

Sierra Valley Technical Advisory Committee Meeting Summary: December 7, 2020

ACTION ITEMS

Post-meeting materials for the December 7, 2020 TAC webinar are posted on the GSP webpage at <https://www.sierravalleygmd.org/2020-12-07-tac-meeting>.

1. A recording of this meeting online at: <https://youtu.be/u3HDjcfeljs>
2. The draft meeting summary and PowerPoint presentation slides
3. A brief survey regarding groundwater quality online at: www.surveymonkey.com/r/Z3W69Y8
4. A brief survey regarding subsidence online at: <http://www.surveymonkey.com/r/ZZ8VDTY>

ACTION ITEM: Information about additional data sets should be sent to Betsy Elzufon, LWA Assistant Project Manager at: betsye@lwa.com. Materials can also be submitted through the surveys.

Please complete surveys and submit data sets by Monday, December 21st, 2020.

Welcome, Introductions, Agenda Review

The second meeting of the Technical Advisory Committee (TAC) for the Sierra Valley (SV) Groundwater Sustainability Plan (GSP) was held virtually due to COVID-19 protocols. The meeting agenda was reviewed, followed by introductions and reminders remote meeting practices.

Post-meeting materials will provide additional opportunities to share ideas and comments.

Project Updates

PROJECT WEBSITE

Judie Talbot, GSP outreach facilitator, virtually walked through the project webpage to orient TAC members to how the website is organized. The webpage, at www.sierravalleygmd.org/sierra-valley-groundwater-sustainability-plan is maintained by Jenny Gant, Board Clerk for the Sierra Valley Groundwater Management District (GMD). Specifically, the GSP project web page has four tabs:

- Background – providing general background on the Sustainable Groundwater Management Act (SGMA) and the Sierra Valley Basin GSP, including boundary maps
- Advisory Committee – with links to the TAC membership roster and the Draft Roles and Commitments document
- Meetings – showing GSP project meeting dates (including TAC meetings) and related meeting materials, posted either before or after the meeting.
- Documents – providing links to materials specific to the Sierra Valley GSP and to DWR documents relating generally to SGMA and GSPs

NOVEMBER TAC: Draft Meeting Summary

The draft meeting summary for the first TAC meeting, held on November 2, 2020, is posted under the meeting section of the GSP webpage. Meeting summaries will always be posted first as a draft, to allow time for participants to review and ensure that their comments are accurately reflected in the meeting record. While the GSP team strives to reflect the essence of presentations and discussion, there may be errors in the summary. The draft version allows corrections to be made, as needed.

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UPDATE OF THE GSP COMMUNICATION AND ENGAGEMENT (C & E) PLAN

In December of 2019, the first draft was released for Sierra Valley GSP C & E Plan. Initially developed by Tania Carlone, facilitator for the initial GSP planning phase, the Plan was adopted by the Sierra Valley GMD and scheduled to be updated by December 2020. New text has been added to reflect the scope of work for: 1) creating the GSP - the anticipated GSP sections and technical elements; and 2) revising the communication and engagement section – description of formal requirements, establishment of the TAC, and dedicated outreach to Tribal entities. Other minor edits were made to the anticipated workshop schedule.

The updated version of the C & E Plan will be presented to the GSAs at the December 21, 2020 Board Meeting of the Sierra Valley GMD. The updated document will be posted to the GSP webpage, under the GSP Documents section, and as part of the Board Packet for the Sierra Valley GMD December meeting.

Agenda Review

Laura Foglia, LWA Project Manager, explained that the water quality presentation at the November 2020 TAC meeting represented more of an introduction and initial discussion. The goal for this December 2020 TAC meeting would be to review the November information and advance it with some recommendations and suggestions. Work will be iterative, building on the work of each TAC meeting.

The recap on assessing sustainability reviewed some of the terms and acronyms relating to Sustainability Indicators. Two items of the agenda related to GSP elements: groundwater quality and subsidence. The objective for all TAC meetings is to foster good, productive discussion within the allotted times.

