Creek systems. For the present, water levels in these wells will be used as a proxy indicator of undesirable results.

8.9.1.2 *Potential Causes of Undesirable Results § 354.26(b)(1)*

Potential causes of undesirable results include increases in pumping in the proximity of a Basin creeks, or instream projects that could alter the natural flow regimes of the creeks.

8.9.1.3 *Effects of Undesirable Results on Beneficial Users and Land Uses § 354.26(b)(3)*

If depletions of interconnected surface water were to reach undesirable results, adverse effects could include the reduced ability of the stream flows to meet instream flow requirements for local fisheries and critical habitat, or reduced ability to deliver surface water supplies to direct users of surface water in the Basin.

8.9.2 Minimum Thresholds

Section 354.28(c)(6) of the SGMA regulations states that "The minimum threshold for depletions of interconnected surface water shall be the rate or volume of surface water depletions caused by groundwater use that has adverse impacts on beneficial uses of the surface water and may lead to undesirable results."

Current data are insufficient to determine the rate or volume of surface water deletions in the creeks. Therefore, groundwater elevations in the RMSs intended to monitor surface water/groundwater interaction (SLV-12, EV-01, EV-11) are used as a proxy for the Depletion of Interconnected Surface Water Sustainability Indicator. If in the future, data from a more comprehensive monitoring program (as discussed in chapter 7 and Chapter 10) succeed in quantifying surface water depletions, those data may be used to re-define minimum thresholds for areas of interconnection. Minimum thresholds for these representative wells are presented in Table 8-1 and Figures 8-4, 8-98, and 8-10.

RMS EV-01 is located along West Corral de Piedras Creek just where it enters the Basin, and EV-11 (Greengate) is located near the junction of East and West Corral de Piedras, near the outlet of the Basin. These wells are screened at least partially in the alluvial sediments associated with the creek, and therefore, reflect groundwater conditions in the alluvial sediments. Hydrographs for these wells display seasonal fluctuation of about 50 feet, which occur during wet and dry climatic periods. To avoid management conditions that allow for lower groundwater elevations than those historically observed, MTs for these wells were set at the historic low water levels indicated on the hydrographs, which occur with regularity during every extended dry period evident in the record (Figures 8-9, 8-10).

San Luis Obispo Creek is a significant feature in the Basin. It is an unregulated (I.e., undammed) creek. Some reaches of San Luis Obispo Creek in the Basin have been observed to maintain flow year-round, and some reaches go dry in the summer. A more extensive description and quantification of the stream/aquifer interaction is included in Chapter 5 – Groundwater Conditions and Chapter 6 – Water Budget. The water budget shows that flow conditions in the creek are highly variable depending on rainfall events and the hydrologic year type. In wetter years, when flows in the San Luis Obispo Creek are high there is greater amounts of discharge from the creek to the groundwater system. In drier years, when flows in the San Luis Obispo Creek are low, there is less stream recharge to the groundwater system. In both cases the amount of flux between the surface water and the groundwater system is small compared to the volume of water flowing down the creek. Inspection of hydrographs for RMS SLV-12, intended to monitor conditions along near San Luis Obispo Creek (Figure 8-4) do not indicate any significant declines of water levels since the drought of the early 1990s. Therefore, this data suggests that the mechanisms of surface water/groundwater interaction at this location have not been negatively impacted since the early 1990s.

East and West Corral de Piedras Creeks meet to form Pismo Creek just south of the basin boundary in Edna Valley. Corral de Piedras Creeks are significant features in the Edna Valley portion of the SLO Basin. West Corral de Piedras is affected by a private dam that impounds water at the Righetti Reservoir upstream from the basin. To the extent that captured flows impounded in Righetti Reservoir do not naturally flow downstream, the amount of stream flow is reduced and ancillary basin recharge via streamflow percolation is less than it would be under natural (I.e., undammed) conditions in the Edna Valley. East and West Corral de Piedras Creeks in the Basin are not observed to maintain flow year-round in most of the Basin. Inspection of hydrographs for RMS EV-01, intended to monitor conditions near West Corral de Piedras Creeks where it enters the Basin (Figure 8-9, 8-10) indicate highly seasonal groundwater conditions which fluctuate between well-established high points near ground surface and low points significantly deeper than the assumed creek bed elevation, and do not reflect any significant long-term declines of water levels in the observed period of record dating back to the late 1950s. This hydrograph pattern indicates that surface water in Corral de Piedras Creeks recharges the underlying aquifer when the creek is flowing, and is disconnected from the underlying aquifer system when the creek is dry.

As described in Chapter 4, Hydrogeologic Conceptual Model and Chapter 5, Groundwater Conditions, there are insufficient data to quantitatively assess the extent of the connection between surface water and groundwater in the Basin. As described in Chapter 7, Monitoring Networks, a more expansive monitoring network will be developed during GSP implementation to improve understanding of interconnection between surface water and groundwater in the Basin. Chapter 10 (Implementation Plan) addresses details of the plan to accumulate better data for this Sustainability Indicator. If in the future, better data are generated to quantify the connection between surface water and groundwater, undesirable results may be revised to reflect this data. However, for this GSP, groundwater elevations in SLV-12, EV-01, and EV-11 will be used as a proxy for the Depletion of Interconnected Surface Water Sustainability Indicator.

8.9.2.1 *Information and Methods Used for Establishing Depletion of Interconnected Surface Water Minimum Thresholds*

As with the other Sustainability Indicators, the primary methods for development of SMCs for this Sustainability Indicator is monitoring of groundwater elevations in the three RMSs established for the purpose of monitoring hydrogeologic conditions in the adjacent creeks.

As with the chronic reduction of groundwater levels Sustainability Indicator, the primary source of data that was evaluated for the Depletion of Interconnected Surface Water Sustainability Indicator is historical groundwater elevation data maintained by the GSAs. The information used for establishing the MOs and MTs for the chronic lowering of groundwater levels Sustainability Indicator included:

- Historical groundwater elevation data from wells monitored by the County of San Luis Obispo.
- Construction details of RMS wells
- Long-term trends displayed in hydrographs of the RMS wells identified for this Sustainability Indicator.

The use of groundwater elevation as a proxy metric for the Depletion of Interconnected Surface Water Sustainability Indicator is adopted given the challenges and cost of direct monitoring of depletions of interconnected surface water. The depletion of interconnected surface water is driven by the gradient between water surface elevation in the surface water body and groundwater elevations in the connected, shallow groundwater system. By defining minimum thresholds in terms of groundwater elevations in shallow groundwater wells near surface water, the GSAs will monitor and manage this gradient, and in turn, manage potential changes in depletions of interconnected surface.

8.9.2.2 *Relationship between Individual Minimum Thresholds and Other Sustainability Indicators*

The MTs for the Depletion of Interconnected Surface Water Sustainability Indicator are defined as the lowest water levels observed in the period of record for each of the three RMSs. Therefore, the concept of potential conflict between MTs at different locations in the Basin is not applicable. The Depletion of Interconnected Surface Water Sustainability Indicator could influence other Sustainability Indicators. The Depletion of Interconnected Surface Water Sustainability Indicator MTs was selected to avoid undesirable results for other Sustainability Indicators, as outlined below:

- **Chronic lowering of groundwater levels.** Because groundwater elevations will be used as a proxy for estimating Depletion of Interconnected Surface Water Sustainability Indicator, and the definitions of the MTs are set at historically observed conditions, the MTs will not cause undesirable results for this Sustainability Indicator.
- **Depletion of Groundwater Storage.** Because groundwater elevations will be used as a proxy for estimating Depletion of Interconnected Surface Water Sustainability Indicator, and the definitions of the MTs are set at historically observed conditions, the MTs will not cause undesirable results for this Sustainability Indicator.
- **Seawater intrusion.** This Sustainability Indicator is not applicable to this Basin.
- **Degraded water quality.** The minimum threshold proxy of stable groundwater levels is not expected to lead to a degradation of groundwater quality.
- **Subsidence.** Because future groundwater levels will be above historically observed conditions, they will not induce any additional subsidence.

8.9.2.3 *Effects of Minimum Thresholds on Neighboring Basins*

Two neighboring groundwater basins share a boundary with the SLO Basin; the Los Osos Basin to the northwest, and the Arroyo Grande Subbasin of the Santa Maria Valley Groundwater Basin to the southeast. Neither of these shared boundaries are extensive, and the HCM posits that a groundwater divide separates the groundwater between them and the SLO Basin. In addition, the Basin streams are relatively far from the Basin boundaries shared with the neighboring basins. In the San Luis Valley there have been no trends indicating groundwater declines that would affect the Los Osos Basin. In Edna Valley the areas with observed declines are one to two miles from the Arroyo Grande Basin boundary in a downgradient direction. It is not anticipated that actions associated with the GSP will have any significant impact on either the Los Osos Basin or the Arroyo Grande Subbasin.

The SLO Basin GSAs have developed a cooperative working relationship with the Los Osos Groundwater Basin – Basin Management Committee and the GSAs working in the Arroyo Grande Subbasin. Groundwater conditions near the borders with these basins will be monitored and shared.

