



1 Meeting Brief

- 2 ➤ The Vina Stakeholder Advisory Committee (SHAC) met virtually on December 15, 2020.
- 3 ➤ **Meeting Notes:** The SHAC made revisions to the previous meeting notes (11/17/20) [[Access](#)
[Notes Here](#)].
- 4 ➤ **Sustainable Management Criteria (SMC):** The SHAC received a presentation and provided
5 input on draft SMC from the Geosyntec consulting team. The objectives of the discussion
6 were to discuss (1) wording and quantitative measures to include in the SMC, (2) technical
7 background or monitoring implications related to each SMC definition, (3) potential
8 differences between areas, and (4) specific analysis or further refinement needed to prepare
9 a draft SMC section for approval and incorporation into the Draft GSP [[Access Slides Here](#)].
10 Due to time limitations, the SHAC did not discuss all the indicators in depth; rather, discussion
11 focused on Chronic Lowering of Groundwater Levels and Surface Water Depletion. The SHAC
12 will continue SMC conversations during the next meeting.
- 13 ➤ **Updates:** The SHAC received an update from the Vina GSA Management Committee,
14 including next steps for the Projects and Management Actions (PMAs) and an update on
15 inter-basin coordination efforts.
- 16 ➤ **Next Meeting:** The SHAC will meet again via video conference on January 19, 2021 from 9:00-
17 12:00.
18

19 Action Items

Item	Lead	Completion
• Incorporate suggested changes to the Vina SHAC meeting summary (11/17/20) and redistribute.	CBI & Management Committee	Upon completion
• Follow up with Gary Cole regarding access to online resources and upload meeting materials in PDF version for easier access.	CBI & Management Committee	Upon completion
• Share DWR 1978 recharge study referenced with the Vina GSA Management Committee.	Jim Brobeck & Gary Cole	Complete
• Share Groundwater Dependent Ecosystem information with Geosyntec.	Management Committee	Upon completion
• Share PMA glossary and legal implications Q&A document with the SHAC.	CBI & Management Committee	Complete Shared via email 12/21.

20 Summary

21 The Vina SHAC met on December 15, 2020 via video conference, as a result of COVID-19. 27
22 participants attended, including Vina SHAC members, Groundwater Sustainability Agency (GSA)
23 member agency staff, technical consultants, representatives of the CA Department of Water
24 Resources (DWR), and members of the public. Below is a summary of key themes and next steps
25 discussed at the meeting. This document is not intended to be a meeting transcript. Rather, it
26 focuses on the main points covered during the group's discussions. The video-conference
27 meeting recording is available at the Vina GSA website [[Video](#) | [Audio](#)].



1
2 1. Introductions & Agenda Review
3 The SHAC members, facilitator, technical consulting teams, and staff introduced themselves. The
4 SHAC welcomed a new member, Sam Goepp, domestic well user. The facilitator gave a brief
5 overview of the agenda.
6

7 2. Public Comment for Items Not on the Agenda
8 a) A SHAC member expressed concern with some members providing comments in other
9 venues without clarifying they were speaking as individuals and not on behalf of the SHAC.
10 b) A SHAC member and a member of the public suggested revisiting the conversation regarding
11 legal and efficiency implications of Projects and Management Actions (PMAs). P. Gosselin
12 (Butte County) shared that the Management Committee prepared two documents (glossary
13 of key terms and legal implications Q&A document) to inform future PMA conversations, once
14 conversations regarding Sustainable Management Criteria (SMC) catch up. The facilitation
15 team will share these documents following the meeting.
16 c) P. Vellines and D. Spangler (DWR) attended the meeting and wanted to address SHAC
17 members' concerns related to the DWR 1978 document addressing groundwater recharge.
18 To do so, they asked SHAC members to share the document citation and clarify their
19 questions or concerns. SHAC Members, J. Brobeck and G. Cole, shared that they are
20 concerned with the potential impacts of purposefully creating additional space for recharge
21 in the Tuscan Aquifer and, the possibility of transferring water south of the Delta, under
22 emergency drought and water scarcity conditions.
23

24 3. Meeting Notes Review & Consideration
25 The SHAC reviewed and made some suggested edits to the 11/17/20 SHAC meeting notes
26 [[access here](#)]. A SHAC member shared he had been having difficulties accessing materials, since
27 the packages are not printed and mailed anymore. The facilitation team will connect with this
28 member to address difficulties. The meeting notes will be reviewed again at the next meeting.

