



CALIFORNIA DEPARTMENT OF WATER RESOURCES

# SUSTAINABLE GROUNDWATER MANAGEMENT OFFICE

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October 26, 2023

Justin Jenson  
Tehama County Flood Control and Water Conservation District Groundwater  
Sustainability Agency – Antelope  
9380 San Benito Avenue  
Gerber, CA 96035  
[jjenson@tcpw.ca.gov](mailto:jjenson@tcpw.ca.gov)

RE: Sacramento Valley – Red Bluff Subbasin - 2022 Groundwater Sustainability Plan

Dear Justin Jenson,

The Department of Water Resources (Department) has evaluated the groundwater sustainability plan (GSP or Plan) submitted for the Sacramento Valley – Red Bluff Subbasin. The Department has determined that the Plan is “incomplete” pursuant to Section 355.2(e)(2) of the GSP Regulations.

The Department based its incomplete determination on recommendations from the Staff Report, included as an enclosure to the attached Statement of Findings, which describes that the Subbasin’s Plan does not satisfy the objectives of the Sustainable Groundwater Management Act (SGMA) nor substantially comply with the GSP Regulations. The Staff Report also provides corrective actions which the Department recommends the Subbasin’s groundwater sustainability agency (GSA) review while determining how to address the deficiencies.

The Subbasin’s GSA has 180 days, the maximum allowed by the GSP Regulations, to address the identified deficiencies. Where addressing the deficiencies requires modification of the Plan, the GSA must adopt those modifications into their GSP and all applicable coordination agreement materials, or otherwise demonstrate that those modifications are part of the Plan before resubmitting it to the Department for evaluation no later than April 23, 2024. The Department understands that much work has occurred to advance sustainable groundwater management since the GSA submitted their GSP in January 2022. To the extent to which those efforts are related or responsive to the Department’s identified deficiencies, we encourage you to document that as part of your Plan resubmittal. The Department prepared a [Frequently Asked Questions](#) document to provide general information and guidance on the process of addressing deficiencies in an “incomplete” determination.


Department staff will work expeditiously to review the revised components of your Plan resubmittal. If the revisions sufficiently address the identified deficiencies, the Department will determine that the Plan is “approved”. In that scenario, Department staff

will identify additional recommended corrective actions that the GSA should address early in implementing their GSP (i.e., no later than the first required periodic evaluation). Among other items, those corrective actions will recommend the GSA provide more detail on their plans and schedules to address data gaps. Those recommendations will call for significantly expanded documentation of the plans and schedules to implement specific projects and management actions. Regardless of those recommended corrective actions, the Department expects the first periodic evaluations, required no later than January 2027 – one-quarter of the way through the 20-year implementation period – to document significant progress toward achieving sustainable groundwater management.

If the Subbasin's GSA cannot address the deficiencies identified in this letter by April 23, 2024, then the Department, after consultation with the State Water Resources Control Board, will determine the GSP to be "inadequate". In that scenario, the State Water Resources Control Board may identify additional deficiencies that the GSA would need to address in the state intervention processes outlined in SGMA.

Please contact Sustainable Groundwater Management staff by emailing [sgmps@water.ca.gov](mailto:sgmps@water.ca.gov) if you have any questions related to the Department's assessment or implementation of your GSP.

Thank You,

  
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Paul Gosselin  
Deputy Director  
Sustainable Groundwater Management

Attachment:

1. Statement of Findings Regarding the Determination of Incomplete Status of the Sacramento Valley – Red Bluff Subbasin Groundwater Sustainability Plan

**STATE OF CALIFORNIA  
DEPARTMENT OF WATER RESOURCES**

**STATEMENT OF FINDINGS REGARDING THE  
DETERMINATION OF INCOMPLETE STATUS OF THE  
SACRAMENTO VALLEY – RED BLUFF SUBBASIN  
GROUNDWATER SUSTAINABILITY PLAN**

The Department of Water Resources (Department) is required to evaluate whether a submitted groundwater sustainability plan (GSP or Plan) conforms to specific requirements of the Sustainable Groundwater Management Act (SGMA or Act), is likely to achieve the sustainability goal for the basin covered by the Plan, and whether the Plan adversely affects the ability of an adjacent basin to implement its GSP or impedes achievement of sustainability goals in an adjacent basin. (Water Code § 10733.) The Department is directed to issue an assessment of the Plan within two years of its submission. (Water Code § 10733.4.) This Statement of Findings explains the Department's decision regarding the submitted Plan by the Tehama County Flood Control and Water Conservation District Groundwater Sustainability Agency – Red Bluff (GSA or Agency) for the Sacramento Valley – Red Bluff Subbasin (Basin No. 5-021.50).

Department management has reviewed the enclosed Staff Report, which recommends that the identified deficiencies should preclude approval of the GSP. Based on its review of the Staff Report, Department management is satisfied that staff have conducted a thorough evaluation and assessment of the Plan and concurs with, and hereby adopts, staff's recommendation and all the corrective actions provided. The Department thus deems the Plan incomplete based on the Staff Report and the findings contained herein. In particular, the Department finds:

- A. The GSA must provide more detailed explanation and justification regarding the selection of the sustainable management criteria for groundwater levels, particularly undesirable results and minimum thresholds, and quantitatively describe the effects of those criteria on the interests of beneficial uses and users of groundwater. Department staff recommend the GSA consider and address the following:
  1. Refine the description of undesirable results to clearly describe the significant and unreasonable conditions the GSA is managing the Subbasin to avoid. This must include a quantitative description of the negative effects to beneficial uses and users that would be experienced at undesirable result conditions. The GSA should fully disclose and describe and explain its rationale for determining the number of wells that may be dewatered and the level of impacts to

groundwater dependent ecosystems that may occur without rising to significant and unreasonable levels constituting undesirable results. Lastly, the GSA should explain how potential alternate supplies of water or well mitigation will be considered by the GSA during its management of the Subbasin in a project or management action as part of the GSP. Department staff also encourage the GSA to review the Department's April 2023 guidance document titled *Considerations for Identifying and Addressing Drinking Water Well Impacts*.<sup>1</sup>

