Sonoma Water

September 24, 2021

Amber Fisette, GSA Administrator
Ukiah Valley Groundwater Sustainability Agency
340 Lake Mendocino Dr.
Ukiah, CA 95482

SUBJECT: Sonoma Water staff review of the Ukiah Valley Basin Groundwater Sustainability Plan Public Review Draft

Dear Ms. Fisette,

The Sonoma County Water Agency (Sonoma Water) is a Special District created in 1949 by the California Legislature whose authorities include wholesale water supply, flood risk management & sanitation services. Sonoma Water is a wholesale water supplier to nine cities and water districts that serve more than 600,000 residents in portions of Sonoma and Marin counties. Sonoma Water manages and operates the Russian River water supply system conjunctively with the Army Corps of Engineers.

The California Department of Water Resources (DWR) has designated the Ukiah Valley basin as "medium" priority for groundwater management, necessitating the development of a Groundwater Sustainability Plan (GSP) by January 2022, as required under California's Sustainable Groundwater Management Act of 2014 (SGMA). A draft Ukiah Valley basin GSP was released for public comment by the Santa Rosa Plain Groundwater Sustainability Agency (GSA) in August, 2021.

Groundwater in the Ukiah Valley basin is hydraulically linked to surface water in the Russian River and its tributaries within the basin. Groundwater pumping in the Ukiah Valley basin has the potential to lower local groundwater levels and alter the natural groundwater/surface-water exchange in the basin, either by reducing the volume of groundwater discharge to surface water or by increasing the volume of groundwater recharge from surface water to groundwater. Sonoma Water is concerned that groundwater extraction in the Ukiah Valley basin could adversely impact surface water flows in the Russian River, and has provided comments to assist the GSA in adequately addressing those impacts. The following memo describes those comments generally.

Chapter 2: Plan Area and Basin Setting

In accordance with GSP Regulations Section 354.18, SGMA requires that the GSP to provide a water budget, which is comprehensive accounting of all water inflows and outflows from the interacting systems in the GSA basin; i.e., the land system, the surface water system, and the groundwater system. The GSP Regulations also require water budgets for three different timeframes, representing, historical conditions, current conditions, and projected decisions. An accurate and comprehensive water budget is a critical tool for understanding historical conditions in the basin, evaluating groundwater sustainability, and guiding future projects and management actions.

As is typical for many GSPs, water budgets in the Ukiah Valley basin are estimated with model simulations. Section 2.2.3 provides a summary of the water budget information for the basin and references more detailed information on the water budget and model documentation in Appendix 2-D, and data gaps and model uncertainties in Appendix 2-E. However, Appendices 2-D and 2-E are not provided along with the rest of the public review draft of the Ukiah Valley basin GSP.

Sonoma Water staff have provided specific comments outlining (1) inconsistencies between water budget components described in the text and those shown in figures and (2) questions related to current and future water budget projections, specifically regarding groundwater/surface-water interactions. Lacking additional documentation, it is currently not possible to assess the accuracy or completeness of the water budgets. We recommend that the GSA provide a comprehensive description of the water budget components as outlined in the CA Dept. of Water Resources *Handbook for Water Budget Development* (2020) and *Water Budget Best Management Practice* (2016), either within the GSP main text or in appendices so that these components can be accurately evaluated and reviewed by the public.

Chapter 3: Sustainable Management Criteria

To develop sustainable management criteria (SMCs) for the six sustainability indicators outlined in SGMA, the Ukiah Valley GSA convened a Technical Advisory Committee which has met regularly during 2020 and 2021. Sonoma Water participated in these meetings, and provided comments to help guide the selection of SMCs. During these meetings, Sonoma Water has advocated for SMCs for depletion of interconnected surface water (ISW) by groundwater pumping that are as protective as those selected for the Petaluma Valley, Santa Rosa Plain, and Sonoma Valley basins and subbasins, where Sonoma Water has led the development of GSPs.

For these three basins, the minimum threshold (MT) is set as the equivalent dry-season groundwater-level, representing the average of the three years (2014–2016) during which the most surface water depletion due to groundwater pumping was estimated during 2004–2018. The goal of the MT is to maintain estimated rates and volume of streamflow depletion below historical levels, using groundwater-level measurements as a proxy.

The Ukiah Valley basin GSP outlines an approach that also uses groundwater levels as a proxy to set sustainable management criteria for depletion of interconnected surface water during the first five years of plan implementation. For the Ukiah Valley basin GSP, the depletion of ISW MT is set "the lowest historical groundwater depth to water plus 10% of its value or 10 ft (3 m), whichever is less" (Ch. 3, lines 1822–1824). The 10% or 10 ft is presented as a "buffer" to account for uncertainties in biannual groundwater level measurements.

