

CGA/GGA Joint Technical Advisory Committee Meeting  
Agenda Packet

# CGA/GGA Joint Technical Advisory Committee Meeting

## **MEETING MINUTES**

April 9, 2021 | 1:00 p.m.

Due to safety concerns and directives from the Governor and Federal Government related to COVID-19,  
**This meeting was held remotely ONLY.**

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### **1. Call to Order, Roll Call, and Introductions**

The meeting was called to order at approximately 1:00 p.m.

Dave Ceppos, facilitator with the Sacramento State, Census and Collaboration Program (CCP) opened the meeting and went over some housekeeping and logistical items.

#### **In Attendance:**

##### **Committee Members:**

GGA: Emil Cavagnolo, Mark Lohse, Zac Dickens, David Kehn, Donald Bills

CGA: Denise Carter (new CGA TAC member), Darrin Williams, Bill Vanderwaal, Jim Wallace, Thad Bettner (1:28), Brandon Davison (ex-officio)

**Others in Attendance:** Lisa Hunter (GGA Staff), Mary Fahey (CGA Staff), Dave Ceppos, (CCP), Grant Davids (Davids Engineering, Inc.), Ken Loy (West Yost Associates), John Ayers (Woodard and Curran), Duncan MacEwan (ERA Economics), Jeff Davids (Davids Engineering, Inc.), Reza Namvar (Woodard and Curran), George Valenzuela (Woodard and Curran), Shelly Murphy (CGA), Holly Dawley (GCID), Matt (last name not available), Lester Messina, Ashley Driver, Arne Gustafson, Joel N., Karen Biane, Chase Hurley, Hilary Reinhard (CGA), John Amaro (GGA), Pat Vellines (DWR), G. Wells, Eddy Teasdale, Leanne Mord, Dana Pressley, 3 other unidentified attendees on the phone

### **2. Approval of Minutes (CGA TAC, GGA TAC)**

#### **a. January 8, 2021 CGA/GGA Joint TAC Meeting**

#### **b. February 24, 2021 CGA/GGA Joint TAC Meeting**

**CGA:** Bill Vanderwaal moved to approve the meeting minutes from the January 8, 2021 and the February 24, 2021 CGA/GGA Joint TAC meetings. Darrin Williams seconded and the motion passed per roll call vote:

Denise Carter – Abstain

Bill Vanderwaal - Aye

Jim Wallace - Aye

Darrin Williams – Aye

**GGA:** Emil Cavagnolo moved to approve the meeting minutes from the January 8, 2021 and the February 24, 2021 CGA/GGA Joint TAC meetings. David Kehn seconded and the motion passed per roll call vote:

Donald Bills – Aye  
Emil Cavagnolo – Aye  
Zac Dickens – Aye  
David Kehn – Aye  
Mark Lohse – Aye

Mr. Ceppos turned the floor over to Grant Davids, Davids Engineering, Inc., who provided acknowledgement of the recent and tragic passing of Byron Clark. Byron was the Project Manager and lead consultant on the Colusa Subbasin GSP project, and a Principal Engineer at Davids Engineering, Inc. for many years. Mr. Davids described Byron as a dear friend and fantastic colleague. He explained that he has stepped in to take on Byron’s responsibilities and he expressed his pride in the work that Byron had completed on the Colusa Subbasin GSP project, leaving a solid foundation for the team to continue to build on. Byron will be greatly missed by all who had the pleasure to know him and to work with him.

### **3. Period of Public Comment**

There were no public comments.

### **4. Colusa Subbasin Groundwater Sustainability Plan Development:**

#### **List of Acronyms:**

GSA – Groundwater Sustainability Agency  
GDE – Groundwater Dependent Ecosystem  
GSP – Groundwater Sustainability Plan  
MO – Measurable Objective  
MT – Minimum Threshold  
PMA – Projects and Management Actions  
SGMA – Sustainable Groundwater Management Act  
SI – Sustainability Indicator  
TAC – Technical Advisory Committee  
TDS – Total Dissolved Solids  
UR – Undesirable Result

#### **a. TAC recommendation Timeline—Discussion**

Mr. Davids explained the upcoming Joint TAC schedule, meeting topics and decisions to be made. He stated that these decisions are not easy, but there is not a single GSP that is going to be perfect on the first round and he reminded the TAC that the process under SGMA is an adaptive management process.