2. The GSA should revise minimum thresholds to be set at the level where the depletion of supply across the Subbasin may lead to undesirable results and provide the criteria used to establish and justify minimum thresholds. Fully document the analysis and justifications performed to establish the criteria used to establish minimum thresholds. Clearly show each step of the analysis and provide supporting information used in the analysis.
  3. Provide an evaluation of how minimum thresholds may affect the interests of beneficial uses and users of groundwater or land uses and property interests. Identify the number and location of wells that may be negatively affected when minimum thresholds are reached. Compare well infrastructure for all well types in the Subbasin with minimum thresholds at nearby, suitably representative monitoring sites. Document all assumptions and steps clearly so that it will be understood by readers of the GSP. Include maps of potentially affected well locations, identify the number of potentially affected wells by well type, and provide a supporting discussion of the effects.
- B. The GSA should revise the GSP to provide a reasonable assessment of overdraft conditions and include a reasonable means to mitigate overdraft. Specifically, the Plan must be amended as follows:
1. Reevaluate the assessment of overdraft conditions in the Subbasin. Specifically, the GSA should examine the assumptions that were used to develop the projected overdraft estimates in the projected water budget considering the results vary greatly from the values reported in the historical and current water budgets and the recent annual report data. The assessment should include the latest information for the Subbasin to ensure the GSP includes the required projects and management actions to mitigate overdraft in the Subbasin.

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<sup>1</sup> <https://water.ca.gov/Programs/Groundwater-Management/Drinking-Water-Well>

Statement of Findings

Sacramento Valley – Red Bluff Subbasin (No. 5-021.50)

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2. Provide a reasonable means to mitigate the overdraft that is continuing to occur in the Subbasin. Specifically, the GSA should describe feasible proposed management actions that are commensurate with the level of understanding of groundwater conditions of the Subbasin and with sufficient details and consideration for Department staff to be able to clearly understand how the Plan's projects and management actions will mitigate overdraft in the Subbasin under different climate scenarios.

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Based on the above, the GSP submitted by the Agencies for the Red Bluff Subbasin is determined to be incomplete because the GSP does not satisfy the requirements of SGMA, nor does it substantially comply with the GSP Regulations. The corrective actions provided in the Staff Report are intended to address the deficiencies that, at this time, preclude approval. The GSA has up to 180 days to address the deficiencies outlined above and detailed in the Staff Report. Once the GSA resubmits its Plan, the Department will review the revised GSP to evaluate whether the deficiencies were adequately addressed. Should the Agencies fail to take sufficient actions to correct the deficiencies identified by the Department in this assessment, the Department shall disapprove the Plan if, after consultation with the State Water Resources Control Board, the Department determines the Plan inadequate pursuant to 23 CCR § 355.2(e)(3)(C).

Signed:

  
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Karla Nemeth, Director  
Date: October 26, 2023

Enclosure: Groundwater Sustainability Plan Assessment Staff Report – Sacramento Valley – Red Bluff Subbasin

**State of California**  
**Department of Water Resources**  
**Sustainable Groundwater Management Program**  
**Groundwater Sustainability Plan Assessment**  
**Staff Report**

Groundwater Basin Name: Sacramento Valley – Red Bluff (No. 5-021.50)  
Submitting Agency: Tehama County Flood Control and Water Conservation  
District Groundwater Sustainability Agency – Red Bluff  
Submittal Type: Initial GSP Submission  
Submittal Date: January 31, 2022  
Recommendation: Incomplete  
Date: October 26, 2023

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The Tehama County Flood Control and Water Conservation District Groundwater Sustainability Agency (GSA) submitted the Red Bluff Groundwater Sustainability Plan (GSP or Plan) to the Department of Water Resources (Department) for evaluation and assessment as required by the Sustainable Groundwater Management Act (SGMA) and the GSP Regulations.<sup>1</sup> The GSP covers the entire Red Bluff Subbasin (Subbasin) for the implementation of SGMA.<sup>2</sup> As presented in this staff report, a single GSP covering the entire basin was adopted and submitted to the Department of Water Resources (Department) for review by the GSA.<sup>3</sup>

Evaluation and assessment by the Department is based on whether an adopted and submitted GSP, either individually or in coordination with other adopted and submitted GSPs, complies with SGMA and substantially complies with the GSP Regulations. Department staff base their assessment on information submitted as part of an adopted GSP, public comments submitted to the Department, and other materials, data, and reports that are relevant to conducting a thorough assessment. Department staff have evaluated the GSP and have identified deficiencies that staff recommend should preclude its approval.<sup>4</sup> In addition, consistent with the GSP Regulations, Department staff have provided required corrective actions<sup>5</sup> that the GSA should review while determining how and whether to address the deficiencies. The deficiencies and required corrective actions are explained in greater detail in Section 3 of this staff report and are generally related to

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<sup>1</sup> 23 CCR § 350 *et seq.*

<sup>2</sup> Red Bluff GSP, Section 2.1.1.1, p. 63.

<sup>3</sup> Water Code §§ 10727(b)(1), 10733.4; 23 CCR § 355.2.

