



CALIFORNIA DEPARTMENT OF WATER RESOURCES

# SUSTAINABLE GROUNDWATER MANAGEMENT OFFICE

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February 27, 2025

Tony Emmert  
Fillmore and Piru Basins GSA - Piru  
P.O. Box 1110  
Fillmore, CA 93016  
[tonye@unitedwater.org](mailto:tonye@unitedwater.org)

RE: Approved Determination of the 2024 Groundwater Sustainability Plan Submitted for the Santa Clara River Valley – Fillmore Subbasin

Dear Tony Emmert,

The Department of Water Resources (Department) has evaluated the 2024 groundwater sustainability plan (GSP) for the Santa Clara River Valley – Fillmore Subbasin in response to the Department's Incomplete Determination on January 18, 2024, and has determined the GSP is approved. The approval is based on recommendations from the Staff Report, included as an exhibit to the attached Statement of Findings, which describes that the Santa Clara River Valley – Fillmore Subbasin GSP has taken sufficient action to correct deficiencies identified by the Department, satisfies the objectives of the Sustainable Groundwater Management Act (SGMA), and substantially complies with the GSP Regulations. The Staff Report also proposes recommended corrective actions that the Department believes will enhance the GSP and facilitate future evaluation by the Department. The Department strongly encourages the recommended corrective actions be given due consideration and suggests incorporating all resulting changes in future updates.

Recognizing SGMA sets a long-term horizon for groundwater sustainability agencies (GSAs) to achieve their basin sustainability goals, monitoring progress is fundamental for successful implementation. GSAs are required to evaluate their GSPs at least every five years and whenever the Plan is amended, and to provide a written assessment to the Department. Accordingly, the Department will evaluate approved GSPs and issue an assessment at least every five years. The GSAs are required to submit their periodic evaluation of the Santa Clara River Valley – Fillmore Subbasin GSP no later than January 26, 2027.

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,

Paul Gosselin  
Paul Gosselin  
Deputy Director  
Sustainable Groundwater Management

Attachment:

1. Statement of Findings Regarding the Determination of Approval of the Santa Clara River Valley – Fillmore Subbasin 2024 Groundwater Sustainability Plan

**STATE OF CALIFORNIA  
DEPARTMENT OF WATER RESOURCES**

**STATEMENT OF FINDINGS REGARDING THE  
APPROVAL OF THE  
SANTA CLARA RIVER VALLEY – FILLMORE SUBBASIN  
2024 GROUNDWATER SUSTAINABILITY PLAN**

Under the Sustainable Groundwater Management Act (SGMA or Act), 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 SGMA, 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.<sup>1</sup> The Department is directed to issue an assessment of the Plan within two years of its submission.<sup>2</sup> If a Plan is determined to be Incomplete, the Department must identify deficiencies that preclude approval of the Plan and identify corrective actions required to make the Plan substantially compliant with SGMA and the GSP Regulations. The Groundwater Sustainability Agency (GSA or Agency) has up to 180 days from the date the Department issues its assessment to make the necessary corrections and submit a revised Plan.<sup>3</sup> When evaluating a revised GSP that was determined to be incomplete, the Department reviews the materials provided by the GSA (e.g., revised or amended GSP) to address the deficiencies by the submission deadline. Part of the Department’s review focuses on how the Agency addressed the deficiencies that precluded approval of the Plan. The Department shall find a Plan previously determined to be incomplete to be either:

1. Approved, if the Department determines the Agency has sufficiently addressed those deficiencies, the Department may evaluate other components of the Plan, particularly to assess whether and, if so, how revisions to address deficiencies may have affected other components of a Plan or its likelihood of achieving sustainable groundwater management.
2. Inadequate if, after consultation with the State Water Resources Control Board, the Agency has not taken sufficient action to correct the deficiencies previously identified by the Department.

This Statement of Findings explains the Department’s determination regarding the revised Plan for the Santa Clara River Valley – Fillmore Subbasin (Basin No. 4-004.05)

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<sup>1</sup> Water Code § 10733.

<sup>2</sup> Water Code § 10733.4.

<sup>3</sup> 23 CCR § 355.2(e)(2).

by the Fillmore and Piru Basins Groundwater Sustainability Agency (GSA or Agency) submitted on July 16, 2024 (referred to as the 2024 GSP or 2024 Plan).

Department management have discussed the 2024 Plan with Department staff and have reviewed the written assessment titled Sustainable Groundwater Management Program Assessment of Incomplete Groundwater Sustainability Plan 2025 Staff Report (Staff Report), attached as Exhibit A, which recommends approval of the 2024 GSP. Department management are satisfied that staff have conducted a thorough evaluation and assessment of the 2024 Plan and concur with staff's recommendations and all the recommended corrective actions. The Department therefore **APPROVES** the 2024 Plan and makes the following findings:

- A. On January 26, 2022, the GSA submitted a GSP (referred to as the 2022 GSP or 2022 Plan) for the Department's evaluation.
- B. On January 18, 2024, the Department issued a Staff Report (referred to as the 2024 Incomplete Determination) and Findings determining the 2022 GSP to be incomplete because the 2022 GSP did not satisfy the requirements of SGMA, nor did it substantially comply with the GSP Regulations. The Department's 2024 Incomplete Determination identified the following deficiencies that precluded approval and provided the GSA with corrective actions that were intended to address the deficiencies.
  1. Deficiency 1: The 2022 GSP did not establish sustainable management criteria for chronic lowering of groundwater levels in a manner substantially compliant with the GSP regulations.
  2. Deficiency 2: The 2022 GSP did not set sustainable management criteria for depletions of interconnected surface water.