This methodology would set MT values below historical minimum groundwater levels. This equates to depletion of ISW by pumping that is greater than has been observed during the historical record and is not sufficiently protective of beneficial users of surface water. We advocate for more protective MT values that are as protective as those selected for the Sonoma County GSA basins, e.g., the equivalent dry-season groundwater-level, representing the average of the three years (2014–2016) during which the most depletion of ISW was estimated during the historical record. In this way, the MT value equates to less depletion than occurred during the single year with the most depletion, and is thus more protective of beneficial users of

surface water.

While we recognize that accounting uncertainties related to biannual groundwater level measurement may justify a small buffer to represent the actual minimum groundwater level, the choice of 10% or 10ft is provided without any quantitative analysis to justify those buffer values. Based on a preliminary evaluation of continuous, multi-year groundwater level data and surface water depletion RMPs in Sonoma Valley GSA area, a buffer of 2.5–5% would adequately account for this uncertainty while still being sufficiently protective. We encourage the GSA to select more protective buffers that are quantitatively defined.

If you have any questions or concerns regarding this letter, please contact Don Seymour at 707-547-1925 (Donald.Seymour@scwa.ca.gov)

Sincerely,

Don Seymour

Don Seymour, P.E.
Principal Water Agency Engineer
Engineering Resource & Planning

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References

California Department of Water Resources. 2020. *Handbook for Water Budget Development.* Available athttps://water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/Groundwater- Management/Data-and-Tools/Files/Water-Budget-Handbook.pdf

California Department of Water Resources. 2016. *Water Budget Best Management Practice.* Available at https://water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/Groundwater- Management/Sustainable-Groundwater-Management/Best-Management-Practices-and- Guidance-Documents/Files/BMP-4-Water-Budget_ay_19.pdf

Ukiah Valley Groundwater Basin
Groundwater Sustainable Agency

Reviewer name: Sonoma County Water Agency
Submission date:
GSP sections reviewed: **GSP Public Draft**

Chapter	Line number	Suggested revision (*please delete example text below once you submit*)
2	Entire Doc.	All figs and tables should be placed immediately following the paragraph where they are 1st cited so reader doesn't have to hunt for them.
2	Entire Doc.	Regarding figs like hydrographs, label max and min values on y-axes. For hydrographs use consistent y-axis ranges and increments for easier comparison.
2	Entire Doc.	Additional comments and editorial suggestions are provided in the document to help improve clarity and readability, to be used at the authors' discretion.
2	875	General comment regarding the HCM: Please provide a summary of all sources and sinks included the HCM. These should be consistent with the quantitative estimates of sources and sinks provided in the water budget.
2	875	General comment regarding the HCM: Groundwater flowpaths and barriers to groundwater flow are not discussed.
2	925	Horizontal boundary conditions are not discussed. Please describe the assumed horizontal boundary conditions; i.e., whether they are no-flow, fixed flow, fixed head, etc. This affects water level contours.
2	1180	No offset of formations at Maacama fault?
2	1193	There are missing mapped faults in A-A' and C-C'.
2	1313	Storage coefficient(s) not presented or discussed.
2	1367	Table 12: • Check general formatting of this table. E.g., spacing spelling, superscript, etc. • Farrar misspelled • "Recent Alluvium" should be Recent quaternary alluvium? • Terrace deposit thicknesses greater than 2,000ft seems unlikely
2	1523	Fig. 23: Contouring does not make physical sense (see below). Contours may be improved by using model output, rather than contouring/interpolating sparse observed GWLs • Contours are not intersecting boundaries at right angles • Explain why flow in Ukiah Valley is to SW, apparently into a previously-described no-flow boundary. • Label RR and use heavier line for RR. RR should probably be gaining, do contours indicate this? • Contours intersecting tribs do not indicate whether gaining or losing.
2	1542	Please include discussion of vertical groundwater flow.

2	1597	Please include a brief discussion of the Potter Valley Project and Lake Mendocino operations.
2	1679	Add lack of monitoring wells in south end of basin
2	1695	Appendix 2E missing
2	1934	Appendix 2F incomplete.
2	2055	How were constituents of concern identified?
2	2202	The explanation of the approach used to identify ISW is lengthy and unclear. Please revise with a more concise description that focuses on the final ISW determination, rather than the intermediate steps.
2	Figs 57-60	It appears that Figs. 57-59 show much of the main stem Russian River as disconnected, which is confusing because lines 2282-2284 state that this reach was reclassified as connected. Please either (1) modify the figures 57-59 to reflect the Russian River ISW determination or (2) remove figures 57-59 since they seem to reflect intermediate steps used to develop Figure 60, which appears to be the 'final' map of ISW.
2	2516	Appendices 2D and 2E are missing
2	Table 29	Description of water budget components are inconsistent with those provided in subsequent Table 31-34 and Figures 74-78. Please revise both the table and the figures so that there is consistency between each.
2	Table 31-34	Because it is not accurately described in Table 29, it is unclear what the term "Outflow from Russian River" describes. The volumes shown in Table 31, i.e., 4072 AF/year for a wet year (~5.6 cfs/year) are far too small to describe actual surface water outflows from the Russian River. Please clarify what each of these terms are in Table 29.
2	Fig. 74-77	Provide descriptions for each of these terms in Table 29
2	Fig. 75	
2	2578	Who/how were dry, wet, etc. years identified? For historical period as well as projected climates.
2	2577	Inconsistent simulation horizons presented for historic and current water budgets as well as projected water budgets. E.g., inconsistent between text and fig captions.
2	2544	Appendix 2D missing, so can't review. However, please generally describe the model in the body of the chapter. E.g., simulation horizon, temporal discretization, horizontal and vertical discretization, boundary conditions, etc. Also explain how it was calibrated.
2	2607	What does "…water that flows out of the Basin through the Russian River stream channel" mean? Is it hyporheic flow? GSFLOW doesn't simulate hyporheic flow, so how is this simulated?
2	2617	Provide a reference for IDC and explain how it works. In addition, explain why the GSFLOW Ag package wasn't used.
2	2690	Add additional water budget figs for the projected climate scenarios not only the baseline.
2	2690	Describe how reservoir operations for Lake Mendocino were incorporated into the Future Baseline and Climate Change scenarios