<sup>4</sup> 23 CCR §355.2(e)(2).

<sup>5</sup> 23 CCR §355.2(e)(2)(B).

the need to define sustainable management criteria in the manner required by SGMA and the GSP Regulations.

This assessment includes four sections:

- **Section 1 – Evaluation Criteria**: Describes the legislative requirements and the Department’s evaluation criteria.
- **Section 2 – Required Conditions**: Describes the submission requirements, GSP completeness, and basin coverage required for a GSP to be evaluated by the Department.
- **Section 3 – Plan Evaluation**: Provides a detailed assessment of identified deficiencies in the GSP. Consistent with the GSP Regulations, Department staff have provided corrective actions for the GSAs to address the deficiencies.
- **Section 4 – Staff Recommendation**: Provides staff’s recommendation regarding the Department’s determination.



# 1 EVALUATION CRITERIA

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The Department evaluates whether a Plan conforms to the statutory requirements of SGMA<sup>6</sup> and is likely to achieve the basin’s sustainability goal.<sup>7</sup> To achieve the sustainability goal, the Plan must demonstrate that implementation will lead to sustainable groundwater management, which means the management and use of groundwater in a manner that can be maintained during the planning and implementation horizon without causing undesirable results.<sup>8</sup> Undesirable results are required to be defined quantitatively by the GSA overlying a basin and occur when significant and unreasonable effects for any of the applicable sustainability indicators are caused by groundwater conditions occurring throughout the basin.<sup>9</sup> The Department is also required to evaluate whether the Plan will adversely affect the ability of an adjacent basin to implement its groundwater sustainability program or achieve its sustainability goal.<sup>10</sup>

For a Plan to be evaluated by the Department, it must first be determined that it was submitted by the statutory deadline<sup>11</sup> and that it is complete and covers the entire basin.<sup>12</sup> If these required conditions are satisfied, the Department evaluates the Plan to determine whether it complies with SGMA and substantially complies with the GSP Regulations.<sup>13</sup> As stated in the GSP Regulations, “[s]ubstantial compliance means that the supporting information is sufficiently detailed and the analyses sufficiently thorough and reasonable, in the judgment of the Department, to evaluate the Plan, and the Department determines that any discrepancy would not materially affect the ability of the Agency to achieve the sustainability goal for the basin, or the ability of the Department to evaluate the likelihood of the Plan to attain that goal.”<sup>14</sup>

When evaluating whether the Plan is likely to achieve the sustainability goal for the basin, Department staff review the information provided for sufficiency, credibility, and consistency with scientific and engineering professional standards of practice.<sup>15</sup> The Department’s review considers whether there is a reasonable relationship between the information provided by the GSA and the assumptions and conclusions presented in the Plan, including; whether the interests of the beneficial uses and users of groundwater in the basin have been considered; whether sustainable management criteria and projects and management actions described in the Plan are commensurate with the level of understanding of the basin setting; and whether those projects and management actions

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<sup>6</sup> Water Code §§ 10727.2, 10727.4, 10727.6.

<sup>7</sup> Water Code § 10733(a).

<sup>8</sup> Water Code § 10721(v).

<sup>9</sup> 23 CCR § 354.26.

<sup>10</sup> Water Code § 10733(c).

<sup>11</sup> 23 CCR § 355.4(a)(1).

<sup>12</sup> 23 CCR §§ 355.4(a)(2), 355.4(a)(3).

<sup>13</sup> 23 CCR § 350 *et seq.*

<sup>14</sup> 23 CCR § 355.4(b).

<sup>15</sup> 23 CCR § 351(h).

are feasible and likely to prevent undesirable results.<sup>16</sup> The Department also considers whether the GSAs have the legal authority and financial resources necessary to implement the Plan.<sup>17</sup>

To the extent overdraft is present in a basin, the Department evaluates whether the Plan provides a reasonable assessment of the overdraft and includes reasonable means to mitigate it.<sup>18</sup> The Department also considers whether the Plan provides reasonable measures and schedules to eliminate identified data gaps.<sup>19</sup> Lastly, the Department's review considers the comments submitted on the Plan and evaluates whether the GSAs have adequately responded to the comments that raise credible technical or policy issues with the Plan.<sup>20</sup>

The Department is required to evaluate the Plan within two years of its submittal date and issue a written assessment.<sup>21</sup> The assessment is required to include a determination of the Plan's status.<sup>22</sup> The GSP Regulations provide three options for determining the status of a Plan: approved,<sup>23</sup> incomplete,<sup>24</sup> or inadequate.<sup>25</sup>

After review of the Plan, Department staff may conclude that the information provided is not sufficiently detailed, or the analyses not sufficiently thorough and reasonable, to evaluate whether it is likely to achieve the sustainability goal for the basin. If the Department determines the deficiencies precluding approval may be capable of being corrected by the GSA in a timely manner,<sup>26</sup> the Department will determine the status of the Plan to be incomplete. A Plan deemed incomplete may be revised and resubmitted to the Department for reevaluation of whether all deficiencies have been addressed and incorporated into the Plan within 180 days after the Department makes its incomplete determination. The Department will review the revised Plan to evaluate whether the identified deficiencies were sufficiently addressed. Depending on the outcome of that evaluation, the Department may determine the resubmitted Plan is approved. Alternatively, the Department may find a formerly deemed incomplete GSP is inadequate if, after consultation with the State Water Resources Control Board, it determines that the GSA has not taken sufficient actions to correct any identified deficiencies.<sup>27</sup>

When the Department determines a Plan is approved after resubmittal, the Department may still recommend corrective actions.<sup>28</sup> Recommended corrective actions are intended

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<sup>16</sup> 23 CCR §§ 355.4(b)(1), (3), (4) and (5).