The Department provided the Agency with 180 days to address the deficiencies.<sup>4</sup>

- C. On July 16, 2024, the GSA submitted a revised Plan (the 2024 GSP) to the Department. After staff's thorough evaluation of the 2024 Plan, the Department finds:
  1. The Agency has taken sufficient actions to correct Deficiency 1, such that, at this time, the Department no longer finds this deficiency to preclude approval. The 2024 GSP has sufficiently identified the impacts to beneficial uses and users that would occur at an undesirable condition through a well impacts analysis and has revised sustainable management criteria to identify the undesirable conditions that reflect the identified impacts. The 2024 GSP also includes an additional project to further

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<sup>4</sup> 23 CCR § 355.2(e)(2).

assess groundwater well drought vulnerability and potentially develop a drought mitigation plan.

2. The Agency has taken sufficient actions to correct Deficiency 2, such that, at this time, the Department no longer finds this deficiency to preclude approval. The 2024 GSP has set preliminary sustainable management criteria and planned to fill major data gaps related to surface water-groundwater interconnection and beneficial uses and users of interconnected surface waters.

The 2024 Plan satisfies the required conditions as outlined in § 355.4(a) of the GSP Regulations<sup>5</sup>:

1. The Plan was complete, meaning it generally appeared to include the information required by the Act and the GSP Regulations sufficient to warrant a thorough evaluation and issuance of an assessment by the Department.<sup>6</sup>
  2. The Plan, either on its own or in coordination with other Plans, appears to cover the entire Basin sufficient to warrant a thorough evaluation.<sup>7</sup>
- D. The general standards the Department applied in its evaluation and assessment of the Plan are: (1) “conformance” with the specified statutory requirements, (2) “substantial compliance” with the GSP Regulations, (3) whether the Plan is likely to achieve the sustainability goal for the Subbasin within 20 years of the implementation of the Plan, and (4) 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.<sup>8</sup> Application of these standards requires exercise of the Department’s expertise, judgment, and discretion when making its determination of whether a Plan should be deemed “approved,” “incomplete,” or “inadequate.”

The statutes and GSP Regulations require Plans to include and address a multitude and wide range of informational and technical components. The Department has observed a diverse array of approaches to addressing these technical and informational components being used by GSAs in different basins throughout the state. The Department does not apply a set formula or criterion that would require a particular outcome based on how a Plan addresses any one of SGMA’s numerous informational and technical components. The Department finds that affording flexibility and discretion to local GSAs is consistent with the

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<sup>5</sup> 23 CCR § 350 et seq.

<sup>6</sup> 23 CCR § 355.4(a)(2).

<sup>7</sup> 23 CCR § 355.4(a)(3).

<sup>8</sup> Water Code § 10733.

standards identified above; the state policy that sustainable groundwater management is best achieved locally through the development, implementation, and updating of local plans and programs<sup>9</sup>; and the Legislature's express intent under SGMA that groundwater basins be managed through the actions of local governmental agencies to the greatest extent feasible, while minimizing state intervention to only when necessary to ensure that local agencies manage groundwater in a sustainable manner.<sup>10</sup> The Department's final determination is made based on the entirety of the Plan's contents on a case-by-case basis, considering and weighing factors relevant to the particular Plan and basin under review.

- E. In making these findings and Plan determination, the Department also recognized that: (1) the Department maintains continuing oversight and jurisdiction to ensure the Plan is adequately implemented; (2) the Legislature intended SGMA to be implemented over many years; (3) SGMA provides Plans 20 years of implementation to achieve the sustainability goal in a basin (with the possibility that the Department may grant GSAs an additional five years upon request if the GSA has made satisfactory progress toward sustainability); and, (4) local agencies acting as GSAs are authorized, but not required, to address undesirable results that occurred prior to enactment of SGMA.<sup>11</sup>
- F. The Plan conforms with Water Code §§ 10727.2 and 10727.4, substantially complies with 23 CCR § 355.4, and appears likely to achieve the sustainability goal for the Subbasin. It does not appear at this time that the Plan will adversely affect the ability of adjacent basins to implement their GSPs or impede achievement of sustainability goals.
1. The sustainable management criteria and the Plan's goal of avoiding the undesirable results of affecting the ability to pump from production wells or groundwater dependent ecosystem (GDE) vegetation die-off are sufficiently justified and explained. The Plan relies on credible information and science to analyze potential impacts to groundwater wells and GDEs from lowering groundwater levels and quantify the groundwater conditions that the Plan seeks to avoid and provides an objective way to determine whether the Subbasin is being managed sustainably in accordance with SGMA.<sup>12</sup>
  2. The Plan has identified reasonable measures and schedule to fill data gaps related to surface water-groundwater interconnection and beneficial uses

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<sup>9</sup> Water Code § 113.

<sup>10</sup> Water Code § 10720.1(h).

<sup>11</sup> Water Code §§ 10721(r); 10727.2(b); 10733(a); 10733.8.