8.9.2.4 *Effects of Minimum Thresholds on Beneficial Uses and Users*

The MT for Depletion of Interconnected Surface Water is defined to maintain historically observed groundwater elevations.

The practical effect of this GSP for protecting against the Depletion of Interconnected Surface Water MTs is that it encourages minimal long-term net change in groundwater elevations in the vicinity of the Basin streams. Seasonal and drought cycle variations are expected, but during average conditions and over the long-term, beneficial users will have access to adequate volumes of water from the aquifer to service the needs of all water use sectors. The beneficial users of groundwater are protected from undesirable results.

Agricultural Land Uses and Users

The water levels set as MTs are within the historical range of data, implying that surface water/groundwater interaction will be within historical norms. Therefore, existing agricultural operations are not expected to be affected by the Depletion of Interconnected Surface Water MTs.

Urban Land Uses and Users

Development of real estate along streams and creeks is generally constrained by prohibiting development in mapped floodplains in the Basin. Therefore, the Depletion of Interconnected Surface Water MTs are not anticipated to affect urban land users in the Basin.

Domestic Land Uses and Users

Development of real estate along streams and creeks is generally constrained by prohibiting development in mapped floodplains in the Basin. Therefore, the Depletion of Interconnected Surface Water MTs are not anticipated to affect urban land users in the Basin.

Ecological Land Uses and Users.

Groundwater dependent ecosystems would generally benefit from this MT. Maintaining groundwater levels close to within historically observed ranges will continue to support groundwater dependent ecosystems. More detailed mapping of GDEs, installation of gages in Edna Valley, and development of discharge rating curves for the San Luis Creek gages, all will clarify the effects of these MTs on ecological uses.

8.9.2.5 *Relation to State, Federal, or Local Standards*

Agreements with NOAA mandate a minimum delivery for environmental flows of 1.6 MGD of effluent flow from the City Wastewater Treatment Plant located along San Luis Obispo Creek near the outlet of the Basin in San Luis Valley.

SWRCB permit requirements with respect to outflow from Righetti Reservoir may impact flow conditions along West Corral de Piedras Creek.

8.9.2.6 *Methods for Quantitative Measurement of Minimum Threshold*

The quantitative metric for assessing compliance with the Depletion of Interconnected Surface Water MTs is monitoring groundwater elevations at the three RMSs designated for this Sustainability Indicator (SLV-12, EV-01, EV-11). The approach for quantitatively evaluating compliance with the MT for reduction in groundwater storage will be based on evaluating groundwater elevations semi-annually. All groundwater elevations collected from the groundwater level monitoring network will be analyzed and averaged.

8.9.3 Measurable Objectives

Similar to minimum thresholds, measurable objectives were defined using water level data based on the historical water level data observed in RMSs intended to monitor streamflow conditions. Measurable objectives for these wells are presented in Table 8-1 and Figures 8-4, 8-9, and 8-10. If future data from a

more comprehensive surface water monitoring program documents quantitative estimates of stream flow depletion, those data may be used to re-define the measurable objectives for areas of interconnection.

8.9.3.1 *Method for Quantitative Measurement of Measurable Objectives*
The measurable objectives are set based on maintaining current conditions of seasonal high water level elevations observed in the RMS wells during rainy periods. The quantitative method for assessing compliance with the MOs is monitoring of groundwater elevations at the selected RMSs.

8.9.3.2 *Interim Milestones*
Interim milestones show how the GSAs anticipate moving from current conditions to meeting the measurable objectives. Interim milestones are set for each five-year interval following GSP adoption. MOs for the Depletion of Interconnected Surface Water are set at historically observed conditions of high groundwater elevations during wet climatic periods. Therefore, the interim milestones are defined to be identical to the water levels associated with the MOs.

8.10 MANAGEMENT AREAS
Management areas are not established in the Basin. The GSAs and GSC members did not find it necessary to sub-divide the Basin into smaller management areas with specific administrative requirements.

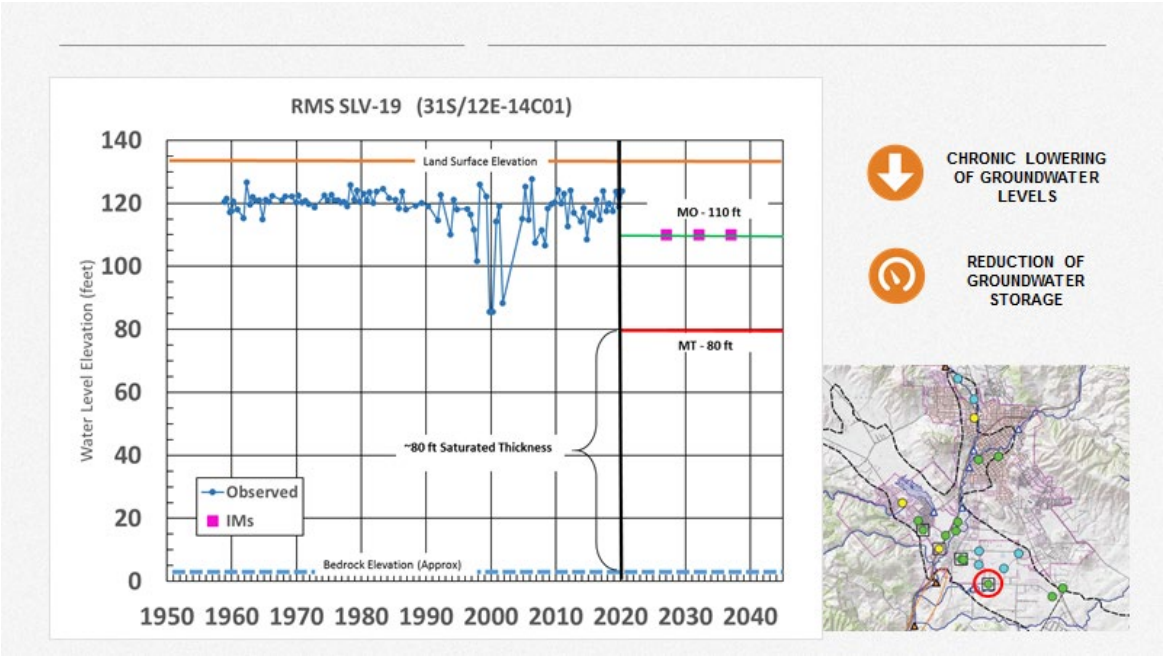


Figure 8-1 HYDROGRAPH, MINIMUM THRESHOLD, AND MEASURABLE OBJECTIVE FOR RMS SLV-19.

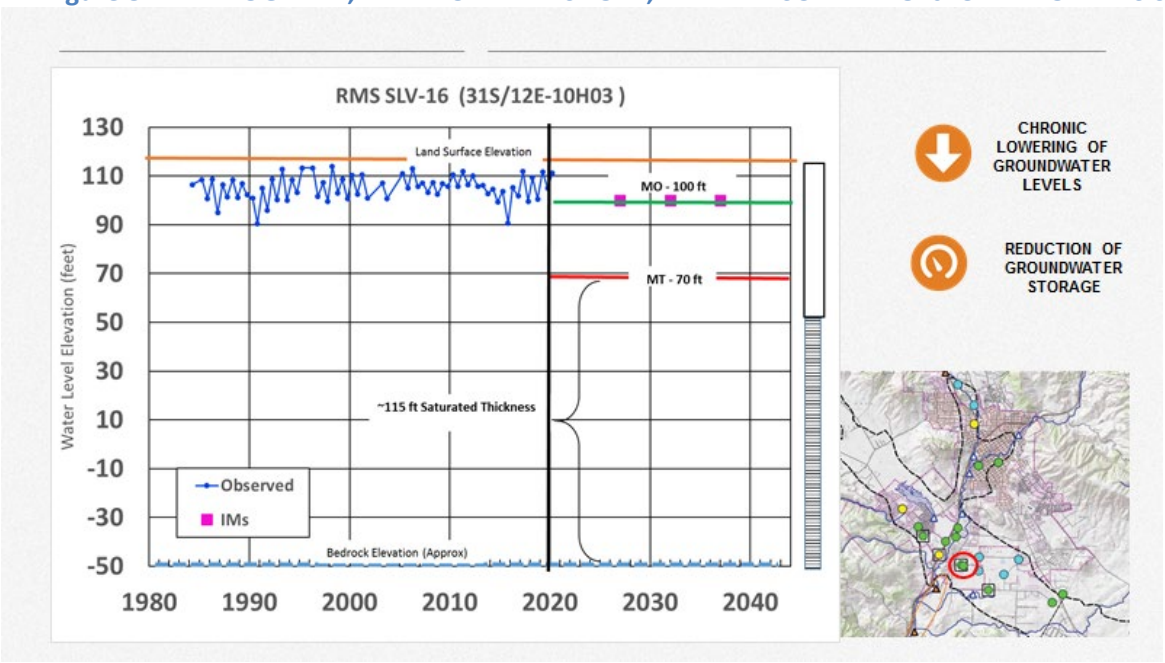


Figure 8-2 HYDROGRAPH, MINIMUM THRESHOLD, AND MEASURABLE OBJECTIVE FOR RMS SLV-16.

