

Eastern San Joaquin Draft Groundwater Sustainability Plan Proposed Response to Comments – Master Responses

Master Response 1 -- Groundwater Dependent Ecosystems

1) Section 2.2.7 (Groundwater-Dependent Ecosystems) was revised to classify NCCAG areas that access co-occurring surface water as data gap areas requiring further refinement. Section 2.2.7.1 (Methodology for GDE Identification) was updated to better articulate the methodology used and the describe data gaps within the NCCAG dataset. A footnote was added indicating referencing the use of 2015 groundwater levels in the GDE analysis as follows: "This analysis uses 2015 groundwater levels (winter, spring, summer, and fall), which may be deeper than representative levels due to drought conditions, a factor which will be considered in future GDEs analyses." Figure 2-68 was updated to show removed NCCAG areas as data gaps.

2) Language was added to Section 4.7 (Data Gaps) to identify NCCAG areas removed through the GDE analysis are data gaps ideas requiring further refinement (NCCAGs that either access co-occurring surface water or were identified as located in an area with groundwater levels deeper than 30 feet bgs). The purpose of this is to identify potential existing GDEs that may have been incorrectly eliminated through this screening process.

3) Language was added to Section 4.7 (Data Gaps) to indicate that the GWA would evaluate using the GDE Pulse Tool and other tools to monitor GDEs.

4) The GSP as written includes the list of freshwater species provided by The Nature Conservancy as Appendix 1-F: Freshwater Species in the Eastern San Joaquin Subbasin as beneficial users of groundwater. Language was added to Section 2.2.7 (Groundwater-Dependent Ecosystems) and Section 4.7 (Data Gaps) to indicate that fish and wildlife species associated with GDEs are a data gap area.

Master Response 2 -- Interconnected Surface Water

1) The GWA recognizes that depletion of interconnected surface water is a data gap area and supports the use of groundwater levels as a proxy, as this represents the best information currently available. The GWA has identified a need for future study and refinement of interconnected surface water and will continue coordination efforts to better inform basin conditions.

2) Language has been added to Section 4.7 (Data Gaps) identifying interconnected surface water as a data gap area for future study and refinement. The section has also been updated to clarify and better articulate the GWA's focus on installing additional monitoring wells near streams, which can be evaluated for use as representative monitoring wells in the future.

3) The Draft GSP identifies areas in the Subbasin that the GWA believes to be interconnected based on the best available information but recognizes that these are may require additional analysis and will be updated with future model verification and validation efforts. Figures 3-64 and 3-65 were reviewed for consistency based on comments received. Language in Section 2.2.6 (Interconnected Surface Water Systems) was updated to describe gaining and losing streams as "gaining most of the time" and "losing most of the time" and Figure 2-65 was updated accordingly. Figure 2-66 was updated to display stream

nodes gaining most of the time as interconnected and the language was updated to "interconnected more than 75 percent of the time" and "interconnected less than 25 percent of the time." Language was added to clarify Figures 2-65 and 2-66 in the Draft GSP are not intended for regulatory purposes: "Figure 2-65 and Figure 2-66 are illustrations to describe model outputs and are not intended for regulatory purposes."

4) Language was added to Section 2.2.6 (Interconnected Surface Water Systems) clarifying that the ESJWRM historical calibration model results represents the best available information for both current and historical conditions related to interconnectivity between surface water and the groundwater system as follows: "This analysis was based on modeling results from the historical calibration of the ESJWRM for approximately 900 stream nodes in the Eastern San Joaquin Subbasin, which represents that best available information for current and historical conditions."

5) The GSP as written includes the list of freshwater species provided by The Nature Conservancy as Appendix 1-F: Freshwater Species in the Eastern San Joaquin Subbasin as beneficial users of groundwater.

6) Language was added to Section 4.7 (Data Gaps) to indicate that the GWA would evaluate using the GDE Pulse Tool and other tools to monitor GDEs.

7) The GWA considers current minimum thresholds and measurable objectives to be protective of beneficial uses and users in the subbasin, and to be protective of existing in-stream flow requirements for fish and wildlife.

Master Response 3 -- Water Quality

1) A new subsection has been added to Section 3.2.3 (Section 3.2.3.4: Monitoring for Additional Constituents), which states that additional monitoring is needed to identify water quality conditions and trends related to additional constituents including arsenic and nitrate. This new subsection references Chapter 4 (Monitoring Networks) and describes the informational monitoring efforts that will take place as part of the Broad monitoring network for water quality, and specifically, the monitoring for arsenic and for cations/anions, which includes nitrate. The subsection also references the existing regulations through existing water resources monitoring and management programs (described in Section 1.2.2). Language has been added to indicate that if existing regulations are violated, or if monitoring efforts indicate concerning trends, the GWA will evaluate developing minimum thresholds and measurable objectives for additional constituents, as well as to take steps to coordinate with regulatory agencies. Additionally, language has been added stating that the GWA may require GSAs that are drinking water suppliers to report to the GWA if constituents of concern exceed their MCL. While these reports do not reflect the water quality of private well owners, it would provide a useful basin-wide screen to better inform basin groundwater quality.

2) Language has been added to Section 3.2.3.2: Minimum Thresholds referencing Section 3.2.3.4 and indicating the monitoring efforts for additional constituents, including nitrate and arsenic.

3) Language was modified in Section 3.2.3.1.1 (Description of Undesirable Results (Degraded Water Quality) to indicate new monitoring efforts in the Subbasin that will occur as part of the Broad monitoring network for Water Quality) and to highlight coordination efforts with existing regulatory agencies to determine if existing regulatory requirements are met. Language stating no nexus was

removed and replaced with language stating that new monitoring efforts and coordination with existing regulatory agencies will allow the GSAs to determine if groundwater pumping activities are contributing to undesirable effects related to degraded water quality.