#### **b. Sustainable Management Criteria**

##### **i. Water Quality— Proposed Joint TAC Recommendation**

John Ayres presented a salinity map showing TDS at different depths in the basin. Higher concentrations of TDS appear near the Sutter Buttes. Mr. Ayres explained that the existing monitoring network for water quality relies on data gathered under other existing groundwater quality monitoring programs. The networks from those programs are not adequate for SGMA. The Consultant recommendation is for the GSAs to establish a new groundwater quality monitoring network specifically for TDS and monitor to identify any instances of upwelling of saline water. Development of the monitoring network for TDS would be an implementation task in the GSP. Mr. Ayres said that this does not mean installing new monitoring wells, but rather using existing active irrigation or possibly domestic wells. In order to test

groundwater quality, it is necessary to purge water from wells prior to testing, so wells that are actively pumping would be ideal for water quality monitoring. The recommendation is to establish a network in the 2022 GSP, using existing wells, and then to set thresholds in the 2027 GSP update after the GSAs have had time to gather data and establish baselines. Since there is not an existing groundwater quality monitoring network, there are no baseline measurements and, therefore, it is problematic to set thresholds at this time.

#### **QUESTIONS:**

Bill Vanderwaal asked if salinity/TDS is the only constituent that is required to be monitored for the GSP. Mr. Ayres said that under SGMA the GSAs need to monitor for things that would result in a UR. The UR Statement for water quality for the Colusa Subbasin states that there must be a nexus between groundwater quality and groundwater management activities. The focus should be on setting thresholds for things that the GSA has the ability to manage, such as groundwater pumping.

Mr. Ceppos said that water quality is unique in SGMA in regard to what GSAs can and cannot do. He pointed the group to a document on this topic from Stanford's Water in the West program: <https://stacks.stanford.edu/file/druid:dw122nb4780/A%20Guide%20to%20Water%20Quality%20Requirements%20under%20SGMA.pdf>

Don Bills asked if groundwater quality monitoring will be restricted to the lower saline aquifer or will occur at different depths. Mr. Ayres explained that they will try to tailor the network to where saline upwelling would be likely to occur, which would be primarily in the deeper aquifer zone. Ken Loy mentioned that draft GSP chapters 1-4 were recently released for public review. Chapter 4 describes the monitoring network. Several new monitoring networks exist under different state and federal programs focused on nitrate and salinity. He suggested the GSAs utilize existing water quality monitoring programs to the extent possible. There is a lot of existing data, but it is very sporadic. Water quality standards are included in the draft GSP chapters that were released. Salinity is specifically addressed because it has a strong nexus with groundwater production as pumping and well development could affect mobilization of saline water.

Mr. Ceppos opened the floor to public comments. There were none.

Mr. Ayres presented the proposed Action for the TAC to consider:

**The Joint TAC recommends that the GSA Boards adopt a GSP policy to conduct monitoring of saline groundwater to support establishing a salinity threshold for groundwater quality as part of the 2027 GSP Update.**

#### **ACTION:**

**CGA** – Mr. Vanderwaal moved to accept the recommendation as presented. Denise Carter seconded and the motion passed per roll call vote:

Denise Carter – Aye

Bill Vanderwaal - Aye

Jim Wallace – Not available for vote

Darrin Williams – Aye

Thad Bettner - Aye

**GGA:** Zac Dickens moved to accept the recommendation as presented. Mark Lohse seconded and the motion passed per roll call vote:

Donald Bills – Aye  
Emil Cavagnolo – Aye  
Zac Dickens – Aye  
David Kehn – Aye  
Mark Lohse – Aye