<sup>17</sup> 23 CCR § 355.4(b)(9).

<sup>18</sup> 23 CCR § 355.4(b)(6).

<sup>19</sup> 23 CCR § 355.4(b)(2).

<sup>20</sup> 23 CCR § 355.4(b)(10).

<sup>21</sup> Water Code § 10733.4(d); 23 CCR § 355.2(e).

<sup>22</sup> Water Code § 10733.4(d); 23 CCR § 355.2(e).

<sup>23</sup> 23 CCR § 355.2(e)(1).

<sup>24</sup> 23 CCR § 355.2(e)(2).

<sup>25</sup> 23 CCR § 355.2(e)(3).

<sup>26</sup> 23 CCR § 355.2(e)(2)(B)(i).

<sup>27</sup> 23 CCR § 355.2(e)(3)(C).

<sup>28</sup> Water Code § 10733.4(d).

to facilitate progress in achieving the sustainability goal within the basin and the Department's future evaluations, and to allow the Department to better evaluate whether implementation of the Plan adversely affects adjacent basins. While the issues addressed by the recommended corrective actions in an approved Plan do not, at the time the determination was made, preclude its approval, the Department recommends that the issues be addressed to ensure the Plan's implementation continues to be consistent with SGMA and the Department is able to assess progress in achieving the basin's sustainability goal.<sup>29</sup> Unless otherwise noted, the Department proposes that recommended corrective actions be addressed by the submission date for the first periodic assessment.<sup>30</sup>

The staff assessment of the Plan involves the review of information presented by the GSAs, including models and assumptions, and an evaluation of that information based on scientific reasonableness. In conducting its assessment, the Department does not recalculate or reevaluate technical information provided in the Plan or perform its own geologic or engineering analysis of that information. The recommendation to approve a Plan does not signify that Department staff, were they to exercise the professional judgment required to develop a Plan for the basin, would make the same assumptions and interpretations as those contained in the Plan, but simply that Department staff have determined that the assumptions and interpretations relied upon by the submitting GSA are supported by adequate, credible evidence, and are scientifically reasonable.

Lastly, the Department's review and assessment of an approved Plan is a continual process. Both SGMA and the GSP Regulations provide the Department with the ongoing authority and duty to review the implementation of the Plan.<sup>31</sup> Also, GSAs have an ongoing duty to reassess their GSPs, provide annual reports to the Department, and, when necessary, update or amend their GSPs.<sup>32</sup> The passage of time or new information may make what is reasonable and feasible at the time of this review to not be so in the future. The emphasis of the Department's periodic reviews will be to assess the GSA's progress toward achieving the basin's sustainability goal and whether implementation of the Plan adversely affects the ability of GSA in adjacent basins to achieve their sustainability goals.

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<sup>29</sup> Water Code § 10733.8.

<sup>30</sup> 23 CCR § 356.4.

<sup>31</sup> Water Code § 10733.8; 23 CCR § 355.6.

<sup>32</sup> Water Code §§ 10728, 10728.2.

## 2 REQUIRED CONDITIONS

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A GSP, to be evaluated by the Department, must be submitted within the applicable statutory deadline.<sup>33</sup> The GSP must also be complete and must, either on its own or in coordination with other GSPs, cover the entire basin. If a GSP is determined to be incomplete, Department staff may require corrective actions that address minor or potentially significant deficiencies identified in the GSP. The GSA must sufficiently address those required corrective actions within the time provided, not to exceed 180 days, for the GSP to be reevaluated by the Department and potentially approved.

### 2.1 SUBMISSION DEADLINE

SGMA required basins categorized as high- or medium-priority as of January 1, 2017, and to submit a GSP no later than January 31, 2022.<sup>34</sup>

The GSA submitted the Red Bluff GSP to the Department on January 31, 2022, in compliance with the statutory deadline.

### 2.2 COMPLETENESS

GSP Regulations specify that the Department shall evaluate a GSP if that GSP is complete and includes the information required by SGMA and the GSP Regulations.<sup>35</sup>

The GSA submitted an adopted GSP for the entire Subbasin. Department staff found the Red Bluff GSP to be complete and include the required information sufficient to warrant an evaluation by the Department. Therefore, the Department posted the GSP to its website on February 14, 2022.<sup>36</sup>

### 2.3 BASIN COVERAGE

A GSP, either on its own or in coordination with other GSPs, must cover the entire basin.<sup>37</sup>

A GSP that intends to cover the entire basin may be presumed to do so if the basin is fully contained within the jurisdictional boundaries of the submitting GSA.

The GSP intends to manage the entire Red Bluff Subbasin and the jurisdictional boundaries of the submitting GSA appear to cover the entire Subbasin.

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<sup>33</sup> Water Code § 10720.7.

<sup>34</sup> Water Code § 10720.7(a)(2).

<sup>35</sup> 23 CCR § 355.4(a)(2).

<sup>36</sup> <https://sgma.water.ca.gov/portal/gsp/preview/140>.

<sup>37</sup> Water Code § 10727(b); 23 CCR § 355.4(a)(3).

### 3 PLAN EVALUATION

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As stated in Section 355.4 of the GSP Regulations, a basin “shall be sustainably managed within 20 years of the applicable statutory deadline consistent with the objectives of the Act.” The Department’s assessment is based on a number of related factors including whether the elements of a GSP were developed in the manner required by the GSP Regulations, whether the GSP was developed using appropriate data and methodologies and whether its conclusions are scientifically reasonable, and whether the GSP, through the implementation of clearly defined and technically feasible projects and management actions, is likely to achieve a tenable sustainability goal for the basin.