<sup>12</sup> 23 CCR § 355.4(b)(1).

and users of interconnected surface water, which may lead to refinement of sustainable management criteria and monitoring networks.<sup>13</sup>

3. The projects and management actions proposed are designed to improve monitoring, address data gaps, plan for drought mitigation, and provide supplemental water. The projects and management actions are reasonable and commensurate with the level of understanding of the Subbasin setting. The projects and management actions described in the Plan provide a feasible approach to achieving the Subbasin's sustainability goal and should provide the GSA with greater versatility to adapt and respond to changing conditions and future challenges during GSP implementation.<sup>14</sup>
4. The Plan provides a detailed explanation of how the varied interests of groundwater uses and users in the Subbasin were considered in developing the sustainable management criteria and how those interests, including domestic, municipal, agricultural, and industrial groundwater wells and groundwater dependent ecosystems, would be impacted by the chosen minimum thresholds.<sup>15</sup>
5. The Plan's projects and management actions appear feasible at this time and capable of preventing undesirable results and ensuring that the Subbasin is operated within its sustainable yield within 20 years. The Department will continue to monitor Plan implementation and reserves the right to change its determination if projects and management actions are not implemented or appear unlikely to prevent undesirable results or achieve sustainability within SGMA timeframes.<sup>16</sup>
6. The Plan includes a reasonable assessment of overdraft conditions and includes reasonable means to mitigate overdraft, if present.<sup>17</sup>
7. At this time, it does not appear that the Plan will adversely affect the ability of an adjacent basin to implement its GSP or impede achievement of sustainability goals in an adjacent basin. The Fillmore Subbasin and its adjacent Piru Subbasin are managed by the same GSA and have their sustainable management criteria established using similar methods and in coordination across the two subbasins.<sup>18</sup>

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<sup>13</sup> 23 CCR § 355.4(b)(2).

<sup>14</sup> 23 CCR § 355.4(b)(3).

<sup>15</sup> 23 CCR § 355.4(b)(4).

<sup>16</sup> 23 CCR § 355.4(b)(5).

<sup>17</sup> 23 CCR § 355.4(b)(6).

<sup>18</sup> 23 CCR § 355.4(b)(7).

8. Because a single plan was submitted for the Subbasin, a coordination agreement was not required.<sup>19</sup>
9. The GSA's three member agencies, the City of Fillmore, County of Ventura, and United Water Conservation District, have historically implemented surface water and groundwater monitoring and management programs in the Subbasin, including the conjunctive use programs for groundwater replenishment purposes. The GSA's member agencies and their history of groundwater management provide a reasonable level of confidence that the GSA has the legal authority and financial resources necessary to implement the Plan.<sup>20</sup>
10. Through review of the Plan and consideration of public comments, the Department determines that the GSA adequately responded to comments that raised credible technical or policy issues with the Plan, sufficient to warrant approval of the Plan at this time. The Department has also provided recommended corrective actions in the Staff Report which are important in addressing certain technical or policy issues that were raised. Failure to address these recommended corrective actions before future, subsequent plan evaluations may preclude approval of the Plan in those future evaluations.<sup>21</sup>

G. In addition to the grounds listed above, DWR also finds that:

1. The Department developed its GSP Regulations consistent with and intending to further the State's human right to water policy through implementation of SGMA and the Regulations, primarily by achieving sustainable groundwater management in a basin. By ensuring substantial compliance with the GSP Regulations, the Department has considered the state policy regarding the human right to water in its evaluation of the Plan.<sup>22</sup>
2. The Plan acknowledges and identifies interconnected surface waters within the Subbasin. The GSA proposes initial sustainable management criteria to manage this sustainability indicator and measures to improve understanding and management of interconnected surface water. The GSA acknowledges, and the Department agrees, many data gaps related to interconnected surface water exist. The GSA should continue filling data gaps, collecting additional monitoring data, and coordinating with resources agencies and interested parties to understand beneficial uses and users that may be impacted by depletions of interconnected surface water caused

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<sup>19</sup> 23 CCR § 355.4(b)(8).

<sup>20</sup> 23 CCR § 355.4(b)(9).

<sup>21</sup> 23 CCR § 355.4(b)(10).

<sup>22</sup> Water Code § 106.3; 23 CCR § 350.4(g).



by groundwater pumping. Future periodic evaluations of the Plan and amendments to the Plan should aim to improve the initial sustainable management criteria as more information and improved methodology become available.

3. The basin is not currently in a state of long-term overdraft and projections of future basin extractions are likely to stay within current and historic ranges, at least until the next periodic evaluation by the GSA and the Department. Projections of future basin extractions appear likely to stay within current and historic ranges, at least until the next periodic evaluation by the GSA and the Department. Subbasin groundwater levels and other SGMA sustainability indicators appear unlikely to substantially deteriorate while the GSA implements the Department's recommended corrective actions.
4. The California Environmental Quality Act<sup>23</sup> does not apply to the Department's evaluation and assessment of the Plan.

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<sup>23</sup> Public Resources Code § 21000 *et seq.*

Statement of Findings  
Santa Clara River Valley – Fillmore Subbasin (No. 4-004.05)

February 27, 2025

Accordingly, the 2024 GSP submitted by the Agency for the Santa Clara River Valley – Fillmore Subbasin is hereby **APPROVED**. The recommended corrective actions identified in the Staff Report will assist the Department’s future review of the Plan’s implementation for consistency with SGMA and the Department therefore recommends the Agency address them in the next Periodic Evaluation, which is set to be submitted by January 26, 2027, as required by Water Code § 10733.8. Failure to address the Department’s recommended corrective actions before future, subsequent plan evaluations, may lead to a Plan being determined incomplete or inadequate.