Dr. Foglia noted that the DWR basin prioritization process, based on prioritization scoring elements, led to the current effort of developing a GSP for the Sierra Valley Basin. However, it was explained that GSP requirements are separate and different from the prioritization scoring elements and that the GSP will focus on collecting additional information and establishing guidelines for management actions.

Recap: Assessing Sustainability

At the November TAC meeting, five Sustainability Indicators were introduced, illustrated as “thermometers” to measure the health of the groundwater basin in terms of:

- Groundwater Levels
- Amount of Groundwater Storage
- Groundwater Quality
- Land Subsidence
- Groundwater-Surface Water Interactions

The GSP will need to demonstrate that these indicators will not experience locally defined, undesirable conditions. Several concepts and tools are used to assess groundwater sustainability. Defined below, these concepts were discussed in terms of groundwater quality.

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Sustainable Measurement Criteria: represent the locally defined items being monitored to track groundwater conditions for each of the Sustainability Indicators

Minimum Thresholds: represent where locally defined **undesirable conditions** occur, which are significant and unreasonable; it's a line that we don't want to cross

Measurable Objectives: are the goals or conditions that you are looking to achieve through sustainable management actions; this is where we strive for conditions to be

Triggers: while SGMA does not require triggers to be identified, they serve an important function by indicating when conditions have deteriorated (or failed to improve) – but have not yet reached undesirable conditions

- this provides a warning signal with a margin of “operational flexibility” to make changes and maintain compliance
- if a trigger threshold is reached, some type of action will be taken – such as additional monitoring or management actions
- triggers will likely be established for each sustainability management criteria

Sustainability Goal: each GSP needs to provide a sustainability goal – or a brief sentence that provides a big-picture vision of what people want the basin to look like. At the November 2020 TAC meeting, participants identified the qualities that would be retained or prevented for the Sierra Valley basin.

After the initial GSP is developed, these elements will be reviewed during the five-year updates of the GSP through 2042.

GSP Content: Groundwater Quality and Sustainable Management Criteria

The discussion on groundwater quality provides an opportunity to see how sustainable management criteria (SMC) and thresholds can be developed. Since it is important that everyone be working from the same level of understanding. – TAC members and meeting participants were encouraged to use the virtual meeting chat function and request additional clarification or examples if needed.

AVAILABLE DATA

In reviewing the summary of existing data available for the Sierra Valley groundwater basin, Ms. Foglia encouraged meeting participants to share other data sets with the technical team.

ACTION ITEM: Information about additional data sets should be sent to Betsy Elzufon, LWA Assistant Project Manager at: betsye@lwa.com.

Much of the groundwater data is obtained from GAMA (DWR's Groundwater Ambient Monitoring and Assessment Program), which is California's groundwater information system. Additional data sets on wells were obtained from Plumas and Sierra counties. The result is a summary of the number of wells, well types, water quality constituents being monitored, and the time period for data collection.

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ROLES & RESPONSIBILITIES RELATING TO WATER QUALITY

Dr. Foglia emphasized that many different entities oversee groundwater quality. The role of the GSAs is primarily on the monitoring of groundwater quality. The GSAs will also be responsible for adjusting groundwater management activities, if any are contributing to degradation of groundwater quality. Responsibility for any actual cleanup of contaminants falls under the authority of the regional water quality control board. Other efforts, such as the Irrigated Lands Regulatory Program, are involved with best practices for land uses that could potentially impact groundwater quality.

CONSTITUENTS OF CONCERN (COC)

In developing a list of potential constituents of concern (COCs), the goal is to be aware of elements or compounds that might affect groundwater quality. The COCs are factors that the GSAs want to be aware of. This does not mean that Sustainable Management Criteria (SMCs) will be developed for each COC. Rather, the GSP may develop SMCs for some COCs, while recommending additional data collection for the COCs without SMCs.

The potential list of COCs currently only includes elements that:

- exceed existing groundwater quality thresholds (such as established Maximum Contaminant Levels [MCLs], Notification Levels [NLs], or Water Quality Objectives [WQOs])
- are likely to exceed existing groundwater quality thresholds
- are commonly addressed in other GSPs

Drinking water standards have primary MCLs (maximum contaminant levels), which have potential impacts to health, or secondary MCLs, which relate to aesthetic qualities such as smell or taste.