2	Table 34, 2733-2736	Large changes in "Stream Loss to Groundwater" and (to a lesser extent) "Stream Gain from Groundwater" are shown for the Future Baseline and Climate Change 2030 and 2070 scenarios relative to other water budget components. It is unclear what mechanism is driving these changes. Please provide a more thorough discussion of the mechanisms driving these changes.
3	554	Appendix 2E not available to review.
3	Entire Doc.	Additional comments and editorial suggestions are provided in the document to help improve clarity and readability, to be used at the authors' discretion.
4	Fig. 1	Please add the well ID to each of these wells. Additionally, all figures of the monitoring network should be similarly labeled in other figures.
4	685-687	While we recognize that accounting uncertainties related to biannual groundwater level measurement may justify a small buffer to represent the actual minimum groundwater level, the choice of 10% or 10ft is provided without any quantitative analysis to justify those buffer values. Based on a preliminary evaluation of continuous, multi-year groundwater level data and surface water depletion RMPs in Sonoma Valley GSA area, a buffer of 2.5% or 5% would adequately account for this uncertainty while still being sufficiently protective. We encourage the GSA to select more protective buffers. At minimum, the "well-specific margin" should by identified and justified for each RMP in the text.
4	Fig. 2	Please add the well ID to each of these wells. Additionally, all figures of the monitoring network should be similarly labeled in other figures.
4	Table 3	Please identify the amount of additional buffer (i.e., percentage between 1–10% or additional ft) used for each well, along with attendant justification for each of these choices in the text.
4	Fig. 9	Please add the monitoring well IDs to the map
4	Table 7	Are the triggers Spring WLs? Please clarify.
4	Table 7	The MT, Triggers, and MO values for depletion of interconnected surface water for 391918N1232003W001 is inconsistent with those for groundwater levels for the same well. Lines 1820-1822 state that "… groundwater elevations will be used as a proxy, and the MT defined for chronic lowering of groundwater elevation in Aquifer I will be used as the MT for the depletion of ISW." If this is the case, then the SMCs should be consistent for both sustainability indicators.
4	Table 7	Please provide the approximate streambed elevation adjacent to each RMP location in the table. This way the MT, Trigger, and MO values can be assessed relative to the streambed elevation, and the gaining/losing conditions in the river can be evaluated at each RMP location
	1715-1720	It is unclear what the term "lowering" refers to in the significant and unreasonable statement. Additionally, there is no mention of adverse

		impacts on beneficial users of surface water in the sentence containing the term "significant and unreasonable." We propose the following modification to the significant and unreasonable statement to reflect the need to avoid adverse impacts to beneficial users of surface water: "Depletion of surface water due to groundwater extraction is considered significant and unreasonable when such depletion exceeds historical depletion or adversely impacts the viability of groundwater dependent ecosystems (GDEs) or other beneficial users of surface water, including maintenance of in-stream flows."
4	1819-1824	The first sentence in this section states that "… groundwater elevations will be used as a proxy, and the MT defined for chronic lowering of groundwater elevation in Aquifer I will be used as the MT for the depletion of ISW." The methodology for groundwater level MTs states that "[w]herever possible, the MT is set as the average of the three lowest (Fall season) historical measurements on record for depth to groundwater taken during drought periods." (lines 684-685). However, lines 1822-1824 state that the depletion of ISW MT is "the lowest historical groundwater depth to water …" We advocate for more the more protective methodology that uses the average of the three lowest groundwater elevations. Please clarify.
4	1824-1829	While we recognize that accounting uncertainties related to biannual groundwater level measurement may justify a small buffer to represent the actual minimum groundwater level, the choice of 10% or 10ft is provided without any quantitative analysis to justify those buffer values. Based on a preliminary evaluation of continuous, multi-year groundwater level data and surface water depletion RMPs in Sonoma Valley GSA area, a buffer of 2.5–5% would adequately account for this uncertainty while still being sufficiently protective. We encourage the GSA to select more protective buffers that are quantitatively defined.