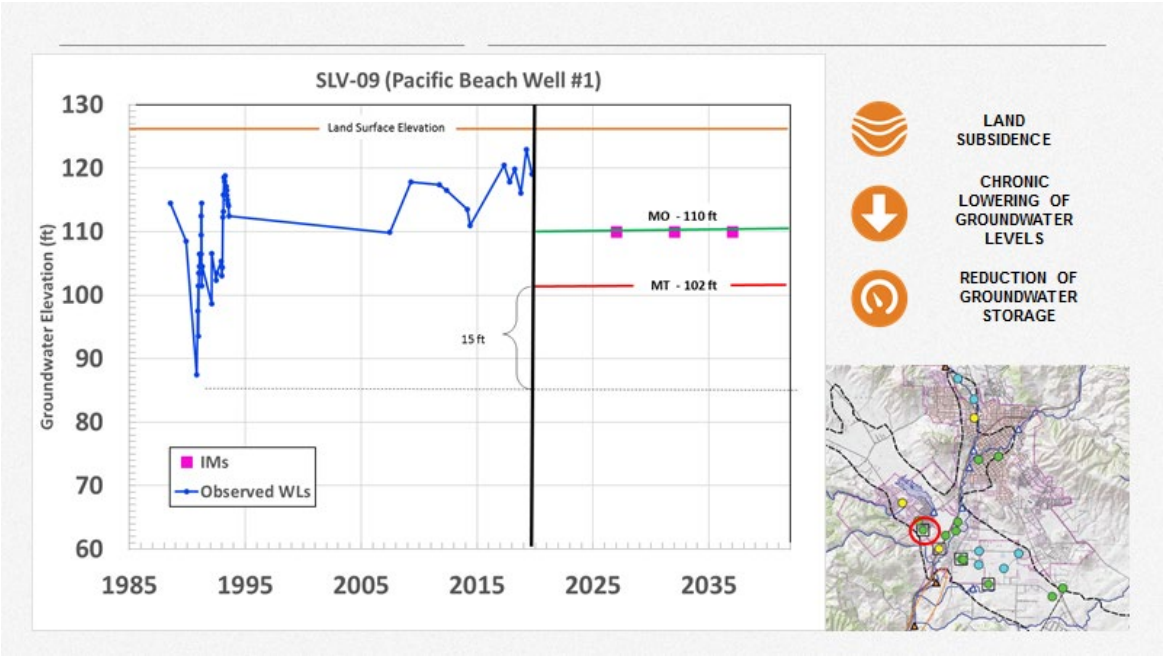


Figure 8-3. HYDROGRAPH, MINIMUM THRESHOLD, AND MEASURABLE OBJECTIVE FOR RMS SLV-09.

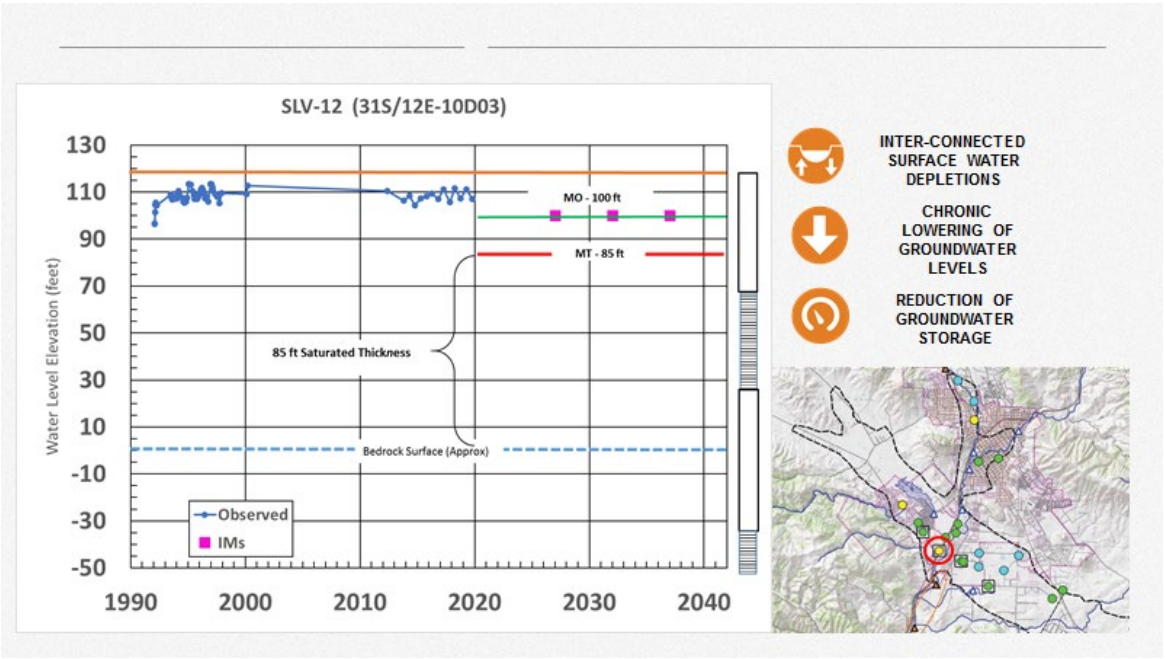


Figure 8-4. HYDROGRAPH, MINIMUM THRESHOLD, AND MEASURABLE OBJECTIVE FOR RMS SLV-12.

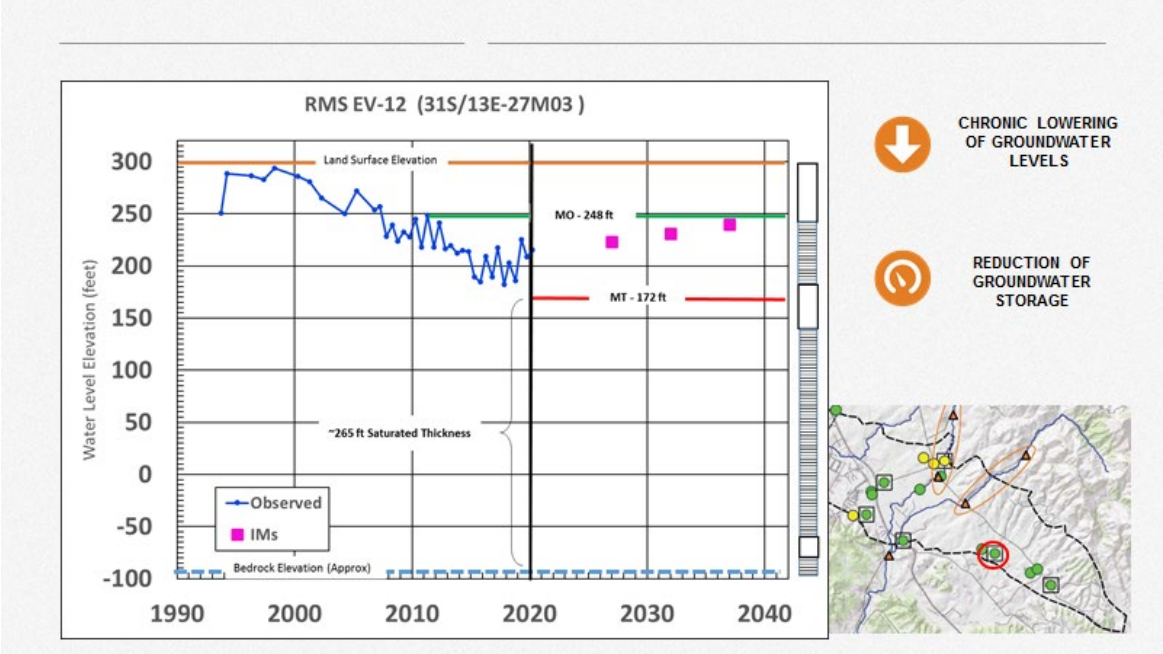


Figure 8-5. HYDROGRAPH, MINIMUM THRESHOLD, AND MEASURABLE OBJECTIVE FOR RMS EV-12.