Master Response 4 -- Groundwater Storage

1) Given the existing subsurface conditions and large volume for groundwater in storage, the historical undesirable effects in the Eastern San Joaquin Subbasin groundwater have been related to accessibility, not storage volume. Thus, the issues associated with groundwater overdraft are more appropriately addressed through the Chronic Lowering of Groundwater Levels Sustainability Indicator.

2) Language was added to Section 3.2.2.1 (Reduction in Groundwater Storage) to better articulate the model analysis used to determine no undesirable results for Reduction in Groundwater Storage and to show how using groundwater levels as a proxy is protective as follows: "An undesirable result occurs when storage is insufficient to satisfy beneficial uses within the Subbasin. The ESJWRM was run to estimate the volume of groundwater storage needed to meet beneficial uses. Based on this analysis, it is estimated that overlying pumpers have limited access equating to approximately the shallowest 23 MAF of groundwater storage in the Subbasin; therefore an undesirable result would occur if groundwater storage levels were depleted by 23 MAF."/"Minimum thresholds for groundwater levels will effectively avoid undesirable results for reduction of groundwater storage. As noted above, the amount of groundwater in storage in the Subbasin is approximately 53 MAF and undesirable results would not occur until storage is reduced by 23 MAF, to a total of 30 MAF. The ESJWRM was run to estimate the reduction in groundwater storage that would occur if every representative monitoring well in the Subbasin were to operate at the minimum threshold for the chronic lowering of groundwater levels sustainability indicator. The results of this analysis showed that this scenario would result in a reduction of approximately 1.2 MAF of storage. Because undesirable results are anticipated to occur following a reduction of 23 MAF, the minimum thresholds for groundwater levels are protective of beneficial uses. Minimum thresholds and measurable objectives for groundwater levels can therefore be used as a proxy for reduction in groundwater storage, as groundwater levels are sufficiently protective against occurrences of significant and unreasonable results related to reduction in groundwater storage. "

3) The GWA acknowledges conditions of overdraft and in response has identified projects that will recharge and/or offset up to 78,000 AFY to meet the Subbasin's sustainable yield. The groundwater storage estimate of 53 MAF is based on current groundwater conditions calculated for years 1996-2015; this estimate does not include future projects implemented as part of this GSP. Sustainable yield is defined in the Draft GSP as "the maximum quantity of water, calculated over a base period representative of long-term conditions in the basin and including any temporary surplus, that can be withdrawn annually from a groundwater supply without causing an undesirable result" (per CWC §10721(w)). Sustainable yield for the Eastern San Joaquin Subbasin was calculated through development of an ESJWRM sustainable conditions scenario (model run) in which the goal was to generate a long-term (50-year) change in Subbasin groundwater storage of zero, a conservative approach, as a change in storage of greater than zero could occur without causing undesirable results."

Master Response 5 -- Projects

1) The GWA acknowledges that many of the projects are in preliminary planning stages. The GWA has a 20-year planning timeframe to bring the projects online, and will continue to evaluate project benefits, impacts, and costs. The Eastern San Joaquin Water Resources Model (ESJWRM) was used to calculate basin-scale planning targets based on projected future water demands. There is uncertainty in these

estimates, which will be refined in coming years through model updates and verification studies. Further, this GSP is an adaptive plan, driven by annual monitoring reports. The data in these reports, as well as individual GSA-level water budgets, will provide a means of project evaluation, and will assess potential for undesirable results. The three tiers of projects, which total to a combined 187,967 AFY, have been developed to respond to the uncertainty in planning targets and provide greater flexibility in how sustainability will be achieved. The Subbasin may need to recharge and/or offset more or less water than the estimated 78,000 AFY to reach sustainability and can pull from the highest benefit and most feasible projects to do so.

2) GSP projects have been proposed by individual GSAs and will be implemented at the GSA level. The GWA's role in project implementation will be to oversee essential coordination and evaluation activities, but the GWA does not have authority to direct project design, timeline, or initiation.

3) Consider adding a subsection to GSP Section 6.1 (Projects and Management Actions) that outlines a process for management actions if the identified projects do not progress, or if monitoring activities demonstrate that the projects are not effective in achieving stated recharge and/or offset targets. Example text: "Although the GWA does not provide direct authority to require GSAs to implement projects, the GWA will be working on GSA-level water budgets and will be requesting annual or biannual progress reports to evaluate progress. If the projects do not progress, or if monitoring efforts demonstrate that the projects are not effective in achieving stated recharge and/or offset targets, the GWA will convene a working group to evaluate the implementation of groundwater pumping curtailments."

4) The GWA acknowledges that there are many factors that could affect the availability of surface water, and that has to be evaluated by GSAs in the implementation of projects. The process of GSAs providing biannual reports will allow for the GWA to update the Plan and adjust the implementation course as needed based on conditions.

5) Language was added to the GSP referencing existing conservation management actions (including Urban Water Management Plans and Agriculture Water Management Plans). Additionally, language was added to Section 6.2.2 (Project Implementation) to emphasize the pathway toward sustainability: "Projects will be administered by the GSA project proponents. GSAs may elect to implement projects individually or jointly with one or more GSAs or with the GWA. As the GWA develops GSA-level water budgets, the GSAs will have a better understanding of how project will be implemented at the GSA-level, and can better evaluate progress toward completion."