29 4. Sustainable Management Criteria (SMC) Overview - Discussion
30 The SHAC received a presentation focused on draft SMC from Geosyntec, the technical consulting
31 team supporting GSP development. Geosyntec sought the SHAC's input on overall approach to
32 developing the SMC [[Access Presentation](#) | [SMC Best Management Practices Report](#)].
33

34 ***SGMA Terminology***
35 Sustainability, under the Sustainable Groundwater Management Act (SGMA), is demonstrated by
36 the avoidance of Undesirable Results for the six sustainability indicators below. Undesirable
37 Results occur when conditions related to the sustainability indicators cause "significant and
38 unreasonable" impacts, as defined by the GSAs. SMC and representative monitoring locations
39 must be developed for each of the indicators below.
40



Lowering of
Groundwater Levels



Reduction of
Groundwater Storage



Land
Subsidence



Surface Water
Depletion



Water Quality
Degradation

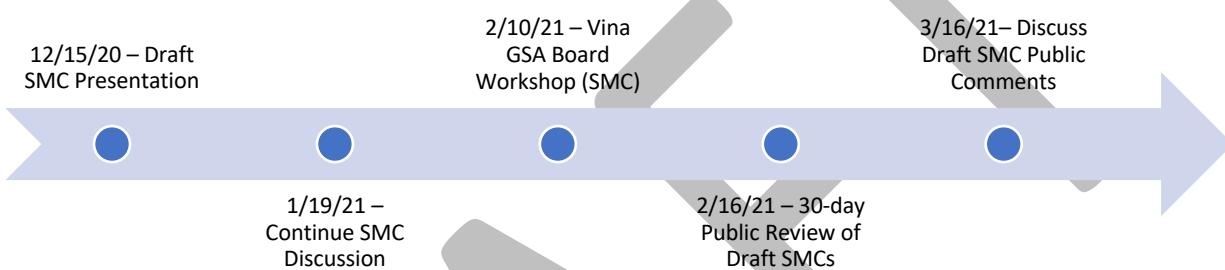


Sea Water
Intrusion



- 1
2 Each undesirable result must include three elements:
3 a) **Description of Undesirable Results:** what constitutes a “significant and unreasonable”
4 condition
5 b) **Minimum Threshold:** quantitative definition of groundwater conditions at a representative
6 monitoring site at which undesirable results may begin to occur
7 c) **Measurable Objective:** quantitative definition that reflects the basin’s desired groundwater
8 condition and allows the GSA to achieve sustainability goals within 20 years
9

10 *SMC Development Schedule:*



11
12 *Strawman Undesirable Results & Sustainable Management Criteria*
13 The technical team presented draft, or “strawman” undesirable results, measurable objectives,
14 and minimum thresholds for discussion with the objectives of discussing (1) wording and
15 quantitative measures to include in the SMC; (2) technical background or monitoring
16 implications related to each SMC definition; (3) potential differences between areas; and (4)
17 specific analysis or further refinement needed to prepare a draft SMC section for approval and
18 incorporation into the Draft GSP [[Access Slides Here](#)].
19

20 *Chronic Lowering of Groundwater Levels*

21 **Approach:** Geosyntec, the consulting team, proposed setting the Minimum Threshold (MT)
22 based on domestic well depths, with the intent to establish some level of protection for
23 domestic wells. Geosyntec suggested establishing Measurable Objective (MO), or desired state
24 for water levels, based on current and projected water level trends, using existing monitoring
25 data and modeling results. The area between the MT and MO indicates the level of operational
26 flexibility. This SMC process would apply to each Representative Monitoring Site. In sum, the
27 proposed approach takes into account local hydrogeological conditions, is protective of
28 domestic wells (MT), and uses modeled water level trends.
29

30 **Draft Undesirable Results and Sustainability Criteria**

Undesirable Result Statement	<ul style="list-style-type: none"> GW Levels are unable to satisfy beneficial uses over a sustained period. Specific examples of undesirable results include domestic wells going dry, reduction in pumping capacity, Increase in pumping costs, Potential impacts to GDEs.
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Minimum Threshold (onset of undesirable result) & Measurable Objective (desired condition)	<ul style="list-style-type: none"> • Minimum Threshold – Fall (Sept/Oct) GW level is above the 15th Percentile of all domestic well depths in a given area or sub-area. This means 85% of all domestic wells are completed below the minimum threshold and will be “protected.” • Measurable Objective – Fall 2015 groundwater level (or modeled 2015 groundwater level if no data are available). This means dry cycle minimums are no worse than 1993-2015 minimums.
Quantitative definition of significant and unreasonable impact	<ul style="list-style-type: none"> • 25 % of representative monitoring wells fall below minimum threshold for 2 consecutive years.