## **ii. Land Subsidence— Proposed Joint TAC Recommendation**

Mr. Ayres presented the monitoring plan for subsidence, which is to utilize existing GPS-based Sacramento Valley Height Modernization project monitoring benchmarks, backed up by InSAR data and data from the three extensometers that exist in the Colusa Subbasin. Benchmarks are planned to be evaluated and resurveyed every five years by the California Department of Water Resources (DWR). SGMA does not require GSAs to report subsidence annually. The five-year GSP update schedule coordinates well with DWR's planned surveys. DWR is not formally obligated to continue these surveys, so if they discontinue this service, the GSAs can use InSAR data, or groundwater levels as a proxy. The GSP would be modified in the future if those monitoring options are later selected.

Mr. Ayres displayed a map of subsidence occurrence in the Colusa Subbasin. Even in areas with the most subsidence, it is not a large amount per year, although the GSAs will need to keep an eye on these areas. The recommendation is to set subsidence thresholds, with consideration of historic subsidence, using a maximum rate of subsidence over a five-year period based on measurements from 2006-2017.

The recommendation is, in areas with greater than 1 foot of historical subsidence:

1. The MT would be set at 0.60 foot/year, and
2. The MO would be set at 0.25 foot/year.

And, in areas with less than 1 foot of historical subsidence:

3. The MT would be set at 0.50 foot/year, and
4. The MO would be set at 0.25 foot/year

A UR is detected when 10% or more (6 or more of 60 representative monitoring sites) experience subsidence rates above the MT.

The GSAs should consider adding benchmarks to the monitoring network as part of GSP implementation.

### **QUESTIONS:**

Mr. Vanderwaal, referring to slide 11, asked if the measurements were a rolling average over five years. Mr. Ayres said that under the recommendation, it is a rolling average.

Mr. Vanderwaal, referring to slide 12, asked why the recommendation is 10%. He feels this is low. Mr. Ayres said that since the monitoring network is relatively large, 10% is about 6 sites. Mr. Vanderwaal said that his initial concern is that 10%, or 6 sites, likely already have some subsidence happening, and we would be setting the MT right on the threshold. He would be more comfortable with 15%, or 9 sites.

Mr. Kehn asked, why, with the recommended MO, we would still be experiencing subsidence. Mr. Ayres explained that DWR reports a potential error of  $\pm 0.17$  foot for the subsidence measurement, and the recommended MO should be set at something greater than the potential error. 0.25 feet is recommended.

Mr. Kehn asked that if the threshold is 6 of 60 sites, which 6 sites are considered? Location is important. He asked if the 60 sites could be narrowed down to those that are near critical infrastructure. Mr. Ayres said that all of the laterals and canals are not shown on the map. The GSA would have to develop agency-specific policy to define which of the canals, ditches, drains, etc. are considered critical infrastructure. Or, the GSAs could consider that all benchmarks are close enough to critical infrastructure to avoid going through that exercise. Mr. Kehn said that he is fine with the proposal as long as it is clear that an MO of 0.25 feet is based on the error in the methods of measurement.

Mr. Ceppos asked Mr. Vanderwaal if he is suggesting a change to the recommendation from 10% to 15% of benchmarks experiencing subsidence rates above the MT and whether that would constitute a UR. Mr. Vanderwaal said yes, and also, if there are benchmarks near critical infrastructure there could be a more strict MO to allow the GSAs to take action earlier in the process. The bottom line is that we should avoid State agency intervention. Mr. Vanderwaal explained that he would rather have the MO set more strictly so the GSAs can fix the problem, and a more conservative MT to give the GSAs more time before the State might step in.

Mr. Ceppos asked Mr. Vanderwaal, on slide 11, if he would recommend changing language to reflect MTs near critical infrastructure. Mr. Vanderwaal said potentially a MO near critical infrastructure could be set at 0.1 instead of 0.25 so the GSAs will have to take action sooner to provide more time before the State might intervene. He said the MO is when you need to take action, the MT is when we have failed.