A sample list of potential COCs for the GSP was introduced, comprised of: Total Dissolved Solids (TDS), boron, iron, manganese, arsenic, nitrate (as N), fluoride and chloride. Some elements show exceedances of thresholds, others do not, and some data points may be sparse.

For each potential COC, the distribution of monitoring data was mapped. Data points from a few wells (with the highest values for a constituent) were also charted onto a graph. The vertical (y) axis shows levels of a constituent found in the groundwater and the horizontal (x) axis indicates the date of the data sample. Each graph also includes an insert showing exceedance thresholds.

It was noted that data gaps are a major challenge: most GAMA wells in the basin are missing information about well type or depth. Similarly, there is poor spatial distribution and time series for the data collected on groundwater quality.

Discussion

- There are probably roughly 1,700 wells in the Sierra Valley basin – the GAMA program only involves 200 wells from Sierra Valley basin.
- There was a question as to how monitoring costs might be covered. Category (d) of the DWR grant provides some funding, through 2022, for monitoring and assessment. On a long-term basis, monitoring costs may become the responsibility of the GSAs.
- Look at including chromium and MTBE as a COCs. Consider an assessment of businesses that are using manmade chemicals that might impact groundwater quality.

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- Pesticide use and information is available through the Ag Commissioner's office and the Irrigated Lands Regulatory Program.
- It will be helpful to know if there are specific locations that should be looked at for specific constituents.
- Information about naturally occurring constituents could potentially inform groundwater management actions, such as recharge locations.
- Pumping should not contribute to migration of poor water quality

SUSTAINABLE MANAGEMENT CRITERIA (SMC)

A chart in the presentation illustrated the how COCs have been identified and addressed in different basins and GSPs. For example, GSPs set SMCs for all, or only some, of the COCs identified. Also, some basins do not set SMCs for naturally occurring constituents – since GSAs have little control over the occurrence of those concentrations – although pumping activities might affect the movement of those constituents within the aquifer.

A second chart shows the approach that the different basins used to set: maximum thresholds, measurable objectives and undesirable results.

Note: RMPs = representative monitoring points (or the wells in the designated monitoring network).

Discussion

In terms of undesirable results, it would be unacceptable to:

- violate state drinking water standards or other standards for groundwater quality
- have constituents transferred between older wells without sanitary seals
- have degraded water quality spread to other areas
- have water quality that is not suitable for agricultural uses
- have shallower wells dry up

It was noted that new construction standards for all well types require sanitary seals to prevent transfer of constituents.

Another comment highlighted that the readings for poorer water quality appear to follow the Grizzly Faultline, which also provides the hot wells in Sierra Valley.

Additional information on groundwater quality is contained in the Upper Feather River IRWM Plan:

- Page 4-11: <http://featherriver.org/wpcontent/uploads/2015/03/4.-Regional-Water-Issues-11-9-16-FINAL.pdf>
Municipal water in the region must be treated for high levels of toxic metals in some cases. Copper mining in the Upper Feather River watershed has caused copper, cadmium, mercury, and zinc impairments in several of the Upper Feather River tributaries. Water in the Sierra Valley is unusually high in arsenic from natural sources in thermal springs. Groundwater in the Sierra Nevada region is also unusually high in uranium from natural sources.
- Groundwater quality descriptions start on page3-60: <http://featherriver.org/wp-content/uploads/2015/03/3.-Region-Description-Chapter-11-9-16-FINAL-wmaps-small.pdf>

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Straw Proposal for COCs and SMCs:

It is proposed that the following constituents of concern be identified and defined in the GSP, as part of the discussion on groundwater quality.

- arsenic
- boron
- chloride
- fluoride
- iron
- manganese
- MTBE
- Nitrate (as N)
- Total Dissolved Solids (TDS) – generally representing salts

It is proposed that Sustainable Management Criteria be established for two of the above-listed constituents: nitrate (as N) and TDS. This recommendation is based on having enough past data to establish those SMCs. The remaining potential COCs have data gaps that might benefit from additional monitoring.