1

2 Discussion:3 a) **Units & Graphs:** The SHAC recommended that all units in the graphs are consistent (e.g., head
4 vs. elevation, etc.). SHAC members suggested modifying the graphs to make the information
5 more digestible and accessible to the public. For example, users may not understand head
6 and mean sea level, but rather the depth of their wells. The consulting team will ensure
7 consistency in the future.8 b) **MT Well Depths:** A SHAC member asked if MT based on well depth relate more to domestic
9 wells, rather than CalWater or agricultural wells. Geosyntec responded that the approach so
10 far is to set the number based on domestic wells, but they could consider including other
11 wells if the SHAC believes it would be important. These options are not mutually exclusive.
12 The GSA could establish representative sites and incorporate MO into deeper wells; however,
13 that approach could artificially impact domestic well owners. So far, Geosyntec used DWR
14 well log data but is open to switch to other dataset if available and desired.15 c) **Future Growth Projections:** A SHAC member asked if future growth was accounted for in the
16 projections. C. Buck (Butte County) shared that the model built in projected urban growth
17 but does not make assumptions on agricultural acreage growth, other than increased
18 Evapotranspiration (ET) due to projected higher temperatures with climate change. The SHAC
19 member was concerned that the graphs do not reflect potential urban growth and new
20 subdivisions that would represent more “straws” in the aquifer. P. Gosselin (B. County)
21 shared that future land use plans will have to take into account the GSPs for their updates.
22 The SGMA process will make the decision-process more transparent; larger subdivisions will
23 have to prove they can provide reliable water supply, which could be achieved by funding
24 PMAs in the Vina subbasin. For example, new developments could fund projects to ensure
25 more supply is generated through conservation. Further, P. Gosselin mentioned the GSA can
26 integrate these considerations in the PMAs and in the 5-year updates.27 d) **Monitoring Well Radius:** A SHAC member asked how the technical team will determine MT
28 in the context of large populations and changing elevations. J. Turner (Geosyntec) explained
29 that hydrogeologic conditions would determine how to select representative monitoring
30 wells. The group would consider establishing smaller radii to capture elevation change.
31 The group might also find data gaps and may select a deeper well per area.32 e) **Butte Basin Groundwater Model (BBGM):** Another SHAC member questioned the BBGM’s
33 2050 urban water demand projections, as the 2015 severe drought led to significantly lower



- 1 water use. Geosyntec shared that while the model is a useful tool, SGMA requires
2 management based on data collected through monitoring.
- 3 f) **Wildfire Impacts on Demand:** P. Gosselin (Butte County) shared that another issue for future
4 growth may be impacted by the displacement of wildfire survivors. These changes will be
5 accounted for as part of the 5-year updates based on the best available data. Further, in the
6 interest of supporting the SGMA process, CalWater provided early projections to the
7 technical team, which will be released to the public with the urban water management plan
8 next year.
- 9 g) **Data Gaps & MT Considerations:** V. Kincaid (O'Laughlin & Paris, LLP) noted two
10 considerations related to data gaps and MT determinations. She suggested looking at a map
11 of representative monitoring wells to evaluate basin coverage (location and concentration).
12 Some key questions to ask: how many Monitoring wells do we have, where are they located,
13 when will they be triggered, and how many would it take to be in violation? Geosyntec
14 clarified that they will use a combination of wells used to calibrate the model and a good
15 sampling of domestic wells to set minimum criteria. The present monitoring wells are set
16 based on good data availability for water levels and interval screening. Further, Geosyntec is
17 in the process of writing the Representative Monitoring Chapter now and will be presenting
18 to the SHAC in the near future.
- 19 h) **Connecting SMCs and PMAs:** Geosyntec and the Management Committee encouraged the
20 SHAC to consider that SMCs and PMAs are interconnected. The subbasin is trying to manage
21 groundwater to a desirable state (MO) through PMAs, making sure it does not reach the MT
22 or undesirable result.
- 23 i) **Representative monitoring wells:** The SHAC would like to revisit a map of monitoring well
24 locations. The radius around each well may need to vary per area, might be too big for urban
25 areas and only cover 3-4 domestic wells in other areas. Further, some domestic wells may not
26 be recorded or monitored.
- 27 j) **Views on process and approach:**
- 28 i) *MT percentile of domestic wells (15%):* some SHAC members were comfortable with the
29 approach, while others requested an estimate of how many domestic wells would go
30 dry at that percentile to make an informed assessment. Geosyntec shared that they
31 currently do not know how many of the wells considered in the dataset are already
32 dry. Further, the GSA could consider PMAs to mitigate impacts on domestic wells. The
33 percentile that would trigger MT warrants further discussion.
 - 34 ii) *Significant and unreasonable impact:* a SHAC member suggested increasing the
35 timeframe from 2 to 3 consecutive years, as isotope studies show slower recharge
36 cycles in the subbasin. Geosyntec shared that shallow areas tend to recharge at
37 quicker rates. A longer time frame is less protective, so they recommend 2 years to
38 trigger action. Timeframe can also be specified per management area.
 - 39 iii) *Overall approach:* Most SHAC members supported the process and approach. Others
40 would need more time and information (e.g., number of wells affected at MT, map
41 and screening depths of monitoring wells, more information on agricultural wells, GDE
42 considerations, etc.) to make an informed recommendation. A SHAC member