Department staff have identified deficiencies in the GSP, the most serious of which preclude staff from recommending approval of the GSP at this time. Department staff believe the GSA may be able to correct the identified deficiencies within 180 days. Consistent with the GSP Regulations, Department staff are providing corrective actions related to the deficiencies, detailed below, including the general regulatory background, the specific deficiency identified in the GSP, and the specific actions to address the deficiency.

Department staff have concluded that the GSP as proposed does not conform with the requirements of SGMA and is not likely to achieve the sustainability goals for the basin. The GSP does not sufficiently identify and propose management for current conditions including the chronic lowering of groundwater levels. The GSP does not establish sustainable management criteria that considered effects on the full range of known beneficial uses and users of groundwater. Instead, the GSP claims that no management is needed to maintain sustainability and does not propose projects or management actions to arrest declines in groundwater levels or to address constituents of concern in the Subbasin.

#### **3.1 DEFICIENCY 1. THE GSP DOES NOT ESTABLISH SUSTAINABLE MANAGEMENT CRITERIA FOR CHRONIC LOWERING OF GROUNDWATER LEVELS IN A MANNER SUBSTANTIALLY COMPLIANT WITH THE GSP REGULATIONS.**

##### **3.1.1 Background**

It is up to the GSA to define undesirable results and GSAs must describe the effect of undesirable results on the beneficial uses and users of groundwater.<sup>38</sup> From this definition, the GSA establishes minimum thresholds, which are quantitative values that represent groundwater conditions at representative monitoring sites that, when exceeded individually or in combination with minimum thresholds at other monitoring sites, may cause the basin to experience undesirable results.<sup>39</sup> Put another way, the minimum

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<sup>38</sup> 23 CCR § 354.26 (b)(3), § 354.28 (b)(4).

<sup>39</sup> 23 CCR § 354.28, DWR Best Management Practices for the Sustainable Management of Groundwater: Sustainable Management Criteria (DRAFT), November 2017.

thresholds represent conditions that, if not exceeded, should prevent the basin from experiencing the undesirable results identified by the GSA. Minimum thresholds for chronic lowering of groundwater levels are the groundwater elevation indicating a depletion of supply at a given location that may lead to undesirable results.<sup>40</sup> Quantitative values for minimum thresholds should be supported by information and criteria relied upon to establish and justify the minimum threshold,<sup>41</sup> and a quantitative description of how conditions at minimum thresholds may affect the interests of beneficial uses and users of groundwater.<sup>42</sup>

### 3.1.2 Deficiency Details

Based on its review, Department staff conclude the Plan has not defined sustainable management criteria for chronic lowering of groundwater levels in a manner required by SGMA and the GSP Regulations. Generally, the GSP's descriptions of undesirable results are unclear and justification for the establishment of minimum thresholds are not provided with evidence of the consideration of the interests of beneficial uses and users of groundwater, and sufficient supporting information are not provided in the GSP. The lack of this information does not allow Department staff to evaluate whether the criteria are reasonable or whether the GSA plans to operate the Subbasin to avoid undesirable results.<sup>43</sup>

GSP Regulations require that GSAs define undesirable results caused by the chronic lowering of groundwater levels by identifying a significant and unreasonable depletion of supply that is present when an undesirable result occurs.<sup>44</sup> The GSP describes an undesirable result as: "Chronic lowering of groundwater elevations in the Subbasin cause significant and unreasonable declines if they are sufficient in magnitude to lower the rate of production of pre-existing groundwater wells below that necessary to meet the minimum required to support overlying beneficial use(s) where alternative means of obtaining sufficient water resources are not technically or financially feasible."<sup>45</sup> Next, the GSP proposes to quantify its definition by describing undesirable results as occurring "is estimated as 25% of groundwater elevations measured at same RMS wells exceed the associated MTs for two (2) consecutive measurements."<sup>46</sup>

Department staff have identified multiple problems with how the GSA has defined undesirable results. First, the Plan's definition of undesirable results uses undefined qualifying language that renders the meaning indeterminate. Without a quantitative definition or clear description of the qualifiers "necessary", "minimum", and "support," it is unclear how the GSA will clearly identify whether observed impacts would be considered significant and unreasonable. Further, the Plan limits the applicability of significant and

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<sup>40</sup> 23 CCR § 354.28 (c)(1).

<sup>41</sup> 23 CCR § 354.28 (b)(1).

<sup>42</sup> 23 CCR § 354.28 (b)(4).

<sup>43</sup> 23 CCR §§ 354.28(b)(1), 354.28(b)(2), 354.28(b)(3), 354.28(b)(4), 354.28(c)(1).

<sup>44</sup> 23 CCR § 354.26 (a)

<sup>45</sup> Red Bluff GSP, Section 3.3.1.1, p. 303.

<sup>46</sup> Red Bluff GSP, Section 3.4.1, p. 315.

unreasonable conditions to instances when alternative means of obtaining sufficient water resources are not technically or financially feasible but does not indicate what would constitute technical or financial feasibility, or who would make that determination. While the GSP includes in its portfolio of optional projects and management actions a well deepening or replacement program, this proposed action is described as being in the early planning stages with no discussion or details regarding the action's implementation timeline, criteria for implementation, benefits, or costs and funding.<sup>47</sup> Without more information, Department staff are unable to evaluate when and how the well replacement program may be implemented or evaluate its potential feasibility and effectiveness at this time.