Mr. Ayres reiterated that the margin of error in the DWR subsidence measurements is 0.17 foot and he would not recommend setting an MO of less than this value. Setting the MO at 0.1 is not a strong technical position because it is less than the margin of error in the survey measurements. He said that the GSA is required to manage to avoid an UR, which means the GSAs must take action long before they would reach the MT.

Mr. Loy said that certain URs have a time lag, including subsidence, surface water interaction, and impacts to GDEs. You could look at it as once you see an impact it's too late to act, but it's more the ongoing practical management that the GSAs would be doing, such as keeping an eye on groundwater levels and new well development, updating monitoring sites and adding benchmarks.

Mr. Kehn commented that he agrees that 10% of monitoring sites is too strict for the subsidence UR and it might be beneficial to increase that threshold to perhaps 15%.

Ms. Carter said she agreed with 15%. She asked if the suggested MT means that if a point subsides .6 foot in one year would that be a red flag.

Mr. Ayres clarified that this network is measured once every five years. Three feet over a five-year period means .6 feet per year for five years. If six locations experience this, that would be a UR. A single site does not cause a UR.

Ms. Carter asked how the GSAs will know if subsidence has occurred in between the five years. Mr. Ayres said that subsidence happens at a very slow rate, and that the GSAs can utilize annual InSAR measurements and data from the 3 extensometers in the Subbasin. The existing GPS subsidence network is valuable in several ways, because it is being monitored by a state entity (DWR), there is no cost to the GSAs, and it provides good coverage throughout the Subbasin.

Mr. Williams said that there are local indicators such as well failures (collapse of well casings) that occur at the time of subsidence. These are good indicators for the GSAs to know that subsidence is likely occurring. The GSAs don't have to wait for five years. This could be one of the tools to manage subsidence.

Mr. Ceppos summarized that Mr. Vanderwaal proposed to change the suggested percentile recommendation from 10% to 15% of wells experiencing subsidence rates above the MT would constitute a UR. There is also a proposal (slide 11) to adjust the MO down to some level. The margin of error is within 0.17 foot so the lowest it should be is 0.17 foot. Subsidence is slow moving and once detected there could already be issues. Given that the proposed action is based on the content of the presentation, it was noted that changes will be needed to the presentation to reflect revisions.

Ashley Driver asked what the margin of error of 0.17 foot means. Mr. Ayres explained that this is the margin of error for GSP subsidence monitoring that DWR provides in their subsidence reports. Ms. Driver asked what the implications of the UR are for growers in the Subbasin. Mr. Ayres said this is not well defined at the state level, but exceeding the UR allows State intervention which could have a number of implications to landowners.

Ms. Driver said that she attended a meeting in the Yolo Subbasin and one concern expressed there was natural subsidence. She asked whether that factored in here? Mr. Ayres responded that currently, natural causes of subsidence are not considered and that the technical team has not identified any naturally occurring subsidence.

Don Bills, via Chat, asked about the lag in subsidence showing up and the relationship of subsidence to groundwater level changes. Groundwater storage is a SI and we are using groundwater levels as a proxy. Once subsidence has occurred, it is unlikely to recover, resulting in a permanent loss of groundwater storage capacity. Is this addressed?

Mr. Ayres said that groundwater storage is a Sustainability Indicator (SI) and we are monitoring for storage using groundwater levels as a proxy. If there is a concern for storage it is directly tied to groundwater levels. As we set groundwater level thresholds, we will consider this. Subsidence is a loss of water in the clays. These are not key drivers for the groundwater supply that can be used for beneficial uses.

Mr. Loy described some action items:

- The tectonic subsidence questions can be addressed by making an adjustment to the statement of how we set the MT.
- Items to be addressed in the next iteration of the Basin Setting chapter will be:
  - Loss of storage due to aquifer compaction
  - The fact that it is not just surface infrastructure that should be considered related to subsidence, but also well casing collapse

Mr. Bills asked if natural gas wells are considered (as contributing to subsidence). Mr. Ayres said that could be a concern and can be looked at during GSP implementation. To determine if subsidence is water related or natural gas related, an obvious indicator is groundwater levels. If we see subsidence in an area where groundwater levels are stable, then that would signal a need to investigate other causal factors.