Signed:


  
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Karla Nemeth, Director  
Date: February 27, 2025

Exhibit A: Groundwater Sustainability Plan Assessment Staff Report – Santa Clara River Valley – Fillmore Subbasin

**State of California  
Department of Water Resources  
Sustainable Groundwater Management Program  
Reassessment of Incomplete  
Groundwater Sustainability Plan  
2025 Staff Report**

Groundwater Basin Name: Santa Clara River Valley – Fillmore Subbasin (No. 4-004.05)

Submitting Agency: Fillmore and Piru Basins Groundwater Sustainability Agency – Fillmore

Submittal Type: Revised Plan in Response to Incomplete Determination

Submittal Date: July 16, 2024

Recommendation: Approve

Date: February 27, 2025

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On July 16, 2024, the Fillmore and Piru Basins Groundwater Sustainability Agency (GSA or Agency) – Fillmore resubmitted the Fillmore Subbasin Groundwater Sustainability Plan (2024 GSP or 2024 Plan) for the Fillmore Subbasin (Subbasin) to the Department of Water Resources (Department or DWR) for evaluation and assessment as required by the Sustainable Groundwater Management Act (SGMA)<sup>1</sup> and GSP Regulations.<sup>2</sup> This was in response to the Department’s Incomplete Determination of the initial GSP (2022 GSP or 2022 Plan) on January 18, 2024.<sup>3</sup>

After evaluation and assessment, Department staff conclude the GSA has taken sufficient actions to correct deficiencies identified by the Department; however, Department staff have provided additional recommended corrective actions which will be required to be addressed by the Plan’s periodic evaluation.

Overall, Department staff believe the 2024 Plan contains the required components of a GSP, demonstrates a thorough understanding of the Subbasin based on what appears to be the best available science and information, sets well explained, supported, and reasonable sustainable management criteria to prevent undesirable results as defined in the 2024 Plan, and proposes a set of projects and management actions that, if successfully implemented, are likely to achieve the sustainability goal defined for the Subbasin.<sup>4</sup> Department staff will continue to monitor and evaluate the Subbasin’s

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<sup>1</sup> Water Code § 10720 *et seq.*

<sup>2</sup> 23 CCR § 350 *et seq.*

<sup>3</sup> Water Code § 10733.4(b); 23 CCR § 355.4(a)(4); <https://sgma.water.ca.gov/portal/gsp/assessments/73>.

<sup>4</sup> 23 CCR § 354.24.

progress toward achieving the sustainability goal through annual reporting and future periodic evaluations of the 2024 GSP and its implementation.

- ***Based on the evaluation of the 2024 Plan, Department staff recommend the Plan be approved.***

This assessment includes six sections:

- **Section 1 – Summary**: Overview of the Department Staff's assessment and recommendation.
- **Section 2 – Evaluation Criteria**: Describes the legislative requirements and the Department's evaluation criteria.
- **Section 3 – Required Conditions**: Describes the submission requirements of an incomplete resubmittal to be evaluated by the Department.
- **Section 4 – Deficiency Evaluation**: Provides an assessment of whether and how the contents included in the 2024 GSP resubmittal addressed the deficiencies identified by the Department in the initial incomplete determination.
- **Section 5 – Plan Evaluation**: Provides a detailed assessment of the contents included in the 2024 GSP organized by each Subarticle outlined in the GSP Regulations.
- **Section 6 – Staff Recommendation**: Includes the staff recommendation for the 2024 Plan.

# 1 SUMMARY

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Department staff recommend **approval** of the 2024 Fillmore Subbasin GSP and have identified recommended corrective actions designed to address shortcomings of the 2024 Plan described in this Staff Report. In Section 4 of this report, Department staff reviewed how the 2022 Plan was updated in the 2024 Plan by comparing content from each plan in order to determine if sufficient action was taken in response to deficiencies identified in the 2022 Plan. In Section 5, Department staff reviewed content in the GSP for its substantial compliance with GSP Regulations, and have provided recommended corrective actions for components of the plan that need improvement to support substantial compliance with GSP Regulations and for Subbasin sustainability.

The GSA has identified areas for improvement of its 2024 Plan (e.g., addressing data gaps related to groundwater levels in groundwater dependent ecosystem areas, interconnected surface water, and well construction information). Department staff concur that those items are important and recommend the GSA address them as soon as possible. Department staff have also identified additional recommended corrective actions that the GSA should consider for the first periodic evaluation of the 2024 Plan (see [Section 6](#)). Addressing these recommended corrective actions will be important to demonstrate, on an ongoing basis, that implementation of the 2024 Plan is likely to achieve the sustainability goal. The recommended corrective actions generally focus on the following:

1. Providing additional clarifying information for the sustainability goal.
2. Updating the understanding of principal aquifers in the hydrogeologic conceptual model.
3. Providing additional information or necessary modifications related to sustainable management criteria for chronic lowering of groundwater levels, degraded water quality, and land subsidence.
4. Estimating the quantity and timing of depletions of interconnected surface water systems. Updating sustainable management criteria for interconnected surface water.
5. Continuing to fill data gaps, collecting additional monitoring data, coordinating with resources agencies and interested parties to understand beneficial uses and users that may be impacted by depletions of interconnected surface water caused by groundwater pumping, and potentially refine sustainable management criteria.