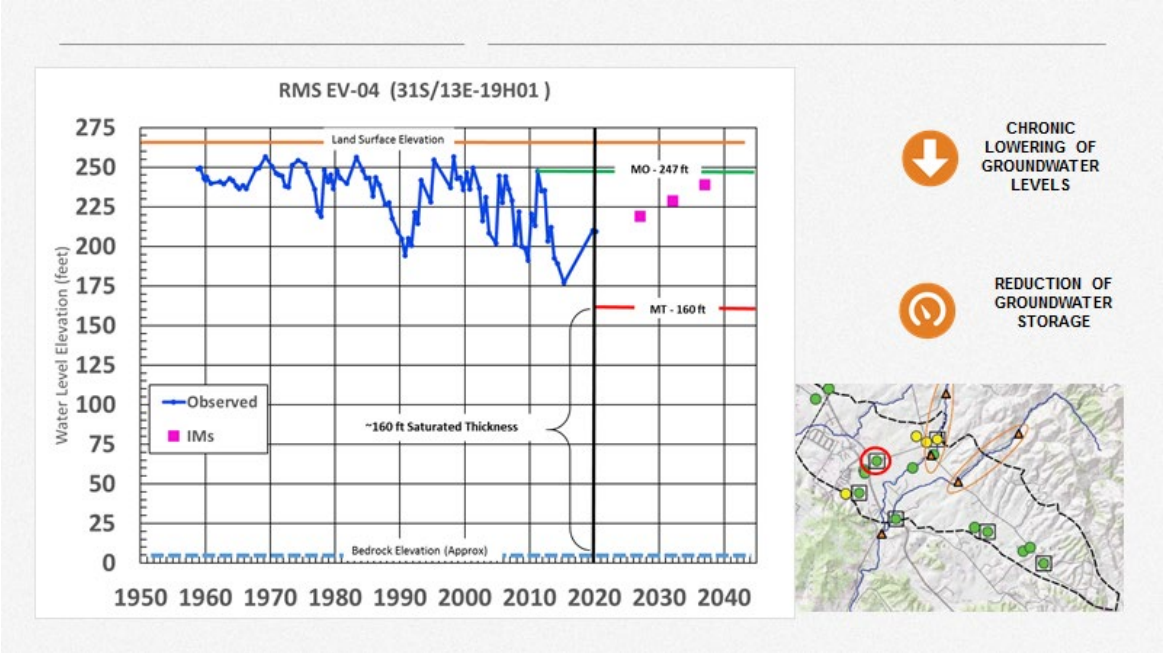


Figure 8-6. HYDROGRAPH, MINIMUM THRESHOLD, AND MEASURABLE OBJECTIVE FOR RMS EV-04

.

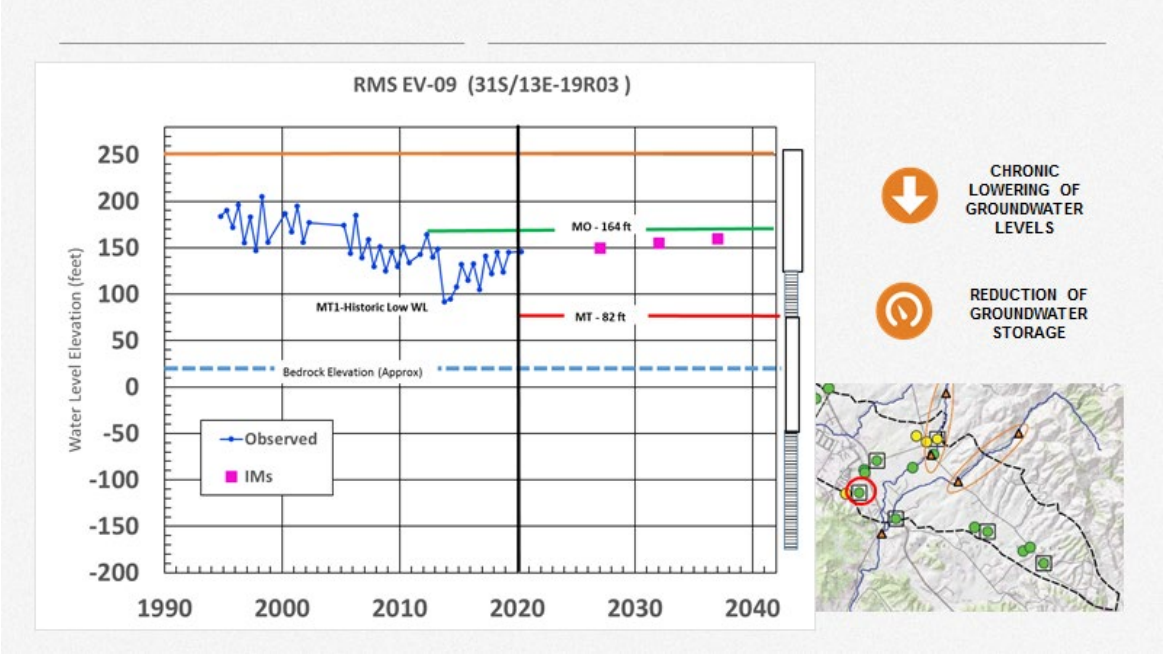


Figure 8-7. HYDROGRAPH, MINIMUM THRESHOLD, AND MEASURABLE OBJECTIVE FOR RMS EV-09.

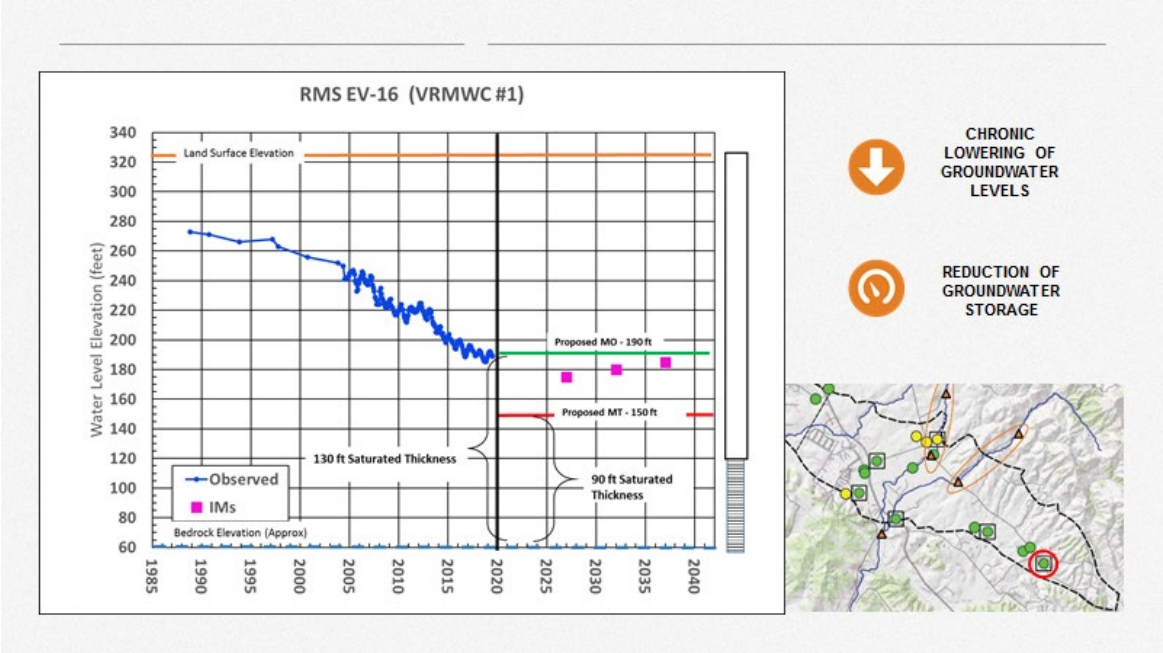


Figure 8-8. HYDROGRAPH, MINIMUM THRESHOLD, AND MEASURABLE OBJECTIVE FOR RMS EV-16.

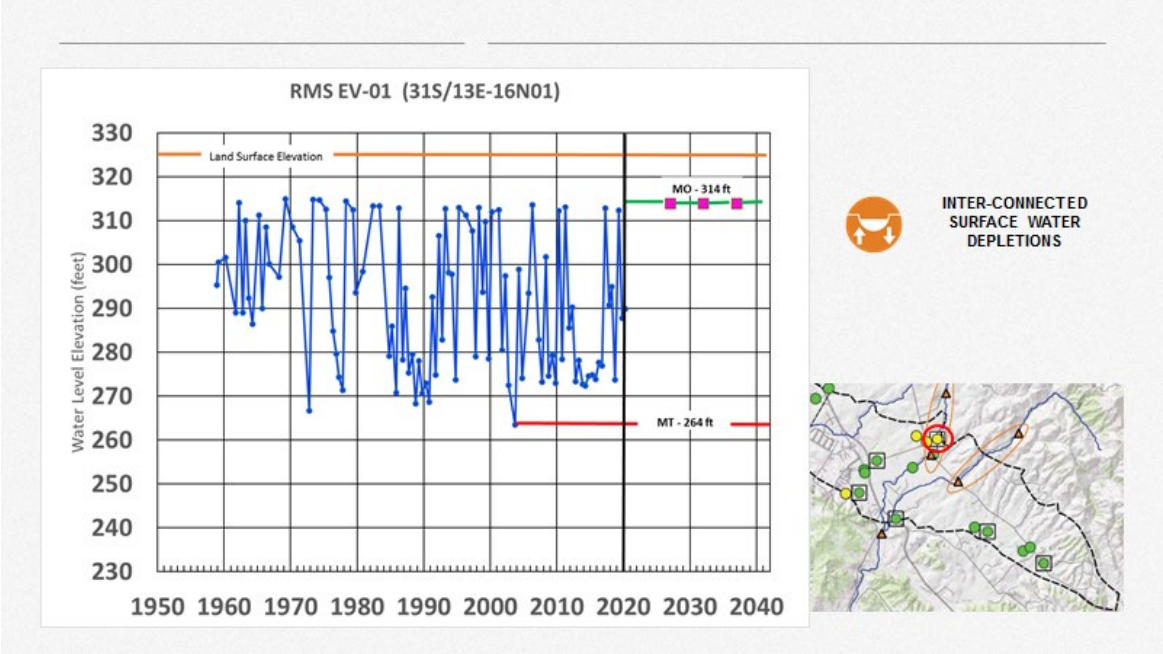


Figure 8-9. HYDROGRAPH, MINIMUM THRESHOLD, AND MEASURABLE OBJECTIVE FOR RMS EV-01.