Mr. Kehn asked for clarification on the following: if 0.17 foot accuracy is at the five year mark, does this mean that if it is every five years, would we divide changes by five? Mr. Ayres said he would have to go

back and review that. Mr. Kehn said it would be good to know if any irrigation districts have experienced changes in canal flow capacity.

Mr. Williams commented, when looking at 10% versus 15% of 60 sites, a lot of the sites are unlikely to experience subsidence and suggested fine-tuning this approach to look specifically at the problem areas.

Mr. Davids said there are two distinctly different perspectives for setting MTs for the land subsidence indicator. The first is how to define conditions to keep the State from intervening, and the second relates to sustainably managing the Subbasin and avoiding URs. With respect to the latter, the GSAs can and should put in additional benchmarks and take actions prior to exceeding MTs and triggering a UR.

Ms. Carter commented that the thresholds are for when the State would intervene and prior to that, the GSA's can manage how they want. If there is a problem in a certain area, it's up to the GSAs to address it. Our goal is to have a reasonable threshold that satisfies the State and helps us protect our resources. We can address areas of concern within our own authority.

Mr. Ceppos summarized the conversation and the potentially amended action for the TAC to consider. The suggested action on slide 13 was reliant on language on slides 11 and 12. On slide 12 he described potential changes (as per Mr. Williams' suggestion) specific to key benchmarks, and Mr. Vanderwaal's proposal to change 10% to 15%. Mr. Ceppos asked Mr. Ayres what he thinks is an effective modification to the proposed language. Mr. Ayres said he has heard a range of opinions expressed by different TAC members. If we set a different percentage for the yellow, red, and orange sites on the map, this item would have to come back to another meeting. If we use all monuments and pick an UR rate, we can come to a decision today. He reiterated that subsidence is a symptom of groundwater levels. The GSAs will need to take a hard look at groundwater levels and PMAs and he cautioned against being too restrictive.

Mr. Williams said he is fine with language at either 10% or 15%. He agrees there is no perfect GSA and feels this is a fine starting point.

Mr. Ayres suggested working in InSAR review for local guidance and potentially including that information in annual reports for a general understanding of subsidence conditions.

Mr. Ceppos asked Mr. Vanderwaal to confirm that he is comfortable leaving slide 11 as-is and changing the percentage on Slide 12 from 10% to 15%, and adding the suggestion to include InSAR data and analysis annually.. Mr. Vanderwaal said yes.

Mr. Ceppos confirmed the following:

Slide 11 - language to stay the same, with the addition of language about InSAR data being incorporated annually. Slide 12 - Change 10% to 15%. Mr. Davids said he thinks this suggestion of 15% is a good way to go and the GSAs can tighten it up in five years if needed.

Jim Wallace said that he is fine using the 15% number.

Ms. Driver reiterated that there are other factors that cause land subsidence and that water consumption is not the only contributing condition.

**Slide 12 was amended from 10% to 15%, and from 6 of 60 wells to 9 of 60 wells**

Mr. Ceppos opened the floor to one last round of public comment on this topic. There were none.

**ACTION:**

- **Slide 11: no change in MO and MT criteria; amended to include annual review of InSAR data.**
- **Slide 12: change 10% to 15% and 6 of 60 wells to 9 of 60 wells**
- **Slide 13: no change**

**GGA:** Zac Dickens moved to accept the recommendation with the noted edits to slides 11 and 12. David Kehn seconded and the motion passed per roll call vote:

Donald Bills – Abstain (Mr. Bills had connectivity issues during this discussion and was not able to participate)

Emil Cavagnolo – Aye

Zac Dickens – Aye

David Kehn – Aye

Mark Lohse – Aye

**CGA** – Mr. Wallace moved to accept the recommendation with the noted edits to slides 11 and 12. Ms. Carter seconded and the motion passed per roll call vote

Denise Carter – Aye

Bill Vanderwaal - Aye

Jim Wallace – Aye

Darrin Williams – Aye

(Thad Bettner was not available for this vote)

At this time, Mr. Ceppos called for a 6-minute break.