Additionally, the Plan defines undesirable results as a function of minimum conditions necessary to support overlying beneficial uses and users but does not describe or explain what those conditions would be or how they were determined. These problems are compounded by the fact that the Plan does not demonstrate how or whether the interests of beneficial uses and users were considered. As a result, even if the Plan had provided a precise definition of undesirable results, it would not be possible to know whether it was appropriate to the needs of beneficial uses and users in the basin as determined by the GSA. Second, the attempt at quantification of undesirable results as  $\geq 25\%$  of RMS wells falling below the minimum threshold for two consecutive annual spring measurements is unsatisfactory because nowhere does the Plan explain why this threshold would avoid effects the GSA has determined to be significant and unreasonable. On the contrary, the values and timing of exceedances appear to be arbitrary.

The lack of specificity in what the GSA is managing the Subbasin to avoid (i.e. undesirable results) is especially problematic considering the current and projected conditions. There have been 106 dry wells reported in the Subbasin since 2021 according to the Household Dry Well Reporting System.<sup>48</sup> The GSA has elected to establish a threshold that will allow up to 20 percent of currently functioning domestic wells (up to 1,062 wells) to go dry without causing an undesirable result,<sup>49</sup> and GSA has not explained how it determined the current and projected well outages in the Subbasin are not considered undesirable results, even though those conditions appear to meet the definition of an undesirable result provided in the GSP (i.e., wells were below the necessary minimum required amount of supply to meet the beneficial use). Department staff conclude the GSA must reevaluate and clearly define and provide its rationale for when undesirable results occur in the Subbasin based on a thorough consideration of the interests of beneficial uses and users as required by the GSP Regulations ([see Corrective Action 1a](#)).

The GSP Regulations require GSAs to set their minimum thresholds for chronic lowering of groundwater levels at “the groundwater elevation indicating a depletion of supply at a

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<sup>47</sup> Red Bluff GSP, Table 4-35, p. 421.

<sup>48</sup> <https://mydrywell.water.ca.gov/report/>

<sup>49</sup> Red Bluff GSP, Section 3.3.1.1, p. 303.

given location that may lead to undesirable results.”<sup>50</sup> The GSP identifies two principal aquifers, referred to as the Upper Aquifer and Lower Aquifer, and sets different minimum thresholds for each.<sup>51</sup> The Plan sets minimum thresholds for the Upper Aquifer as “Spring groundwater elevation where less than 10-20% (on average) of domestic wells could potentially be impacted,” and for the Lower Aquifer as “Spring groundwater elevation minus 20 to 120 feet.” The Plan describes establishing these minimum thresholds based on a review of historical groundwater levels, water level trends projected to 2042, and well construction information,<sup>52</sup> but does not describe nor provide supporting information for the analysis.

Department staff note that the GSP does identify the slope 17 of 18 well monitoring records analyzed by the GSA in Appendix 2-F as a ‘significantly decreasing trend’.<sup>53</sup> However, it is unclear how this relates to the proposed minimum thresholds, which are approximately 40 feet to 110 feet below the historic low measurement in each representative monitoring site based on the hydrographs in Appendix 3-B.<sup>54</sup> Considering these decreasing trends, the GSP establishes minimum thresholds based on managing the Basin to allow historic rates of decline to continue, or become more severe, and would avoid reaching undesirable results by setting minimum thresholds below projected groundwater conditions. Further, given the current trends in the Subbasin, the minimum thresholds will not be reached for over 100 years, and it is unclear how these values were selected to avoid undesirable results. Department staff conclude that the minimum thresholds must be revised by the GSA to be based upon the depletion of supply that would lead to undesirable results (see [Corrective Action 1b](#)).

The GSP Regulations require GSAs to consider how conditions at minimum thresholds may affect the interests of beneficial uses and users of groundwater;<sup>55</sup> however, the GSP does not appear to describe how the conditions at minimum thresholds may affect those interests. While the GSP includes a generic description of how the minimum threshold in the Upper Aquifer was defined at a level “where less than 10-20% (on average) of domestic wells could potentially be impacted,” it is unclear what the actual effects to beneficial uses and users could be under the GSA’s proposed management. While the GSP acknowledges the proposed thresholds could lead to impacts that include a loss of well capacity, higher pumping costs, and dry wells,<sup>56</sup> the Plan does not provide a clear description of the circumstances under which such impacts would become significant and unreasonable to particular beneficial uses and users. Given that the definition of minimum thresholds would allow 20 percent or approximately 1,062 additional wells to potentially be impacted under the GSA’s planned groundwater level management structure, the GSP

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<sup>50</sup> 23 CCR § 354.28(c)(1).

<sup>51</sup> Red Bluff GSP, Section 2.2.1.5, pp. 159-160.

<sup>52</sup> Red Bluff GSP, Section 3.3.1.1, p. 303.

<sup>53</sup> Red Bluff GSP, Appendix 2-F, Table A1, p. 743.

<sup>54</sup> Red Bluff GSP, Appendix 3-B, pp. 1188-1197.

<sup>55</sup> 23 CCR 354.28 (b)(4)

<sup>56</sup> Red Bluff GSP, Section 3.3.1.5, p. 305.



fails to demonstrate how the GSA considered the interests of these beneficial users when allowing this level of impact under its proposed management program.

Department staff are unable to determine whether the interests of beneficial uses and users or groundwater, as well as the land uses and property interests potentially affected by the use of groundwater in the Subbasin, have been considered.<sup>57</sup> The GSA must identify the number, location, and percentage of wells that may be impacted at the proposed minimum thresholds that will not receive assistance through the well mitigation program (see [Corrective Action 1c](#)).