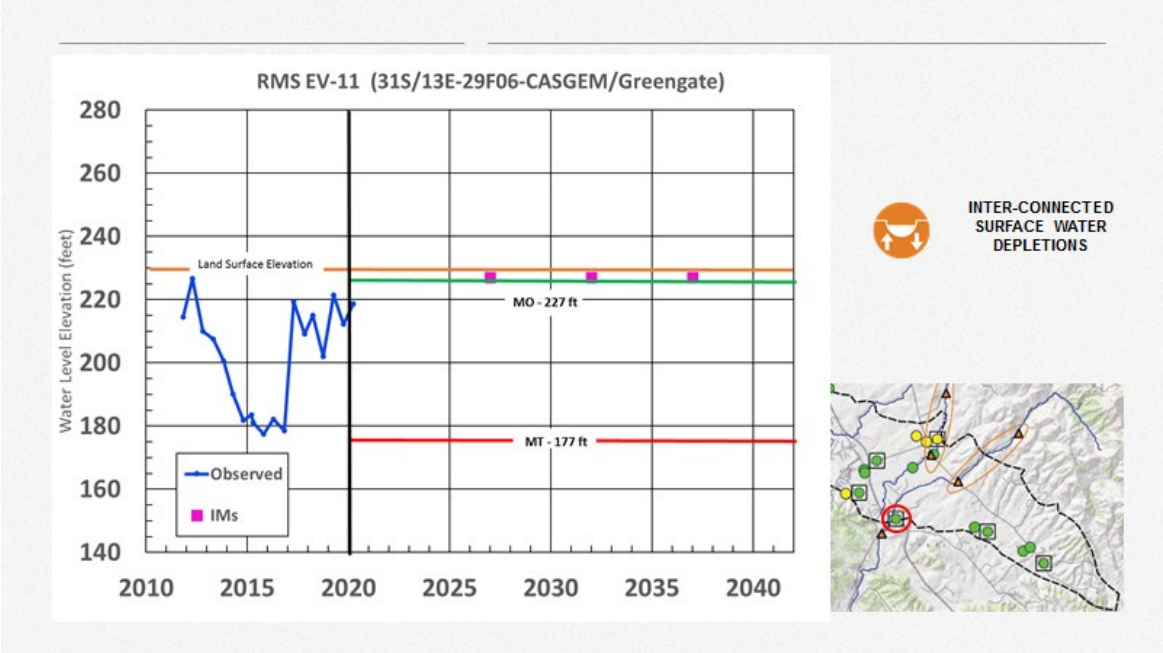


Figure 8-10. HYDROGRAPH, MINIMUM THRESHOLD, AND MEASURABLE OBJECTIVE FOR RMS EV-11.

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GROUNDWATER SUSTAINABILITY COMMISSION
for the San Luis Obispo Valley Groundwater Basin
May 5, 2021

Agenda Item 8 –Projects and Management Actions (Presentation Item)

Recommendation

a) Receive a presentation on the estimated costs of the proposed projects and management actions presented at previous GSC meetings.

Prepared by

Michael Cruikshank, WSC

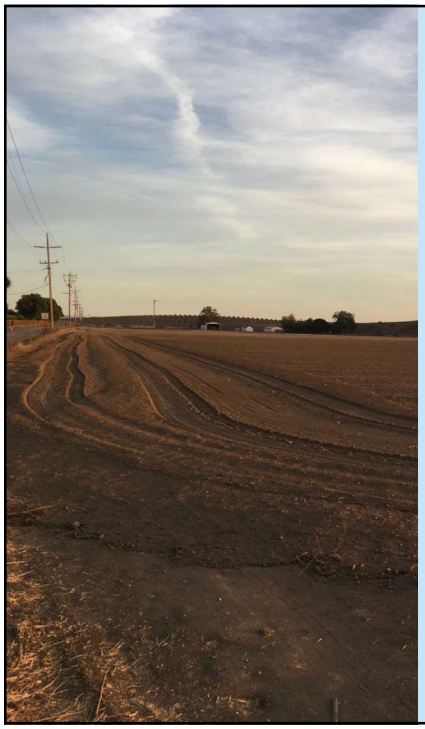
Discussion

The WSC Team, has been tasked with the preparation of the Groundwater Sustainability Plan (GSP) for the SLO Basin to meet the requirements of SGMA. Chapter 9 of the GSP is Projects and Management Actions. The presentation today will provide an overview of the process for selecting and evaluating the proposed projects and management actions which will be described in Chapter 9. The projects and management actions are designed to mitigate the overdraft conditions in the Edna Valley as described in Chapter 6 – Water Budget. The GSP is required to include a description of the projects and management actions the GSAs have determined will achieve the sustainability goal for the basin, including projects and management actions to respond to changing conditions in the basin.

The presentation today will also provide conceptual level cost estimates for the projects and discuss the proposed management actions. The presentation will describe the proposed Groundwater Extraction Metering and Reporting Plan, include the definition of de minimis users as it relates to SGMA, a self-certification program for de minimis users and the plan to meter non-de-minimis groundwater extractors.

Attachments:

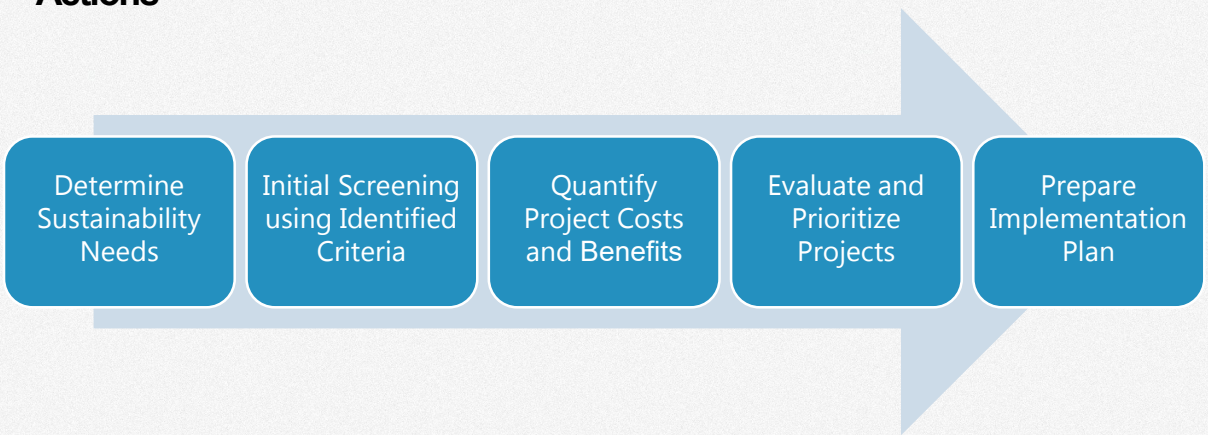
1. Presentation



Projects and Management Actions

Dan Heimel

Process for Evaluation of Projects and Management Actions



Project Evaluation Criteria

- Quantity of Water
- Capital Cost
- Water Cost
- O&M Cost
- GW Quality Impact
- Reliability/Resiliency
- Timeline to Implement
- Feasibility/Complexity
- Environmental Impacts
- Socioeconomic Impacts
- Eligible for Grant Funding
- Groundwater Level Benefit

Project Evaluation Scoring

		Weighting Factor	3	2	2	2	1	1	1	2	1	1	1	4	
Projects and Management Actions	**Description**	**Quantity of Water (AFY)**	**Quantity of Water**	**Capital Cost**	**Water Cost**	**O&M Cost**	**GW Water Quality Benefits**	**Reliability/Resiliency**	**Timeline to Implement**	**Feasibility/Complexity**	**Environmental Impacts**	**Socioeconomic Impacts**	**Eligibility for Grant Funds**	**Groundwater Level Benefit**	**Total**
SWP to Ag Irrigation	Connection to SWP to offset Ag groundwater pumping through direct delivery of SWP Water	1000	5	2	3	4	5	3	3	3	3	4	4	3	**73**
SWP Recharge	Connection to SWP to provide water for groundwater recharge	500	3	2	3	4	5	3	3	3	3	4	4	4	**71**
City of SLO Potable Water to GSWC	Connection to City of SLO potable water system to offset Golden State Water Company groundwater pumping through direct delivery	400	2	4	1	4	5	5	4	3	4	3	3	4	**70**
City of SLO Recycled Water to Ag Irrigation	Connection to City of SLO Recycled Water System to offset Ag groundwater pumping through direct delivery	500-700	3	3	1	4	4	5	4	4	3	4	4	3	**69**
SWP to GSWC	Connection to SWP project to offset GSWC groundwater pumping through direct delivery of SWP Water	400	2	2	3	4	5	3	4	3	3	4	4	4	**69**
Price Canyon Discharge Relocation	Relocation of Sentinel Peak Produced Water Discharge location to upper Corral de Piedra Creek or direct delivery to agriculture	500	2	2	5	4	5	5	4	2	4	3	4	3	**69**
Varian Ranch MWC AG Subbasin Wells	Connection to Varian Ranch MWC wells in Arroyo Grande Subbasin to offset Varian Ranch groundwater pumping through direct delivery of imported groundwater	35	1	3	5	4	3	4	4	3	3	4	4	3	**67**
SWP to Mutual Water Companies	Connection to SWP to offset Edna and Varian Ranch MWC groundwater pumping through direct delivery of SWP Water	200	1	4	3	4	5	3	3	3	3	4	4	3	**65**
Stormwater Capture and Recharge	Capture of high flow stormwater in East Corral de Piedra Creek and percolation in a recharge basin	50??	1	3	5	4	5	1	4	3	5	3	5	2	**64**
Managed Discharge from Righetti Reservoir	Enhanced management of releases to increase recharge in West Corral de Piedra Creek	50??	1	4	5	5	3	2	3	1	5	3	3	2	**60**