Upon reconvening, Mr. Ayres opened discussion for the next section of topics and explained that the technical consultant team was not asking for action on these items today. These will come back as actions items at the May 14 Joint TAC meeting.

**iii. Groundwater Levels—Discussion**

Mr. Ayres began this discussion by saying it is recommended that groundwater levels will be used as a proxy for GDEs and stream depletions. The GSAs can have different MTs for different SIs and will have to manage to the shallowest of these three MTs.

Mr. Ayres displayed color-coded maps that illustrate which criteria is setting the MT at each monitoring site: well infrastructure or percent of range below historical low, and provided some sample hydrographs utilizing the proposed approach. The technical team proposes setting the MT at the lower of 20% range below historical low and the 20<sup>th</sup> percentile of the shallowest domestic wells in each monitoring well's Thiessen polygon. The MO will be the mean of the last five years of available measurements. Interim milestones will be based on PMAs. A UR will be detected when 25% of the representative monitoring wells fall below the MT for 24 consecutive months. Under SGMA, long-term trends are important, not necessarily conditions in one particular year. That is why the technical team is suggesting a time-frame of two years prior to exceeding the MT in order to give the GSAs time to investigate if one or more wells fall below the MT.

Mr. Vanderwaal asked if more hydrographs will be available for review prior to a decision being made. Mr. Davids said yes.

Duncan MacEwan, ERA Economics, introduced the subject of economics related to groundwater level MTs and MOs. The technical team is analyzing economic implications for setting MTs at higher or lower levels, and if there is an economic rationale for setting the MT higher or lower. They have completed a standard cost/benefit analysis. Two costs are being considered – pumping from a lower level and well replacement costs. The benefit side includes avoiding or delaying implementation of PMAs.

Analysis was done at each monitoring well in the Subbasin. Mr. MacEwan provided two sample graphics and explained that, on the cost side, in general, annual costs are below \$1 million. Costs vary due to density of domestic wells and average annual pumping. On the benefits side, avoided project costs are likely going to be lower cost than demand management.

Mr. MacEwan displayed a chart summarizing costs and benefits. The analysis shows that, in general, there is not a rationale for setting MT differently than what is being proposed, with the exception of four monitoring sites.

Mr. Ceppos opened the floor to questions. There were none.

#### **iv. Groundwater Storage—Discussion**

Mr. Ayres explained that the team is planning to use groundwater levels as a proxy for the groundwater storage SI because the bottom of fresh water in the Colusa Subbasin is very deep. The limiting factor is well infrastructure, so too many wells would be dewatered before storage was affected. He said that this approach is fairly standard in GSPs throughout the state.

#### **v. Groundwater Dependent Ecosystems—Discussion**

Mr. Ayres displayed a map of a potential monitoring network for GDEs based on wells in the existing Colusa Subbasin monitoring network. He explained that the current network of monitoring wells is not adequate for evaluating GDEs. Thresholds for GDEs are generally 30 feet below ground surface which is restrictive. The team recommends that the TAC consider expanding the shallow monitoring network as part of the 2027 GSP update. There are five wells in the network that could be assigned thresholds now and that could be expanded on for the 2027 GSP update, or the GSAs could define the network in the 2027 update. 30 foot piezometers could be installed for this network. There should also be further analysis to gain a better understanding as to whether the mapped GDEs are actual GDEs. GDEs are a beneficial use of groundwater so they at least have to be considered.

Mr. Wallace asked, for clarification. Is the recommendation is to add shallow monitoring wells over the next five years to gain a better understanding of the interaction and in meantime to set the MT and use the information that we have?

Mr. Ayres clarified that the recommendation is to get another more accurate GDE study done and expand the network with shallow wells to improve understanding and identify places to install shallow wells over the next five years after the GSP is submitted. They are not recommending using the existing network.

Mr. Wallace asked if costs have been considered. Mr. Ayres said no, and this potential project would become a PMA and be cost estimated in the future.