### 3.1.3 Corrective Action 1

The GSA must provide more detailed explanation and justification regarding the selection of the sustainable management criteria for groundwater levels, particularly undesirable results and minimum thresholds, and quantitatively describe the effects of those criteria on the interests of beneficial uses and users of groundwater. Department staff recommend the GSA consider and address the following:

- a. Refine the description of undesirable results to clearly describe the significant and unreasonable conditions the GSA is managing the Subbasin to avoid. This must include a quantitative description of the negative effects to beneficial uses and users that would be experienced at undesirable result conditions.<sup>58</sup> The GSA should fully disclose and describe and explain its rationale for determining the number of wells that may be dewatered and the level of impacts to groundwater dependent ecosystems that may occur without rising to significant and unreasonable levels constituting undesirable results. Lastly, the GSA should explain how potential alternate supplies of water or well mitigation will be considered by the GSA during its management of the Subbasin in a project or management action as part of the GSP. Department staff also encourage the GSAs to review the Department's April 2023 guidance document titled *Considerations for Identifying and Addressing Drinking Water Well Impacts*.<sup>59</sup>
- b. The GSA should revise minimum thresholds to be set at the level where the depletion of supply across the Subbasin may lead to undesirable results<sup>60</sup> and provide the criteria used to establish and justify minimum thresholds.<sup>61</sup> Fully document the analysis and justifications performed to establish the criteria used to establish minimum thresholds. Clearly show each step of the analysis and provide supporting information used in the analysis.<sup>62</sup>

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<sup>57</sup> 23 CCR § 355.4 (b)(4).

<sup>58</sup> 23 CCR § 354.28 (b)(3).

<sup>59</sup> <https://water.ca.gov/Programs/Groundwater-Management/Drinking-Water-Well>

<sup>60</sup> 23 CCR 354.28 (c)(1).

<sup>61</sup> 23 CCR 354.28 (a).

<sup>62</sup> 23 CCR 354.28 (b)(1).

- c. Provide an evaluation of how minimum thresholds may affect the interests of beneficial uses and users of groundwater or land uses and property interests.<sup>63</sup> Identify the number and location of wells that may be negatively affected when minimum thresholds are reached. Compare well infrastructure for all well types in the Subbasin with minimum thresholds at nearby, suitably representative monitoring sites. Document all assumptions and steps clearly so that it will be understood by readers of the GSP. Include maps of potentially affected well locations, identify the number of potentially affected wells by well type, and provide a supporting discussion of the effects.

## **3.2 DEFICIENCY 2. THE GSP DOES NOT INCLUDE A REASONABLE ASSESSMENT OF OVERDRAFT CONDITIONS AND REASONABLE MEANS TO MITIGATE OVERDRAFT.**

### **3.2.1 Background**

For basins where overdraft conditions occur, the GSP Regulations require a Plan to quantify the overdraft over a period of years during which water year and water supply conditions approximate average conditions.<sup>64</sup> Furthermore, the Plan must describe projects or management actions, including quantification of demand reduction or other methods, for the mitigation of overdraft and achieving the sustainability goal for the basin.<sup>65</sup>

As part of the Department's evaluation, staff assess whether the Plan provides a reasonable assessment of overdraft conditions and includes reasonable means to mitigate overdraft, if present.<sup>66</sup> To substantially comply with the GSP Regulations,<sup>67</sup> the assessment provided in the Plan must be supported with sufficiently detailed information and the analyses must be sufficiently thorough and reasonable. Staff rely on the Plan to be detailed and thorough to evaluate if any discrepancy in the information provided may materially affect the ability of the Agency to achieve the sustainability goal for the basin.

### **3.2.2 Deficiency**

The GSP regulations require the Department to evaluate whether the Plan includes a reasonable assessment of overdraft conditions and includes a reasonable means to mitigate overdraft.<sup>68</sup> While the GSP does present information about overdraft, it is unclear whether this assessment is reasonable because the overdraft varies greatly from recent change in groundwater storage data. Furthermore, the projects and management actions as proposed in the GSP, which have been developed to address the projected overdraft conditions, do not appear to be a reasonable means to mitigate the actual overdraft conditions in the Subbasin. Department staff have identified this as a deficiency that

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<sup>63</sup> 23 CCR 354.28 (b)(4).

<sup>64</sup> 23 CCR § 354.18(b)(5).

<sup>65</sup> 23 CCR §§ 354.44 and 354.44(b)(2).

<sup>66</sup> 23 CCR § 355.4 (b)(6).

<sup>67</sup> 23 CCR § 355.4 (b).

<sup>68</sup> 23 CCR § 355.4(b)(6).

precludes plan approval at this time. The following section describes specific details about the deficiency and outlines one or more corrective actions the GSAs must take to address to correct it.

The GSP presented unclear and contradictory information related to overdraft occurring in the Subbasin. The GSP states that an evaluation of water level declines indicates groundwater levels are significantly declining, but that “the trend of groundwater levels is not an indication of overdraft”.<sup>69</sup> The Plan details that groundwater storage varies from year to year, depending on the water year type, but that that storage has declined 357,000 acre-feet since 2000,<sup>70</sup> and the plan identifies an overdraft on average of 11,000 AFY in the historical conditions groundwater budget (based on water years 1990-2018).<sup>71</sup> The projected water budget with future land use and climate change, anticipates an increase in groundwater pumping from 94,000 AFY to 146,300 AFY, yet presents a lower overdraft value of 4,100 AFY over the implementation horizon.<sup>72</sup>