Conceptual Project Implementation Timeline

- Feasibility – (Year 1)
- Preliminary Design – (Year 1)
- CEQA Compliance – (Year 1 & 2)
- Permitting – (Year 2)
- Final Design – (Year 2)
- Bid & Award – (Year 3)
- Construction – (Year 3)
- Start-Up – (Year 3)

Groundwater Model Scenario Takeaways

- Not one individual project will bring the basin to sustainability
  - Both Purveyor (200 AFY Golden State and 50 AFY MWCs) and Agriculture will likely need supplemental water/pumping reductions to achieve the SMCs
  - Beneficial impacts from the supplemental water to GSWCo and MWC's are concentrated in the areas of pumping reductions
    - Varian Ranch Well #1 (EV-16) does not see significant benefit from the agricultural reductions
    - 31S/13E-27M03 (EV-13) does not see significant benefit from the purveyor reductions
  - 1,000 AFY of supplemental water for Agricultural Uses has the most widespread benefit to the representative wells in Edna Valley
- Recharge Basin (500 AFY)
  - Localized increase of about 20-25 ft in EV-04 and EV-09
- Price Canyon Water Pipeline Project (500 AFY)
  - Increases flow in West Corral de Piedra
  - Benefits the GW/SW interaction SMC
  - Approximately 150 AFY recharges the SLO Basin
  - Groundwater level benefits over 30 feet directly beneath the creek, decrease with distance from West Corral de Piedras at EV-09 (~20 ft) and EV-13 (~5 ft)

Mitigation of Overdraft Conditions

If overdraft conditions are identified through the analysis required by Section 354.18 (Chapter 6 – Water Budget) the Plan shall describe projects or management actions, including a quantification of demand reduction or other methods, for the mitigation of overdraft.

OVERDRAFT ESTIMATE (Chapter 6)

San Luis Valley Subarea

Sustainable Yield – Pumping =
+Surplus or –Deficit (Overdraft)

2,500 – 1,800 = **+700 AFY**

Edna Valley Subarea

Sustainable Yield – Pumping =
+Surplus or –Deficit (Overdraft)

3,300 – 4,400 = **-1,100 AFY**

Measurable Objective Expected to Benefit from PMA's

Under the Regulations, the Groundwater Sustainability Plan (GSP, Plan) is to include the following:

(a) Each Plan shall include a description of the projects and management actions the Agency has determined will achieve the sustainability goal for the basin, including projects and management actions to respond to changing conditions in the basin.

Measurable Objective Expected to Benefit from PMA's

Projects and Management Actions	Benefits	Measurable Objective	Exceedance of Minimum Thresholds
SWP to Ag Irrigation	Increases water levels in the Edna Valley to avoid minimum thresholds		Yes
City of SLO Recycled Water to Ag Irrigation	Increases water levels in the Edna Valley to avoid minimum thresholds Supplemental Water to Edna Valley		Yes
SWP Recharge	Increases water levels in the Edna Valley to avoid minimum thresholds		Yes
SWP to GSWC	Reduces localized groundwater production Supplemental Water to the Edna Valley		Yes
City of SLO Potable Water to GSWC	Reduces localized groundwater production Supplemental Water to the Edna Valley		Yes
Varian Ranch MWC AG Subbasin Wells	Reduces localized groundwater production Supplemental Water to the Edna Valley		Yes
SWP to Mutual Water Companies	Reduces localized groundwater production Supplemental Water to the Edna Valley		Yes
Price Canyon Discharge Relocation	Increases recharge to the Edna Valley Increases streamflow in West Corral de Piedras for Steelhead		Yes
East Corral de Piedra Stormwater Capture and Recharge	Increased Recharge to the Edna Valley		Yes
Groundwater Extraction Metering Plan	Improve understanding of the Basin Ability to manage the Basin		No
Voluntary Fallowing of Agricultural Land	Reduces groundwater production in the Edna Valley		Yes
Improved Irrigation Efficiency	Reduces groundwater production in the Edna Valley		Limited

Cost Estimate Assumptions

Construction Contingency – 30%
Implementation Costs – 25%
Annual Capital Payment 5% interest for a 30-year term

Note: Does not include Cost of Supplemental Water

- SWP
- Recycled Water
- Price Canyon

Each SWP project includes the cost of one turnout if SWP projects are combined costs of the turnout could be shared

Proposed Implementation and Cost Estimate for PMA's

Projects and Management Actions	Status	Implementation Timing	Captial Cost	Annual O&M	Quantity of Water (AF)	Unit Cost ($/AF)[1]
SWP to Ag Irrigation	Not begun yet	Feasibility study: 0 to 1 years Design/Construction: 1 to 5 years	$ 890,000	$ 5,000	1,000	$ 60
City of SLO Recycled Water to Ag Irrigation	Evaluated as part of the City of SLO Recycled Water Study (2018)	Feasibility study: 0 to 1 years Design/Construction: 1 to 3 years	$ 1,166,000	$ 89,000	600	$ 280
SWP Recharge	Not begun yet	Feasibility study: 0 to 1 years Design/Construction: 1 to 5 years	$ 3,624,000	$ 101,000	500	$ 670
SWP to GSWC	Not begun yet	Feasibility study: 0 to 1 years Design/Construction: 1 to 5 years	$ 2,685,000	$ 17,000	200	$ 960
City of SLO Potable Water to GSWC	Not begun yet	Feasibility study: 0 to 1 years Design/Construction: 1 to 3 years	$ 1,699,000	$ 14,000	200	$ 630
Varian Ranch MWC AG Subbasin Wells	Not begun yet	Feasibility study: 0 to 1 years Design/Construction: 1 to 3 years	$ 2,701,000	$ 34,000	50	$ 4,200
SWP to Mutual Water Companies	Not begun yet	Feasibility study: 0 to 1 years Design/Construction: 1 to 5 years	$ 835,000	$ 5,000	50	$ 1,180
Price Canyon Discharge Relocation	Mitigated Negative Dec Completed in 2015	Feasibility study: 0 to 1 years Design/Construction: 1 to 3 years	$ 4,909,000	$ 56,000	500[2]	$ 750
East Corral de Piedra Stormwater Capture and Recharge	Not begun yet	Feasibility study: 0 to 1 years Design/Construction: 1 to 3 years	$ 3,169,000	$ 101,000	50	$ 6,140
Groundwater Extraction Metering Plan	Not begun yet	1 year				
Demand Management Strategies	Not begun yet	As needed				

[1]Does not include Cost of Water
[2]Quantity of water at discharge point

Groundwater Extraction Metering and Reporting Plan

- A groundwater sustainability agency may require registration of a groundwater extraction facility within the management area of the groundwater sustainability agency. (CWC 10725.6)
  - Public Water Supply Wells (Currently reported at the City of SLO, GSWCo, VRMWC and ERMWC)
  - Agricultural Wells (Not currently reported, estimated)
  - Private Domestic Wells (Not currently reported, estimated)
- CWC 10725.8 Measurement Devices and Reporting
  - 10725.8e This section does not apply to de minimis extractors
    - "De minimis extractor" means a person who extracts, for domestic purposes, two acre-feet or less per year (CWC 10721)

De minimis Extractors in SGMA

- "De minimis extractor" means a person who extracts, ***for domestic purposes***, two acre-feet or less per year (CWC 10721)
- § 1030 g) "***Domestic purposes***" has the same meaning as ***"domestic uses"*** as defined in section 660 of Division 3 of Title 23 of the California Code of Regulations for the purposes of identifying if an extractor is a de minimis extractor
- § 660. Domestic Uses. Domestic use means the use of water in homes, resorts, motels, organization camps, camp grounds, etc., including the incidental watering of domestic stock for family sustenance or enjoyment and the *irrigation of not to exceed one-half acre in lawn*, ornamental shrubbery, or gardens at any single establishments. The use of water at a camp ground or resort for human consumption, cooking or sanitary purposes is a domestic use. NOTE: AUTHORITY CITED: SECTION 1058, WATER CODE. REFERENCE: SECTION 1254 AND 1260, WATER CODE.