THRESHOLDS and MANAGEMENT OBJECTIVES

In defining Maximum Thresholds, it might be best to use regulatory criteria such as drinking water standards. These would apply across all monitoring wells.

Management objectives would be well-specific and can be a bit more flexible. The objectives could perhaps be set within historical values (as long as those did not exceed maximum thresholds).

Triggers could be established for management purposes.

Quantitative values can also be established for Undesirable Results. For example, an undesirable result might be: An exceedance of maximum thresholds in over 20% of wells in the monitoring network. Another example of an undesirable result is: A significant, increasing trend in degradation of groundwater quality by more than 1% per year, on average over 10 years, in more than 20% of the wells in the monitoring network.

SELECTING A MONITORING NETWORK FOR GROUNDWATER QUALITY

Consideration for establishing a monitoring network should include:

- Building on existing monitoring networks to the extent possible
- Looking at wells that have been regularly monitored in the past (and are not in the GAMA data system)
- Addressing data gaps in spatial distribution or for specific COCs

NEXT STEPS for ASSESSING GROUNDWATER QUALITY

- Define unreasonable and undesirable results for groundwater quality
- Refine the shortlist of constituents

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- COCs will be described in the GSP; Sustainable Management Criteria will be developed for some of those COCs
- For each SMC, define Maximum Thresholds, Measurement Objectives and Triggers
- Develop the monitoring network for groundwater quality

GSP Content: Subsidence and Sustainable Management Criteria

Dr. Foglia presented initial information on subsidence which, like the topic on groundwater quality, will be discussed over several meetings. Based on available data sources, subsidence has been shown to occur in some areas of the basin.

Subsidence occurs as a result of pressure on the layers (aquitards) within the aquifer, which compresses and condenses those layers. “Elastic” subsidence involves compression on layers that can recover (expand back) once the compression goes away. “Inelastic” subsidence cannot be remedied – once the aquitard layer is compressed, it stays compressed. The compression can be caused by pumping, where the lowering of groundwater levels results in compaction of the aquitard layers. The composition of the aquitard itself determines whether subsidence is elastic (temporary) or inelastic (permanent).

Subsidence can impact physical infrastructure such as railroad tracks, roads, bridges and water conveyance features. Subsidence can impact privately owned infrastructure, such as well heads. There can also be impacts to the basin itself, such as reduced groundwater storage and possible effects to wetlands and streams. The key consideration in defining undesirable results for subsidence is this: How much is too much? This determination will be made by the GSAs based on recommendation from the TAC with input from local perspectives.

SUBSIDENCE STUDY METHODS

The monitoring of ground surface elevation can be achieved through several approaches:

- On-the-ground surveys
- Satellite GSP
- Extensometers
- Aerial or satellite radar (InSAR)

The existing information comes from 1983 ground and road surveys, which show one foot to two feet (1’ - 2’) of ground subsidence (from 1950 – 1983) associated with declines in groundwater levels between 3 feet and 20 feet (3’ – 20’). More recent data comes from InSAR reports from 2015 to 2019. DWR will continue to collect and analyze InSAR data through 2022. Other recent data includes a 2016 CalTrans ground survey. These more recent data sets indicate additional subsidence between 2012 and 2016. InSAR results should be compared to those from ground surveys to reduce the likelihood of errors in post-processing of data. (For example, two different analytical processes show different results for the same sets of data.)

In her presentation, Dr. Foglia showed digitized maps that illustrated changes in ground surface elevations in the Sierra Valley basin.

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SUSTAINABLE MANAGEMENT CRITERIA

As with groundwater quality, the GSP will need to describe where any subsidence problems are occurring, then establish Sustainable Management Criteria (SMC) and create a monitoring network. The use of ongoing studies will help reduce costs.

Groundwater levels can be used as a proxy to help define the Minimum Threshold and Measurable Objectives. To do so, groundwater levels will need to be correlated to results obtained from measurement of ground surface elevation (e.g., InSAR, ground surveys). Relationships between groundwater levels and ground surface elevations need to be established over time.

Other monitoring options include installation of a GPS station. Extensometers are another option, although they can be quite expensive and are likely cost prohibitive.