Since the GSP submittal, annual report data documents that the actual change in groundwater storage within the Subbasin has dramatically decreased more than the values determined for the historical, or projected water budgets. Specifically, the values of negative change in groundwater storage (i.e. overdraft) reported for water year (WY) 2021 (which represents change between October 1, 2020, and September 30, 2021) was -164,000 acre-feet<sup>73</sup> and -87,000 acre-feet for WY 2022.<sup>74</sup> Department staff recognize that although both WY 2021 and 2022 (water year types based on the DWR Sacramento Valley Index) were identified as critically dry, the overdraft in these years is more than the average overdraft of -65,000 acre-feet in critically dry years of the historical water budget period.<sup>75</sup> Combined, these values represent a loss of storage of 251,000 acre-feet in just a two-year period, which is 100,000 acre-feet more than the anticipated cumulative loss in storage projected in the Subbasin over the 50-year planning horizon without climate change.<sup>76</sup> Based on a review of the information included in the GSP and annual reports, Department staff conclude the GSAs have not included a reasonable assessment of overdraft conditions for the Subbasin ([See Corrective Action 2a](#)).

GSP regulations require the Department to evaluate whether the Plan includes a reasonable means to mitigate overdraft.<sup>77</sup> While the GSP documents a projected groundwater overdraft of 4,100 AFY, Department staff believe the actual overdraft the GSAs will be required to mitigate is likely much more based on information included in the GSP and annual reports. The GSP states that since “the Subbasin is currently and projected to be sustainable, PMAs [projects and management actions] are not expected

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<sup>69</sup> Red Bluff GSP, Section 2.2.2.1.1, p. 170.

<sup>70</sup> Red Bluff GSP, Table 2-22, p. 238.

<sup>71</sup> Red Bluff GSP, Table 2-22, p. 238.

<sup>72</sup> Red Bluff GSP, Table 4-1, p. 347.

<sup>73</sup> <https://sgma.water.ca.gov/portal/gspar/preview/89>, Table 4-2, p. 19.

<sup>74</sup> <https://sgma.water.ca.gov/portal/gspar/preview/208>, Table 4-1, p. 17.

<sup>75</sup> Red Bluff GSP, Table 2-22, p. 238.

<sup>76</sup> Red Bluff GSP, Table 2-34, p. 267.

<sup>77</sup> 23 CCR § 355.4(b)(6).

to be essential for sustainability.<sup>78</sup> The GSP provides details of projects that are in place or planned, conceptual projects, and potential management actions<sup>79</sup> and then provides a simulation of implementing two projects which reduces the annual change in storage from -4,100 AFY to -3,500 AFY. The GSP then concludes “this change is within the estimated uncertainty of the projected water budget results.”<sup>80</sup> Since the overdraft value is within the margin of error, it appears the GSA believes the implementation of projects and management actions may not be necessary to achieve sustainability.

Based on information presented in the GSP, the expected benefits of all projects would provide up to approximately 3,490 AFY to the Subbasin. Given the recent reduction of groundwater storage of 251,000 acre-feet in just the last two years, it would take over 70 years of these projects being fully implemented combined with the Subbasin instantly operating within its sustainable yield to mitigate this loss of storage. While the water code states that overdraft during a period of drought is not sufficient to establish an undesirable result for the chronic lowering of groundwater levels, this is contingent on the GSA managing extractions and recharge as necessary to ensure that reductions in groundwater levels or storage are offset by increases in groundwater levels or storage during other periods.<sup>81</sup> Based on the information contained in the GSP, it does not appear the GSAs have proposed a suite of projects and management actions that will be sufficient to offset the recent overdraft observed in the Subbasin. The lack of detail presented in the GSP makes it appear as if the GSAs have no urgency or commitment to implement the necessary projects and management actions to mitigate overdraft. Department staff are concerned that continued overdraft will exacerbate the current problems the basin is experiencing, including dry wells, and that the currently presented projects and management actions will not be effective in mitigating the magnitude of overdraft experienced in recent years if it continues. Accordingly, for the above reasons, Department staff cannot conclude that the GSP has presented a reasonable means to mitigate overdraft ([see Corrective Action 2b](#)).

### 3.2.3 Corrective Action 2

The GSAs should revise the GSP to provide a reasonable assessment of overdraft conditions and include a reasonable means to mitigate overdraft. Specifically, the Plan must be amended as follows:

- a. Reevaluate the assessment of overdraft conditions in the Subbasin. Specifically, the GSAs should examine the assumptions that were used to develop the projected overdraft estimates in the projected water budget considering the results vary greatly from the values reported in the historical and current water budgets and the recent annual report data. The assessment should include the latest

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<sup>78</sup> Red Bluff GSP, Section ES 4. P. 34.

<sup>79</sup> Red Bluff GSP, Section 4.4.3.2.5, p. 381, Section 4.4.1.2.5, p. 369, Section 4.4.4.2.5, p. 389, Section 4.4.5.2.5, p. 394, Section 4.4.6.2.5, p. 394,

<sup>80</sup> Red Bluff GSP, Section 4.1.1.1, p 346.

<sup>81</sup> Water Code § 10721(x)(1).

information for the Subbasin to ensure the GSP includes the required projects and management actions to mitigate overdraft in the Subbasin.

- b. Provide a reasonable means to mitigate the overdraft that is continuing to occur in the Subbasin. Specifically, the GSAs should describe feasible proposed management actions that are commensurate with the level of understanding of groundwater conditions of the Subbasin and with sufficient details and consideration for Department staff to be able to clearly understand how the Plan's projects and management actions will mitigate overdraft in the Subbasin under different climate scenarios.

## **4 STAFF RECOMMENDATION**

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Department staff believe that the deficiencies identified in this assessment should preclude approval of the GSP for the Sacramento Valley – Red Bluff Subbasin. Department staff recommend that the GSP be determined incomplete.