1 requested more consideration of agricultural wells, as agricultural users in the
 2 subbasins are highly dependent on groundwater and currently have no alternatives.
 3

4 ***Reduction in Aquifer Storage:***

5 Due to time limitations, the SHAC did not have in-depth discussion related to this sustainability
 6 indicator. The consulting team proposed using groundwater levels as a proxy for aquifer
 7 storage; therefore, the proposed approach mimics the Chronic Lowering of Groundwater Levels
 8 process described above.

9

10 **Draft Undesirable Results and Sustainability Criteria**

Undesirable Result Statement	<ul style="list-style-type: none"> • Total groundwater storage volume is insufficient to satisfy beneficial uses. • Groundwater level will be used as a proxy for aquifer storage (i.e. groundwater storage will not be calculated explicitly)
Minimum Threshold (onset of undesirable result) & Measurable Objective (desired condition)	<ul style="list-style-type: none"> • Minimum Threshold – Fall (Sept/Oct) GW level is above the 15th Percentile of all domestic well depths in a given area or sub-area. This means 85% of all domestic wells are completed below the minimum threshold and will be “protected” • Measurable Objective – Fall 2015 groundwater level (or modeled 2015 groundwater level if no data are available). This means dry cycle minimums are no worse than 1993-2015 minimums.
Quantitative definition of significant and unreasonable impact	<ul style="list-style-type: none"> • 25 % of representative monitoring wells fall below minimum threshold for 2 consecutive years

11

12 ***Land Subsidence:***

13 Once again, the consulting team proposed using groundwater levels as a proxy for subsidence;
 14 therefore, the proposed approach mimics the process described above.

15

16 **Draft Undesirable Results and Sustainability Criteria**

Undesirable Result Statement	<ul style="list-style-type: none"> • Ground subsidence that results from groundwater pumping creates a safety hazard to critical infrastructure or property. • Other programs and agencies are responsible for enforcing ground engineering requirements for critical infrastructure. GSA will coordinate with other agencies if subsidence is associated with groundwater pumping • Groundwater levels will be used as a proxy for ground subsidence
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Minimum Threshold (onset of undesirable result) & Measurable Objective (desired condition)	<ul style="list-style-type: none"> • Minimum Threshold – Fall (Sept/Oct) GW level is above the 15th Percentile of all domestic well depths in a given area or sub-area. This means 85% of all domestic wells are completed below the minimum threshold and “will be protective” • Fall 2015 groundwater level (or modeled 2015 groundwater level if no data are available). Dry cycle minimums are no worse than 1993-2015 minimums.
Quantitative definition of significant and unreasonable impact	<ul style="list-style-type: none"> • A subsidence rate of more than 0.2 feet per year for a 10-year period that is directly related to groundwater pumping and within 2,000 feet of critical infrastructure, including roads, railways, pipelines, water conveyance systems, hospitals or other critical facilities.