## 2 EVALUATION CRITERIA

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The Department evaluates whether a Plan conforms to the statutory requirements of SGMA<sup>5</sup> and is likely to achieve the basin’s sustainability goal,<sup>6</sup> whether evaluating a basin’s first Plan,<sup>7</sup> a Plan previously determined incomplete,<sup>8</sup> an amended Plan,<sup>9</sup> or a GSA’s periodic evaluation to an approved Plan.<sup>10</sup> To achieve the sustainability goal, each version of 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>11</sup> The Department is also required to evaluate, on an ongoing basis, whether the Plan will adversely affect the ability of an adjacent basin to implement its groundwater sustainability program or achieve its sustainability goal.<sup>12</sup>

The Plan evaluated in this Staff Report was previously determined to be incomplete. An incomplete Plan is one which had one or more deficiencies that precluded its initial approval, may not have had supporting information that was sufficiently detailed or analyses that were sufficiently thorough and reasonable, or Department staff determined it was unlikely the GSAs in the basin could achieve the sustainability goal. After a GSA has been afforded up to 180 days to address the deficiencies and based on the GSA’s efforts, the Department can either approve<sup>13</sup> the Plan or determine the Plan inadequate.<sup>14</sup>

The Department’s evaluation and assessment of a Plan previously determined to be incomplete, as presented in this Staff Report, continues to follow Article 6 of the GSP Regulations<sup>15</sup> to determine whether the Plan, with revisions or additions prepared by the GSA, complies with SGMA and substantially complies with the GSP Regulations.<sup>16</sup> As stated in the GSP Regulations, “substantial 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>17</sup>

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<sup>5</sup> Water Code §§ 10727.2, 10727.4, 10727.6.

<sup>6</sup> Water Code § 10733; 23 CCR § 354.24.

<sup>7</sup> Water Code § 10720.7.

<sup>8</sup> 23 CCR § 355.2(e)(2).

<sup>9</sup> 23 CCR § 355.10.

<sup>10</sup> 23 CCR § 355.6.

<sup>11</sup> Water Code § 10721(v).

<sup>12</sup> Water Code § 10733(c).

<sup>13</sup> 23 CCR §§ 355.2(e)(1).

<sup>14</sup> 23 CCR §§ 355.2(e)(3).

<sup>15</sup> 23 CCR § 355 *et seq.*

<sup>16</sup> 23 CCR § 350 *et seq.*

<sup>17</sup> 23 CCR § 355.4(b).

The recommendation to approve a Plan previously determined to be incomplete 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 revised Plan, but simply that Department staff have determined that the modified assumptions and interpretations relied upon by the submitting GSA(s) are supported by adequate, credible evidence, and are scientifically reasonable. The assessment of a Plan previously determined to be incomplete may involve the review of new information presented by the GSA(s), including models and assumptions, and an evaluation of that information based on scientific reasonableness. In conducting its assessment, Department staff does not recalculate or reevaluate technical information or perform its own geologic or engineering analysis of that information.

The recommendation to not approve a Plan previously determined to be incomplete and instead determine it to be inadequate signifies that the resubmitted Plan contains significant deficiencies based on one or more of the criteria identified in 23 CCR § 355.4(b), or the GSA(s) in the basin have not taken sufficient actions to correct the deficiencies previously identified by the Department when it found the Plan incomplete. The Department engages in consultation with the State Water Resources Control Board before finding a Plan inadequate. A Plan determined to be inadequate is subject to the state intervention provisions contained in Chapter 11 of SGMA.<sup>18</sup>

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<sup>18</sup> Water Code § 10735 *et seq.*

### 3 REQUIRED CONDITIONS

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For a Plan that the Department previously determined to be incomplete, the Department provided required corrective actions that address minor or potentially significant deficiencies that the Department identified in the initially submitted Plan. The GSA(s) in a basin, whether developing a single GSP covering the basin or multiple GSPs, must attempt to sufficiently address those required corrective actions within the time provided, not to exceed 180 days, for the Plan to be reevaluated by the Department and potentially approved.

#### 3.1 INCOMPLETE RESUBMITTAL

GSP Regulations specify that the Department shall evaluate a resubmitted GSP in which the GSA has taken corrective actions within 180 days from the date the Department issued an incomplete determination to address deficiencies.<sup>19</sup>

The Department issued the incomplete determination on January 18, 2024. The GSA resubmitted the GSP to the Department on July 16, 2024, in compliance with the 180-day deadline.

The GSAs have provided a redline/strikeout version of the resubmitted GSP. The redline/strikeout version highlights the changes made from the initial 2022 submission to the 2024 submission.<sup>20</sup>

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<sup>19</sup> 23 CCR § 355.4(a)(4).

<sup>20</sup> <https://sgma.water.ca.gov/portal/service/gspdocument/download/10249>.



## 4 DEFICIENCY 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.

In its initial incomplete determination, the Department identified deficiencies in the Plan which precluded the Plan’s approval on January 18, 2024.<sup>21</sup> The GSA was given 180 days to take corrective actions to remedy the identified deficiencies. Consistent with the GSP Regulations, Department staff are providing an evaluation of the resubmitted Plan to determine if the GSAs have taken sufficient actions to correct the deficiencies identified in the 2022 Plan. For each deficiency, the corrective actions are repeated, the 2022 Plan content is summarized, the 2024 Plan is then described, followed by Department staff’s evaluation.

### **4.1 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.**

#### **4.1.1 Corrective Action 1**

The GSA should modify its sustainable management criteria and must provide a more detailed explanation and justification regarding the selection of the sustainable management criteria for groundwater levels, particularly the undesirable results and minimum thresholds, and the effects of those criteria on the interests of beneficial uses and users of groundwater. The minimum thresholds should indicate a depletion of supply at a given location that may lead to undesirable results. Department staff recommend the GSA consider and address the following:

- a) The GSA should revise the GSP to sufficiently and clearly explain the undesirable results that the GSA aims to avoid. The GSA should sufficiently and clearly explain what it considers to be a significant and unreasonable level of impact, such as a number or percentage of wells going dry. In support of the explanation, the GSP should clearly discuss and disclose the potential effects on uses and users of drinking water wells and all other beneficial uses and users of groundwater in the Subbasin.