Groundwater Extraction Metering Plan

- Propose De Minimis Self-Certification
  - The GSAs will consider developing a process to allow de minimis basin extractors to self-certify that they extract two (2) acre-feet or less per year for domestic purposes
- De-minimis users accounts for less than 3% of water use in Edna Valley
  - The indoor water uses of de-minimis users is returned to the aquifer via septic systems

Table 6-10: Rural Residential Water Use.

Year	SLO Valley	Edna Valley	Basin Total
	Estimated Number of Residences[1]		
2018	173	158	331
	Estimated Water Use (AFY)[2]		
2018	138	126	265

[1] outside of water company service areas
[2] based on 0.8 AFY per residence

Groundwater Extraction Metering Plan

- Non-de-minimis groundwater extractors
  - Would be required to meter and record monthly groundwater production and report to the GSAs
  - The GSAs will use a duty factor method (Water Budget Chapter) until the metering plan is in place
- Propose that de-minimis groundwater extractors not be regulated under this GSP. Growth of de minimis groundwater extractors could warrant regulated use in this GSP in the future. Growth will be monitored and reevaluated periodically. Estimated groundwater extractions from de-minimis users will be documented in the annual reports.

Potential Management Actions (Edna Valley)

- Demand Management Strategies
  - Improving irrigation efficiency
  - Water efficient crop conversion
  - Volunteer fallowing crop
  - Pumping Reduction

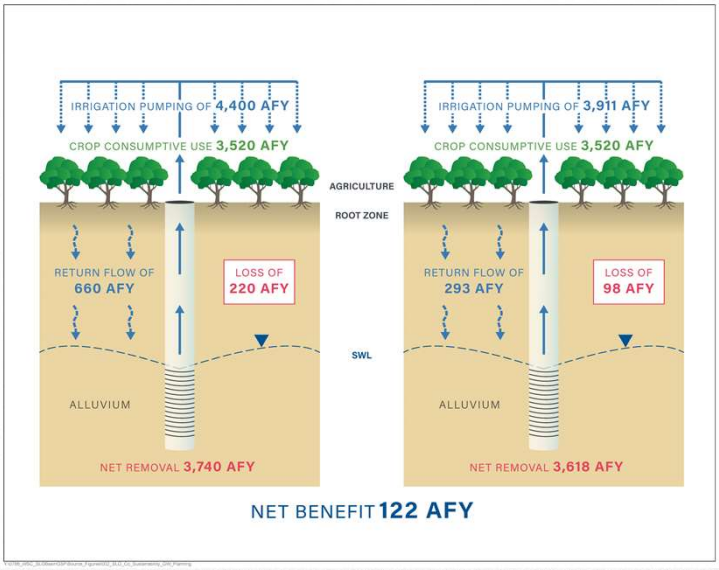
Irrigation Efficiencies Management Action (revisited)

Example:

Improve from 80% efficiency to 90% using Water Budget (Chapter 6) Assumptions.

Less pumping needed to meet same consumptive use, but due to decreased return flows, not a 1-to-1 benefit to Basin.

Pumping reduction 489 AFY results in net benefit to Basin of 122 AFY.



GROUNDWATER SUSTAINABILITY COMMISSION
for the San Luis Obispo Valley Groundwater Basin
May 5, 2021

Agenda Item 9 – Introduction to the Implementation Plan (Presentation Item)

Recommendation
a) Receive a presentation introducing the Implementation Plan

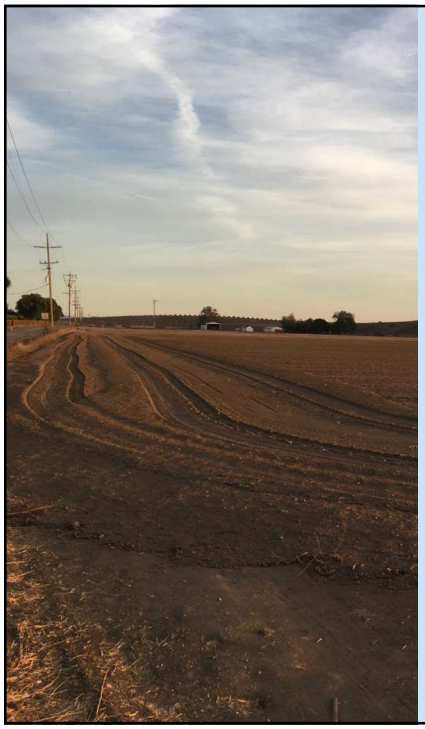
Prepared by
Michael Cruikshank, WSC

Discussion
The WSC Team, has been tasked with the preparation of the Groundwater Sustainability Plan (GSP) for the SLO Basin to meet the requirements of SGMA. Chapter 10 of the GSP is the Implementation Plan. The implementation plan is based on current understanding of the SLO Basin (Basin) conditions and will include the consideration of projects and management actions described in the previous Agenda Item, as well as other actions that are needed to successfully implement the GSP including the following:

- Analysis of potential projects/actions
- Implementation schedule for projects and management actions
- Establishment of Monitoring Program
- Data Collection and Analysis
- Annual Reporting
- GSP 5-year update
- Ongoing GSA Administration
- Financing Plan

The presentation today will provide an overview of the elements in the Implementation Plan chapter on the process for implementing the various projects and management actions, implementation schedule and the financing plan elements.

Attachments:
1. Presentation



Introduction to Implementation Plan

Dan Heimel & Michael Cruikshank

Implementation Plan Introduction

- Establish Governance Structure
- Financing Plan
  - Fee Study
- Analysis of potential projects/actions
- Implementation schedule for projects and management actions
- Establishment of Monitoring Program
- Data Collection and Analysis
  - Water levels, water quality, surface water
- Annual Reporting
- GSP 5 year update
  - Re-evaluation of sustainable management criteria
  - Update Integrated Groundwater/Surface Water Model
- Ongoing GSA Administration
  - Data Management System/Website
  - Continued Stakeholder Outreach

Annual Reporting

The annual report will, at a minimum, include the components described as required pursuant to CCR §356.2.

General Information
Description and Graphical Representations of Groundwater Information
Groundwater Elevation Data
Groundwater Quality Data
Groundwater Extraction
Total Water Use
Changes in Groundwater Storage
Plan Implementation Progress

Five Year Interim Evaluations of the GSP

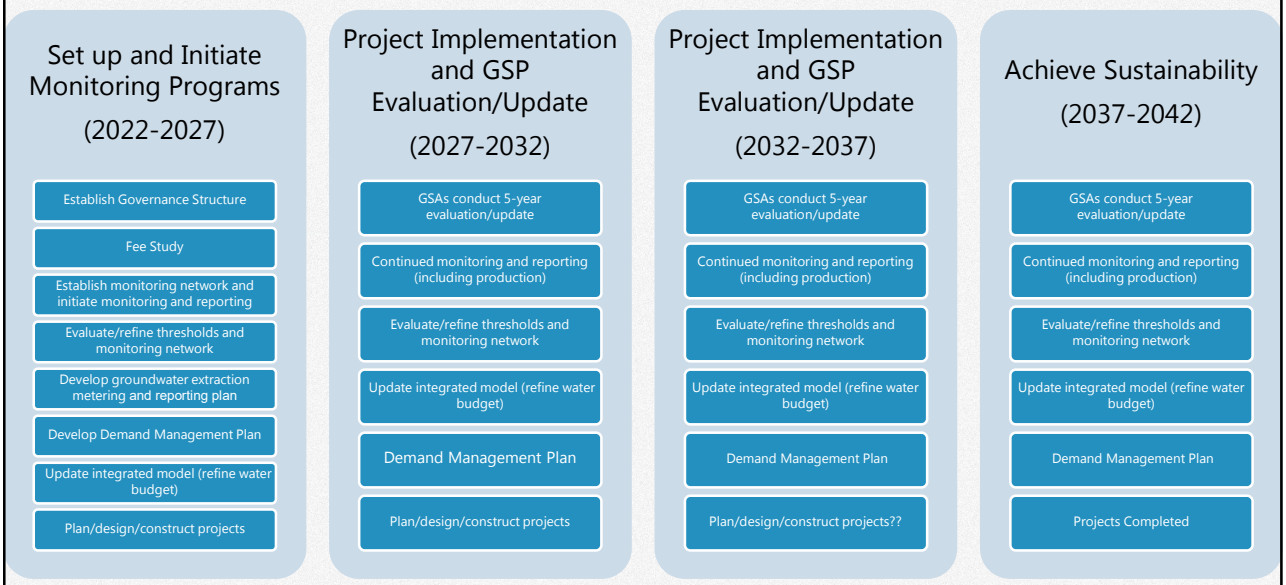
The five-year evaluation will include the following components:

- Current Groundwater Conditions
- Status of Implementation of Projects or Management Actions
- Plan Elements
- Basin Evaluation including Water Balance Review
- Monitoring Network
- Pumping Allowance
- New Information
- Relevant Actions
- Enforcement and Legal Actions
- Plan Amendments
- Summary of Coordination
- Other Information

Financing Plan Elements

- Items Requiring Funding
  - GSA Administration
  - Monitoring and Reporting
    - Groundwater Levels
    - Surface water monitoring
    - Groundwater Quality
    - Groundwater Extraction Metering Plan
  - Project Implementation
  - Management Actions
  - Data Management
  - Stakeholder Engagement
  - Annual reports
  - 5-year GSP Updates
- Funding Mechanisms Options
  - Fee Study to determine fees
  - Pumping Fees
  - Assessments
  - Grants and Loans

Conceptual GSP Implementation Timeline



Implementation will be phased over 20 years, with 5-year updates.