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2 *Depletion of Interconnected Surface Water – Data Gap*

3 Geosyntec explained that the process to determine the MT and MO for this sustainability
 4 indicator is challenging due to existing data gaps. It is difficult to use deeper wells as a proxy for
 5 depletion of stream flow. Geosyntec suggests using groundwater levels in shallow wells
 6 adjacent to natural stream channels as a proxy for depletion; however, there are monitoring
 7 data gaps and model limitations (lack of information of shallow aquifer) to define measurable
 8 objectives. Stream/Aquifer interaction in upland tributary areas differs from stream aquifer
 9 interaction in Sacramento River mainstem. The subbasin may need to rely more on words than
 10 numbers initially.

11

12 **Suggested approach:** Geosyntec suggests focusing on shallow aquifer conditions but
 13 recognizing significant data gaps exist. The subbasin will need to define in the implementation
 14 chapter, when and how data gaps will be filled. P. Gosselin (Butte County) shared that the state
 15 acknowledges that this is one of the most difficult indicators to measure, due to the lack of data
 16 and methodology. Thus, the State Board indicated that there would be no potential
 17 intervention on this sustainability indicator until 2025.

18

19 **Draft Undesirable Results and Sustainability Criteria**

Undesirable Result Statement	<ul style="list-style-type: none"> • Surface water depletion caused by groundwater pumping prevents beneficial uses over a sustained period. This includes environmental beneficial uses in natural stream channels that supports a viable ecosystem, particularly ecosystems containing endangered species. • Groundwater levels in shallow wells adjacent natural stream channels will be used as proxy for depletion. • Representative monitoring locations must be within a shallow aquifer that is known to be hydraulically connected to a natural stream channel
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Minimum Threshold (onset of undesirable result) & Measurable Objective (desired condition)	<ul style="list-style-type: none"> • Minimum Threshold – Groundwater levels lower than 5 feet below the base of the stream channel during September for two consecutive years. • Fall 2015 groundwater level in shallow aquifer (or modeled 2015 groundwater level if no data are available). Dry cycle minimums are no worse than 1993-2015 minimums.
Quantitative definition of significant and unreasonable impact	<ul style="list-style-type: none"> • 25 % of representative monitoring locations fall below minimum threshold for 2 consecutive years

1

2 Discussion:

- 3 a) **Alternative indicators:** A SHAC member expressed he is uncomfortable with this approach
 4 and wondered if there are any other alternatives, such as monitoring biological indicators.
 5 Geosyntec replied that they could consider setting minimum stream flows, conducting an
 6 ecological analysis rather than hydrogeologic analysis. However, the technical team would
 7 like to account for the cyclical trends in the subbasin. The SHAC member responded that in
 8 losing streams, significant reductions in pumping would be needed to have small impact on
 9 surface water depletion.
- 10 b) **Minimum Threshold:** A SHAC member suggested that the 5 ft drop delineated seems too
 11 strict. Geosyntec shared that it may be difficult to know due to the lack of available data; a 2
 12 ft drop may be significant. In their experience, more than 5 ft below base of stream, impacts
 13 leakage significantly.
- 14 c) **Disconnected streams:** Another SHAC member mentioned a study indicated that
 15 groundwater pumping on disconnected portions of the aquifer may affect stream flow by
 16 extending reach of stream and decreasing overall flow. Geosyntec mentioned the subbasin
 17 could consider taking a water budget approach, followed in the Pacific Northwest. This
 18 approach would entail looking at total volume of recharge to streams. The downside is that
 19 the estimate is not easy to calculate and would be more indirect.
- 20 d) **Intermittent Streams:** A SHAC member emphasized there are multiple streams in the
 21 subbasin that only flow part of the year and was unable to visualize how this approach
 22 would work in those streams. The technical team stated that their initial focus has been on
 23 streams with GDEs and have not established MT/MOs in every single stream.
- 24 e) **Areas of Concern:** Another SHAC member highlighted the urgency of addressing surface
 25 water depletion in areas like Bidwell Park, which has been highly impacted by drought.

26
27 Outcomes & Next Steps | SMC

- 28 a) **Information Requests for Groundwater Levels:** number of domestic wells affected at the
 29 given MT percentile established, a map of the representative monitoring well spatial
 30 distribution and depth of well screening.
- 31 b) **Stream Depletion:** The technical team will evaluate alternative approaches for sustainability
 32 indicator. Regardless of the approach, the technical team recognizes there are significant data



1 gaps and would like to acknowledge that this indicator will be described more qualitatively
 2 than quantitatively.