Mr. Davids said that there are funds remaining under one grant that are dedicated to GDEs and the best investment would be to refine the GDE classification that TNC developed. It was a good start but others are finding there is some error. Before we put holes in ground we should have more certainty. There is approximately \$35,000-\$45,000 available. Mr. Davids said they could probably get some field biology done with the remaining funds. He will review the grant and discuss with GSA program managers.

Ms. Driver asked if these wells will be monitoring for other things. Mr. Ayres said yes, groundwater levels and there is a potential they could be used in other programs.

#### **vi. Depletions of Interconnected Surface Water—Discussion**

Mr. Loy stated that interconnected surface water is one of the more challenging subjects that must be considered under SGMA. The idea behind this SI is that groundwater pumping could affect streamflow. The Colusa Subbasin UR statement specifies beneficial uses and users within the Colusa Subbasin. On the Sacramento River, these could be water rights holders and environmental uses for example. In the regulations there is support to limit this SI to the Subbasin itself but there are parts that infer it could extend to outside of the Subbasin. The environmental community would expect us to include beneficial uses and users outside of the Subbasin. There are discussions about this with adjacent subbasins at the GSA level, discussions led by the Northern California Water Association (NCWA) and discussions at the DWR technical support division. Currently there are no tools available to analyze this SI. In general, there is support to increase monitoring to gain a better understanding.

Mr. Loy presented projected surface water depletions from the model results. The model is showing that in the future there remains a net stream gain, but there is less gain than what we see currently due to increased pumping to support increased crop ET demands. Mr. Loy explained that the model results subject to uncertainty and must be interpreted accordingly.

Mr. Loy said that the timing of stream depletions should be considered. Even if we see reductions in net gains to streams, the depletions could occur at times when there is surplus water in the Sacramento River system and there are therefore no significant and undesirable results.

Mr. Loy said that one possible approach to monitoring surface water depletions is to use groundwater levels as a proxy. The SGMA GSP Regulations mention using a groundwater model to address streamflow depletion, but the consensus has changed to the opinion that modelling is not a workable approach because there is too much uncertainty in the various models used statewide. Groundwater levels are a much better way to measure this. This is a consensus among GSAs and the environmental community. It is recommended to evaluate groundwater levels in wells that are near the river, but not so close to the river that the river stage is influencing groundwater levels. Half a mile to five miles away from the river is recommended. It is also recommended to base the MT on 2015 measured groundwater levels to avoid additional streamflow depletions relative to 2015, which is the regulatory date. In the Colusa Subbasin, analysis will focus on the Sacramento River, Stony Creek and the Colusa Basin Drain because they are the three streams represented in the model.

Mr. Ayres wrapped up this discussion by reminding the TACs that when using the groundwater level MT for multiple SIs, the GSAs will need to manage to the most constraining (shallowest) threshold. In other words, the GSP will need to manage to keep conditions above the shallowest MT to avoid contributing to triggering of a UR. In summary, additional monitoring is needed to improve understanding of streamflow depletion and there is potential for a regional approach. MT based on streamflow depletion may be more constraining than those for groundwater levels. Lastly MT based on recent historical groundwater levels

would allow future groundwater operations to remain about the same as historical and shallow wells installed for GDEs may also be able to be utilized for streamflow depletion.

## **DISCUSSION**

Mr. Davids clarified that this is an evaluation, not the team's recommendation. The Environmental Defense Fund is advocating this approach of setting MT near streams at levels around 2015 and managing to not drop below 2015 levels. GSAs are given local control so it is an option ignore this. It will require robust discussion.

Mr. Kehn said that similar to GDEs we are considering additional monitoring. He said he wants to be sure the verbiage is robust around this, that there is comprehensive narrative in the GSP to explain our approach.