Projects and Management Actions Implementation Process

Initial/Ongoing

- Pursue Supplemental Water Supply Projects
- Groundwater Extraction Metering and Reporting Plan
- Implement Voluntary Demand Management Programs
  - Improving irrigation efficiency
  - Water efficient crop conversion
  - Volunteer fallowing crop

If needed

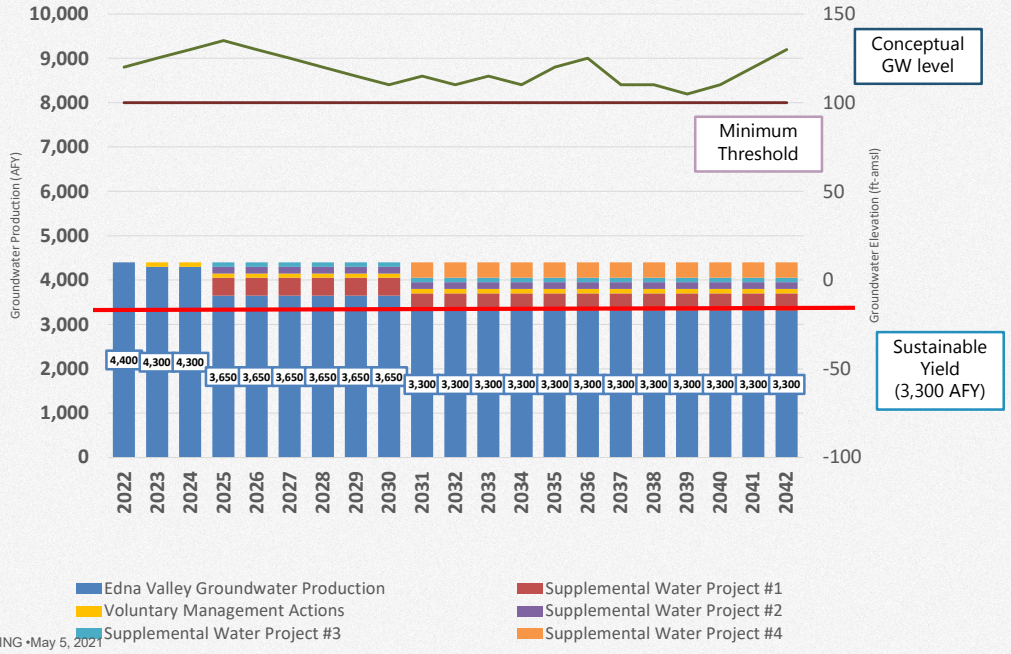
- Pumping Reductions
  If the criteria is met for undesirable results as defined in Chapter 8

Potential Project and Management Action Trigger Strategy

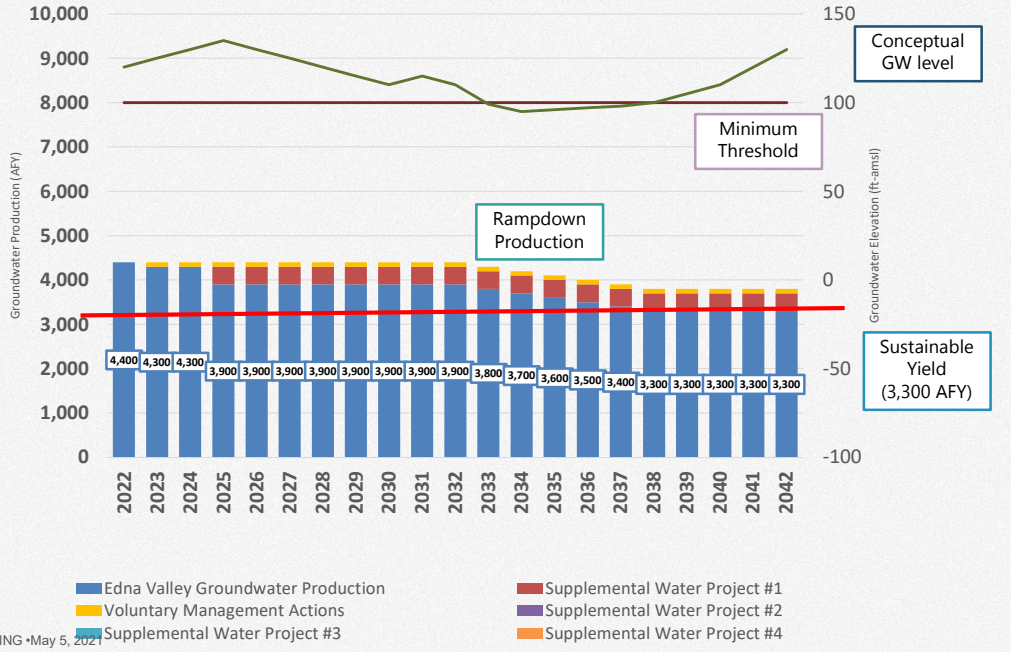
- If analytical or modeled projections anticipate that future conditions will exceed the undesirable result thresholds
  - Prepare for implementation of additional projects and management actions

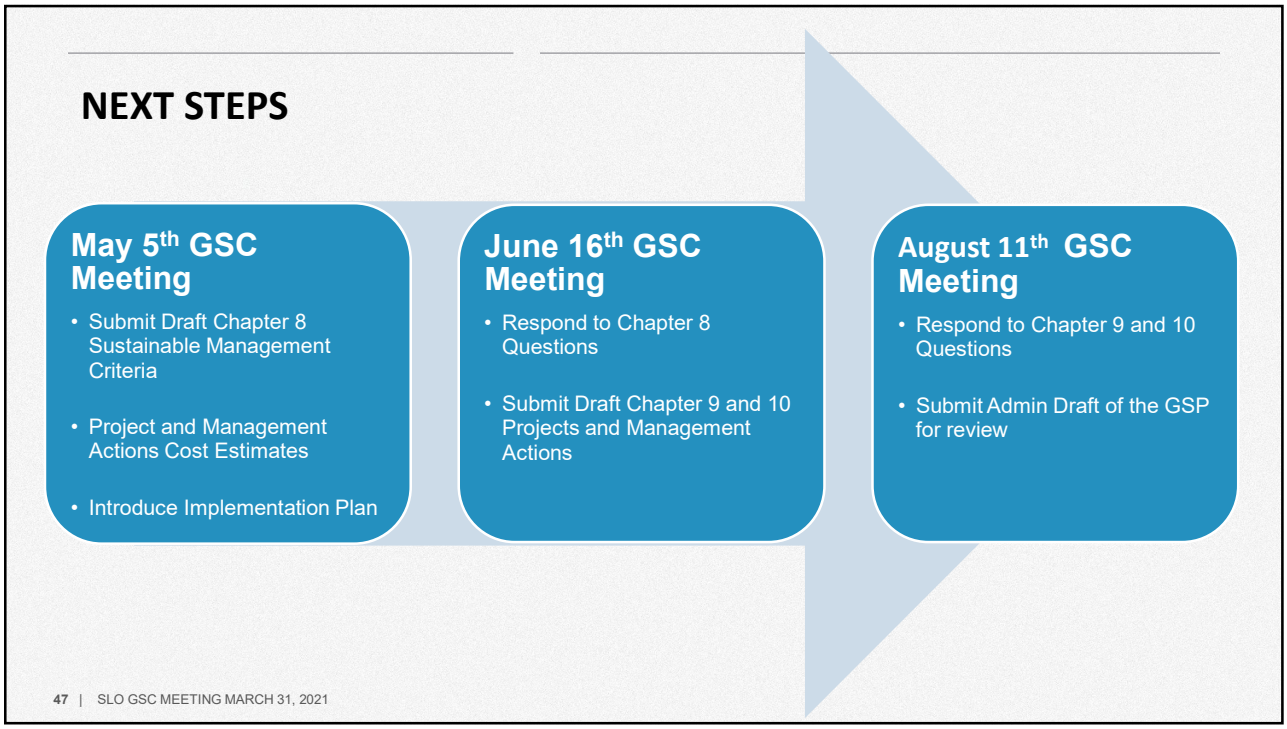
- If actual conditions exceed the undesirable result thresholds
  - Additional Supply and demand management measures will be implemented

Conceptual Implementation Scenario 1 – No Demand Management



Conceptual Implementation Scenario 2 – Reducing Groundwater Production




NEXT STEPS
May 5th GSC Meeting
• Submit Draft Chapter 8 Sustainable Management Criteria
• Project and Management Actions Cost Estimates
• Introduce Implementation Plan
June 16th GSC Meeting
• Respond to Chapter 8 Questions
• Submit Draft Chapter 9 and 10 Projects and Management Actions
August 11th GSC Meeting
• Respond to Chapter 9 and 10 Questions
• Submit Admin Draft of the GSP for review
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