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<sup>21</sup> <https://sgma.water.ca.gov/portal/service/gspdocument/download/10010>.

- b) The GSA should revise the minimum thresholds and must explain how the minimum threshold groundwater levels are consistent with avoiding undesirable results the GSA aims to avoid. If, for example, the GSA seeks to avoid domestic wells going dry, the GSP should explain how the minimum threshold at each representative well will avoid impact to nearby domestic and other production wells. The GSP should also explain how the Agency has determined that basin conditions at minimum threshold water level conditions will avoid undesirable results for other sustainability indicators.
- 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. 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.

#### **4.1.2 Evaluation of Resubmitted Plan**

*4.1.2.1 Corrective Action 1a – Assessment of Undesirable Results and Potential Effects*  
The Department’s Incomplete Determination directed the GSA that the 2022 Plan did not specify the number of wells going dry or the groundwater level declines which would be considered significant and unreasonable and, therefore, lacked sufficient description of the undesirable results that the GSA aims to avoid.

In response to this corrective action, the GSA evaluated the potential effects of lowering groundwater levels on various well types (i.e., agricultural, domestic, municipal, industrial, monitoring, wells of unknown use, and cathodic protection wells) and riparian vegetation to redefine the significant and unreasonable condition.<sup>22</sup> For well infrastructure, the GSA identified four impact status categories for wells with known screen elevations: “not impacted”, “impacted”, “severely impacted”, and “dry”. These categories are based on projected water levels in relation to known screen intervals. The GSA then conducted a well impact analysis, using the water table surface of average water year 2011 groundwater elevations—considered the “basin full” condition—and three projected scenarios of water level declines: 50-foot, 75-foot, and 100-foot elevation declines from the 2011 surface. Based on results of this analysis, the GSA decided that the 75-foot and 100-foot decline scenarios resulted in too many severely impacted and dry wells in the Subbasin, whereas the 50-foot decline scenario led to a reasonable number of wells being impacted.<sup>23</sup> Specifically, it is estimated that a decline of 50 feet from the 2011 “basin full”

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<sup>22</sup> 2024 Fillmore GSP, Section 3.2.3.1, p. 115; Appendix J – Section 3.3.1, pp. 1518-1522.

<sup>23</sup> 2024 Fillmore GSP, Appendix J Section 3.3.1.1.1, pp. 1515-1516.

average would cause 1 agricultural irrigation well, 3 domestic wells, and 1 well of unknown use to go dry.<sup>24</sup> Department staff consider the analysis to be thorough and well-detailed because it utilizes best available groundwater level and well construction information, produces detailed impact status that are well conceptualized, and captures impacts from varied levels of groundwater supply depletions across the Subbasin. Additional details regarding the well impact analysis are discussed in [Section 4.1.2.3](#).

The Plan defines the quantitative criteria of when and where undesirable results for productive wells occur as when water levels drop below minimum thresholds in 3 (out of 11) representative monitoring sites.<sup>25</sup> The Plan's well impact analysis shows that only about 2 percent (5 out of 269) of production wells (i.e., agricultural, domestic, industrial, municipal, and wells of unknown use) are projected to go dry when minimum thresholds are reached in all representative monitoring sites across the Subbasin (i.e., when 11 out of 11 production well representative monitoring sites reach minimum thresholds).<sup>26</sup> The well impact analysis also shows that these dry wells are scattered in the eastern, central, and western portions of the Subbasin, instead of clustered together.<sup>27</sup> The quantitative criteria suggest an even smaller percentage (i.e., less than 2 percent) of production wells going dry when the GSA determines that undesirable results are occurring in the Subbasin. In other words, the quantitative criteria support the 2024 GSP's aim to "protect" the "ability to pump groundwater"<sup>28</sup> by incurring an undesirable result determination when the number of impacted wells is still less than what is considered as "reasonable" by the GSA<sup>29</sup>. Overall, Department staff believe that the GSA's quantitative criteria of groundwater level undesirable results for production wells appear to be reasonable.

However, Department staff note that the GSA does not specify the timing of groundwater level data collection when defining the quantitative criteria.<sup>30</sup> The 2024 GSP states in the monitoring network section that "biannual data is needed to assess seasonal groundwater level trends for evaluation of GSP implementation" and that "as tight (short) a monitoring event time window as reasonably possible will be scheduled around the middle of October and March of each year."<sup>31</sup> It is unclear to Department staff how the groundwater level data will be used to determine the occurrence of undesirable results, whether biannually with either spring or fall data, annually using the averages of spring and fall data, or annually using both spring and fall data. Because water levels are generally lower in the fall in the Subbasin, wells are more likely to experience undesirable results in the fall. Department staff recommend that the GSA revise the 2024 GSP to specifically use seasonal low groundwater levels in the undesirable result criteria to more accurately

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<sup>24</sup> 2024 Fillmore GSP, Section 3.3.1.1, p. 120; Appendix J – Section 3.3.1.1.1, p. 1516; Appendix J – Table 3-2, p. 1517.

<sup>25</sup> 2024 Fillmore GSP, Section 3.2.4, p. 116; Appendix J – Figure 3-21, p. 1563.

<sup>26</sup> 2024 Fillmore GSP, Appendix J – Table 3-2, p. 1517.

<sup>27</sup> 2024 Fillmore GSP, Appendix J – Figure 3-10, p. 1552.

<sup>28</sup> 2024 Fillmore GSP, Section 3.3.1.1, p. 118.

<sup>29</sup> 2024 Fillmore GSP, Section 3.3.1.1, p. 118.