Mr. Vanderwaal asked, for clarification. Is it being recommended that groundwater levels be used as a proxy for groundwater storage, GDEs and surface water depletion. Mr. Ayres said yes. Mr. Vanderwaal asked Mr. Davids if it is possible to see what is shown on slide 38, historical groundwater level information combined with the model output information. Mr. Davids said that is where the team is headed but pointed out that there are challenges at some wells because modeled groundwater levels do not always agree well with measured levels. This is because numerical models invariably not perfect. If everyone understands that they will see differences between historical and modelled values, he can provide those. He suggested placing primary emphasis on measured historical groundwater levels, not modelled levels.

Mr. Vanderwaal said that slide 38 shows one graph with model results and one with measurements and asked if these could be overlaid. Mr. Ayres he could do that on separate graphs. Mr. Loy added that there should be a time dimension in evaluation for this SI. Mr. Ayres suggested 24 months similar to groundwater levels.

Mr. Davids said that the team will distribute the new graphs by the end of next week, provide time for TAC member review, and aim for a special meeting two weeks from today.

### **c. Projects and Management Actions—Discussion**

Due to time constraints, this item was tabled and will be discussed at the next meeting.

## **5. Topics and TAC Decisions for Next Meeting (May 14, 2021)**

Mr. Davids said that a slightly revised PowerPoint presentation from today's meeting will be distributed to TAC members, and the technical team would be happy to receive any comments on the presentation.

Mr. Davids stated that every meeting from now through June will be a heavy lift. The TAC will be asked to make recommendations at the May and June meetings related to SMCs and PMAs. The upcoming special meeting to be scheduled prior to the May 14 meeting may not include any formal decision-making, but Mr. Davids said it will be important to meet again to keep things moving. Mr. Ceppos and Mr. Davids confirmed that meeting materials will continue to be distributed well in advance of meetings.

Ms. Fahey suggested attempting to schedule the special meeting now, potentially April 23 at 1:00 p.m. Mr. Vanderwaal proposed April 30 at 1:00 p.m. Mr. Ceppos polled TAC members to see if any could not make those meeting dates. Ms. Hunter said that she could not make the 30<sup>th</sup>. No TAC members responded that they could not attend either date. Staff will follow up to schedule the next meeting date.

## 6. Public Outreach Update

Mr. Ceppos provided a public outreach update. The Communication & Engagement (C&E) plan is being updated via an appendix, with the information that is included in Chapter 2 of draft GSP. He reminded the TAC members to engage with the Colusa Subbasin SGMA Facebook and Twitter pages. He said there will another round of public workshop in the next few months and that public hearings for GSP adoption would take place in early fall/late summer.

## 7. Member Reports and Comments

There were no member reports or comments.

## 8. Adjourn at 4:25

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### Action items:

1. Action Item (slides to be amended)
  - a. Slide 11: no change in MO and MT criteria; amended to include annual review of InSAR data.
  - b. Slide 12: change 10% to 15% and 6 of 60 wells to 9 of 60 wells
  - c. Slide 13: no change
2. A slightly revised PowerPoint presentation from today's meeting will be distributed to TAC members.
3. Technical team to review grant tasks and funding for field work to refine classification of GDEs.
4. Mr. Vanderwaal said that slide 38 shows one graph with model results and one with measurements and asked if these could be overlaid. Mr. Ayres he could do that on separate graphs. Mr. Loy added that there should be a time dimension in evaluation for this SI. Mr. Ayres suggested 24 months similar to groundwater levels. Mr. Davids said that the team will distribute the new graphs by the end of next week, provide time for TAC member review, and aim for a special meeting two weeks from today.
5. The tectonic subsidence questions can be addressed by making an adjustment to the statement of how we set the MT.
6. Items to be addressed in the next iteration of the Basin Setting chapter will be:
  - a. Loss of storage due to aquifer compaction issue
  - b. The fact that it is not just surface infrastructure that should be considered related to subsidence, but also well casing collapse
7. Mr. Kehn asked for clarification related to subsidence, if 0.17 foot accuracy is at the five year mark. Every five years, so we would divide it by five? Mr. Ayres said he would have to go back and review that.
8. Staff will follow up to schedule a special Joint TAC meeting before the May 14 meeting, either April 23 or April 30 at 1:00 p.m.
9. See above text notes to confirm this list capture everything.