COMMENT

Plumas County Public Works Department, Roads Division (Joe Blackwell, Deputy Director, 530-283-6491) is available for further conversations regarding subsidence and what road crews have experienced in recent years.

CalTrans surveys done during road maintenance in the basin could provide another source of information on ground surface elevation.

NEXT STEPS for ASSESSING SUBSIDENCE

- Define unreasonable and undesirable results for subsidence
- Develop Sustainable Management Criteria (SMC)
- For SMC, define Maximum Thresholds, Measurement Objectives and Triggers
- Establish a monitoring network for subsidence

Meeting Evaluation

Meeting participants were asked to assess the quality of the meeting, specifically indicating what aspects were helpful and should be kept – and which aspects of the meeting should be changed. The responses were:

- Great information, well presented
- Powerpoint was helpful for following the conversation
- It was good to review and clarify points, revisiting slides
- Agenda was kept moving along
- It was good to have a break during the virtual meeting
- The online meeting was okay

No changes were suggested for the meeting format.

Next Steps

Meeting materials will be posted by Friday, December 11th to support continued post-meeting discussion.

Please send any additional comments, or information on additional data sets to Betsy Elzufon at betsye@lwa.com **by Monday, December 21st**.

The NEXT TAC MEETING DATE is JANUARY 11, 2021 from 1:00 – 4:00 P.M.

- The TAC will meet again on Monday, January 11th from 1:00 – 4:00 p.m.
- The meeting location will be determined and announced in a later email (it may be a virtual meeting)

POST – MEETING FEEDBACK ON GROUNDWATER QUALITY and SUSTAINABILITY

On Monday, December 14th, the following materials will be posted to the Sierra Valley GSP webpage:

- Link to webinar recording
- Meeting summary
- Link to an online survey regarding priorities
- Worksheet with questions on groundwater quality (include a request for additional information on related data)

An email will be sent out, informing all TAC members and interested parties that these materials have been posted. The email will also include instructions for providing additional comments and ideas by Monday, December 21st- including opportunities to schedule individual phone calls with the technical team for more in-depth conversations.

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Participants

TAC MEMBERS

X = attendance

	Organization, Name		Organization, Name
	City of Loyalton Brooks Mitchell	X	Sierra County Environmental Health Elizabeth Morgan
X	Feather River Land Trust Ken Roby	X	Sierra County Public Works Tim Beals
	Feather River Trout Unlimited William Copren		Sierra Valley Groundwater Mgmt. District Dave Goicoechea
X	Hinds Engineering Greg Hinds	X	Sierra Valley Resource Conservation District Rick Roberti
X	Integrated Environmental Restoration Svcs. Michael Hogan	X	Sierraville Public Utility District Tom Archer and Paul Rose (alternate)
X	Plumas Audubon Jill Slocum	X	UC Cooperative Extension Tracy Schohr
X	Plumas County Tracey Ferguson and Tim Gibson (alternate)	X	Upper Feather River IRWM Uma Hinman
X	Plumas County Environmental Health Rob Robinette		USFS – Plumas National Forest Joe Hoffman
X	Sierra Brooks Water System Tom Rowson	X	USFS – Plumas National Forest Rachel Hutchinson

EX-OFFICIO MEMBERS

X	CA Department of Water Resources Debbie Spangler		CA Department of Fish and Wildlife Bridgett Gibbons
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TECHNICAL TEAM & PLANNING COMMITTEE

- | | | | |
|---|--|---|------------------------------------|
| X | Laura Foglia, LWA Project Manager | X | Judie Talbot, Outreach Facilitator |
| X | Betsy Elzufon, LWA Asst. Project Mgr. (admin) | X | Gus Tolley, |
| X | Cab Esposito, LWA Asst. Project Mgr. (techn'l) | X | Kristi Jamason, Planning Committee |
| X | Mitchell Mysliwiec, LWA Assoc. Engineer | | |

COMMUNITY MEMBERS

- | | | | |
|---|-------------|---|--------------|
| X | Lucy Blake, | X | Lindsay Wood |
|---|-------------|---|--------------|