<sup>30</sup> 23 CCR § 354.26(b)(2).

<sup>31</sup> 2024 Fillmore GSP, Section 3.5.4.1.2, p. 140.

reflect the percentage of impacted production wells in the GSA’s consideration of significant and unreasonable effects of lowering of groundwater levels (see [Recommended Corrective Action 1a](#)).

The 2024 GSP also describes die-off of riparian vegetation due to groundwater level declines attributable to groundwater pumping as another category of undesirable results.<sup>32</sup> Based on a 2021 research study, the GSA determines that the undesirable result of vegetation die-off begins to occur when groundwater levels decline to the critical water level of 10 feet below the water year 2011 average within or immediately adjacent to the East Grove or Cienega Springs Groundwater Dependent Ecosystem (GDE) areas.<sup>33</sup> Both GDE areas are located along the Santa Clara River near the Subbasin’s boundaries and are described as “rising groundwater” areas where groundwater discharges into surface water.<sup>34</sup> In the GSA’s decisions regarding where the undesirable results may occur, the 2022 GSP covers the Cienega Springs GDE area only and monitors with one well,<sup>35</sup> whereas the revised 2024 GSP adds the East Grove GDE area and presents a total of 7 representative monitoring wells for both GDE areas.<sup>36</sup>

The GSP states that undesirable results are considered to occur when groundwater levels at 2 of 7 GDE representative monitoring points fall below established minimum thresholds.<sup>37</sup> The 2024 GSP presents 3 and 4 representative monitoring wells for the East Grove and Cienega Springs GDE areas, respectively.<sup>38</sup> However, it is unclear from the information provided how the GSA would determine undesirable results occurring with the possible combinations of two wells with minimum threshold exceedances. More specifically, it is unclear from the definition whether an undesirable result requires one exceedance in both GDE areas or two exceedances in either GDE area. Department staff believe it is more appropriate to define undesirable results for one GDE area based on monitoring of that GDE area. Requiring minimum threshold exceedances to occur in both GDE areas at the same time before taking management actions not only is unreasonable because it appears unlikely that the two GDE areas will experience undesirable results at the same time but also lacks consideration of Subbasin conditions. For example, while the 2024 GSP states that undesirable results of vegetation die-off could occur in both GDE areas<sup>39</sup>, the 2024 GSP acknowledges that the Cienega Springs GDE area is most susceptible to vegetation die-off due to significant groundwater level declines during drought.<sup>40</sup> Therefore, Department staff recommend that the GSA revise the quantitative criteria for undesirable results of GDE vegetation die-off to clarify the number of minimum

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<sup>32</sup> 2024 Fillmore GSP, Section 3.2.2, p. 114.

<sup>33</sup> 2024 Fillmore GSP, Sections 3.2.3.1 and 3.2.3.2, pp. 115-116; Figure 2.2-30, p. 214.

<sup>34</sup> 2024 Fillmore GSP, Section 2.2.2.7, p. 85.

<sup>35</sup> 2022 Fillmore GSP, Section 3.2.3.1, p. 112; Table 3.5-3, p. 135.

<sup>36</sup> 2024 Fillmore GSP, Section 3.2.3.1, p. 115; Appendix J – Section 3.3.1.2, pp. 1520-1522; Appendix J – Section 3.3.3.2, p. 1524; Appendix J – Table 3-4, p. 1523; Appendix J – Figure 3-21, p. 1563; Table 3.0-1, p. 109.

<sup>37</sup> 2024 Fillmore GSP, Section 3.2.4, p. 116.

<sup>38</sup> 2024 Fillmore GSP, Figure 3.5-4, p. 227; Appendix J - Figure 3-21, p. 1563.

<sup>39</sup> 2024 Fillmore GSP, Section 3.2.3.1, p. 115.

<sup>40</sup> 2024 Fillmore GSP, Section 2.1.4.2, p. 42.

threshold exceedances for each GDE area that would lead to an undesirable result determination for that area<sup>41</sup> (see [Recommended Corrective Action 1b](#)).

The results of the well impact analysis and consideration of riparian vegetation led to the GSA updating the 2024 GSP, revising the definition of undesirable results, and determining that “undesirable results due to lowering of groundwater levels begin to occur when water levels in the [Subbasin] drop 50 feet below the 2011 average, or 10 feet below the 2011 average within and immediately adjacent to the East Grove or Cienega Springs GDE areas.”<sup>42</sup> Department staff are encouraged by the GSA’s revisions to analyze potential wells impacts using different scenarios and levels of impact to identify conditions which would be significant and unreasonable. The rationale provided in the 2024 GSP to support defining a 50-foot decline below historical 2011 groundwater levels and 10-foot decline below historical 2011 groundwater levels near GDE areas as significant and unreasonable, appears to be sound and done with consideration of the basin setting and beneficial uses and users.

Despite the recommended corrective actions, Department staff conclude the 2024 GSP describes the specific undesirable results that the GSA aims to avoid with sufficient detail and supporting analysis. The GSA’s responses sufficiently address Component 1a of the Deficiency.