- 3 c) **Overall Concern:** SHAC members expressed general concerns with the approach, as the group
 4 did not have sufficient time to discuss all five indicators. The SHAC would like to have all the
 5 information and time needed to make informed decisions. To provide additional input or ask
 6 clarifying questions, SHAC members can follow up with the technical consultants, staff, and
 7 facilitation team via written correspondence. If these concerns continue to come up, the GSA
 8 board could appoint an ad hoc committee. Other options would be sending a survey to all
 9 SHAC members, but all results would need to be shared publicly to prevent Brown Act
 10 violations.
- 11 d) **Next Steps:** The facilitation team, staff, and consulting teams will meet to discuss next steps.
 12 SHAC members will continue SMC discussions at the next meeting.

13
 14 5. **Vina GSA Management Committee Reports**

- 15 a) *Vina GSA Board Updates:* The Vina GSA Board approved suggested changes to the Vina SHAC
 16 Charter. Further, DWR approved continued Facilitation Support Services (FSS) through 2021.
 17 CBI will continue to support Vina SHAC inter-basin coordination meetings. In addition, CBI will
 18 be helping revise the Communications and Engagement Plan. The Management Committee
 19 may consider extending the length of SHAC meetings to allow enough time for presentations
 20 and discussion.

- 21 b) *Inter-basin coordination updates:* Staff and consulting teams from 11 subbasins (Antelope,
 22 Bowman, Butte, Colusa, Corning, Los Molinos, Red Bluff, Sutter, Vina, Wyandotte Creek, and
 23 Yolo) met on December 1st to discuss preliminary findings from the information-sharing
 24 template and regional outreach and engagement strategies. CBI presented a series of
 25 documents developed through inter-basin coordination efforts, including a document
 26 describing modeling tools used for SGMA in the Northern Sacramento Valley (NSV) [\[access here\]](#)
 27 and a flyer summarizing inter-basin coordination efforts [\[access here\]](#). Since subbasins
 28 are at different stages in GSP development, not all water budget results were ready for
 29 comparison. Staff and consultants will reconvene in February-March 2021 to review compiled
 30 data and discuss appropriate ways to compare and communicate information on model
 31 assumptions, cross-boundary flows, and stream-aquifer interactions at boundaries. Key
 32 findings will be presented when available for provide input. More information can be found
 33 at <https://www.buttecounty.net/waterresourceconservation/Sustainable-Groundwater-Management-Act/Inter-basin-Coordination>.

35
 36 6. **Next Steps**

37 The Vina SHAC will reconvene on January 19, 2021 from 9am-12pm via videoconferencing.

38 **Participants**

Participant	Representation/Affiliation	Present
Vina Stakeholder Advisory Committee (SHAC) Members		



Participant	Representation/Affiliation	Present
Anne Dawson	Domestic well user	Y
Bruce Smith	Business representative	Y
Cheri Chastain	CSU Chico	Y
Christopher Madden	Butte College	Y
Gary Cole	Agricultural well user	Y
George Barber	California Water Service	Y
Greg Sohnrey	Agricultural well user	N
James Brobeck	Environmental representative	Y
Sam Goepp	Domestic well user	Y
Samantha Lewis	Agricultural well user	Y
Groundwater Sustainability Agency (GSA) Member Agency Representatives		
Christina Buck	Butte County	Y
Paul Gosselin	Butte County	Y
Kelly Peterson	Butte County	N
Linda Herman	City of Chico	Y
Erik Gustafson	City of Chico	Y
Jeff Carter	Durham Irrigation District	N
Kamie Loeser	Durham Irrigation District	Y
Colin Klinesteker	Mechoopda Indian Tribe	N
Darren Rice	Rock Creek Reclamation District GSA	Y
Technical Consultants		
Joe Turner	Geosyntec	Y
Amer Hussain	Geosyntec	Y
Bob Anderson	Geosyntec	Y
Other Representatives		
Pat Vellines	CA Department of Water Resources	
Debbie Spangler	CA Department of Water Resources	
Valerie Kinkaid	O'Laughlin & Paris LLP	
Facilitator		
Tania Carbone	Consensus Building Institute	Y
Mariana Rivera-Torres	Consensus Building Institute	Y

- 1 Approximate seven members of the public attended the meeting.