#### *4.1.2.2 Corrective Action 1b – Assessment of Minimum Thresholds*

The Department’s Incomplete Determination directed the GSA that the minimum thresholds for groundwater levels must be revised to be consistent with avoiding the undesirable results that the agency aims to avoid, such as impacts to domestic and other production wells.<sup>43</sup> In addition, the 2022 GSP should explain how the Agency has determined that basin conditions at minimum threshold water level conditions will avoid undesirable results for other sustainability indicators.<sup>44</sup>

As mentioned in [Section 4.1.2.1](#) and detailed in [Section 4.1.2.3](#) below, the GSA performed a well impact analysis to determine significant and unreasonable effects (i.e., undesirable results) based on impacts to groundwater wells and riparian vegetation at different levels of groundwater decline. The GSA considers the projected well impacts to be reasonable when groundwater levels decline 50-feet below 2011 averages, but undesirable results begin to occur when groundwater levels are lower.<sup>45</sup> Therefore, the 2024 GSP revised minimum thresholds for production wells from the bottom of the well screen to 50-foot below the 2011 average groundwater levels. The revision equates to minimum thresholds in 9 of 11 representative monitoring wells being raised 130 – 340

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<sup>41</sup> 23 CCR § 354.26(b)(2).

<sup>42</sup> 2024 Fillmore GSP, Section 3.2.3.1, p. 115.

<sup>43</sup> 23 CCR §§ 354.28(a) and 354.28(b)(1).

<sup>44</sup> 23 CCR § 354.28(b)(2).

<sup>45</sup> 2024 Fillmore GSP, Appendix J Section 3.3.1.1.1, p. 1515; Section 3.2.3.1, p. 115.

feet from what was originally proposed in the 2022 Plan.<sup>46</sup> Thus, this method ties the minimum thresholds directly to undesirable results that represent a depletion of supply across the Subbasin that the GSA aims to avoid.<sup>47</sup> Department staff consider defining sustainable management criteria for chronic lowering of groundwater levels based on a thorough analysis of potential effects on beneficial uses and users of groundwater a sound and reasonable approach.

Furthermore, the 2024 GSP revised minimum thresholds for avoiding riparian vegetation die-off to be either 10 feet below the 2011 average (i.e., the “critical” water level when undesirable results of vegetation die-off begins to occur based on research results,<sup>48</sup> same as defined in the 2022 GSP) or the pre-2015 minimum water level elevation, whichever is more conservative.<sup>49</sup> The minimum thresholds are set in shallow groundwater monitoring wells within or immediately adjacent to the Cienega Springs and East Grove GDE areas.<sup>50</sup> The 2024 GSP states that the criteria of pre-2015 minimum water level generally applies to the East Grove GDE area.<sup>51</sup> Department staff consider it reasonable and consistent with GSA’s description of undesirable results to use 10 feet below the 2011 average as the minimum thresholds, and even more protective of groundwater beneficial uses by GDE vegetations to apply the second criteria of pre-2015 minimum water level to limit potential impacts to what have been historically experienced.

Although the 2024 GSP’s minimum thresholds for groundwater levels are considered reasonable and supported by best available information, the 2024 GSP has not presented information regarding how the Agency has determined that basin conditions at these minimum thresholds will avoid undesirable results for other sustainability indicators, as required by the GSP Regulations.<sup>52</sup> Department staff recommend that the GSA provide related information (see [Recommended Corrective Action 1c](#)).

Despite the recommended corrective action, Department staff conclude at this time that the GSA has taken sufficient action to address component 1b of this deficiency. The 2024 GSP’s groundwater level minimum thresholds are consistent with avoiding the undesirable results of affecting the ability to pump from production wells or GDE vegetation die-off that the Agency aims to avoid.

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<sup>46</sup> 2024 Fillmore GSP, Section 3.3.1.1, p. 118; Table 3.0-2, p. 110; Appendix J – Table 3-4, p. 1523; 2022 Fillmore GSP, Table 3.5-3, p. 135.

<sup>47</sup> 23 CCR § 354.28(c)(1).

<sup>48</sup> 2024 Fillmore GSP, Section 3.2.3.1, p. 115.

<sup>49</sup> 2024 Fillmore GSP, Appendix J – Section 3.3.3.2, p. 1524; Appendix J – Table 3-4, p. 1523; Table 3.0-2, p. 109.

<sup>50</sup> 2024 Fillmore GSP, Section 3.2.4, p. 116; Table 3.0-2, p. 110; Figure 3.5-4, p. 227; Section 3.3.1.2, p. 119.

<sup>51</sup> 2024 Fillmore GSP, Appendix J – Section 3.3.3.2, pp. 1524.

<sup>52</sup> 23 CCR § 354.28(b)(2).



#### 4.1.2.3 Corrective Action 1c – Assessment of Impacts to Beneficial Uses and Users

The Department’s Incomplete Determination directed the GSA to assess how minimum thresholds may affect the interests of beneficial uses and users of groundwater, in particular, groundwater wells.<sup>53</sup>

The 2024 GSP provides analyses of how minimum thresholds impact wells and GDEs in the Subbasin. For wells with known screen intervals that are within the 2011 average groundwater elevation contour area, the 2024 GSP evaluates impacts when subbasin-wide groundwater elevations are at the minimum thresholds of 50-foot below the 2011 average. The projected impacts are categorized as “no impact,” “impacted,” “severely impacted,” or “dry,” based on groundwater elevations in relation to the known screen intervals.<sup>54</sup> The 2024 GSP summarizes the number and percentage of wells by impact category and well type (i.e., agricultural, domestic, municipal, industrial, monitoring, wells of unknown use, and cathodic protection wells).<sup>55</sup> The 2024 GSP also maps the location and projected impact status for each well that was analyzed.<sup>56</sup> Results indicate, a total of 25 wells (or 9 percent of wells analyzed) are estimated to be severely impacted or dry when water levels drop 50 feet from the 2011 average condition. These 25 wells include 10 agricultural wells, 9 domestic wells, 2 wells of unknown use, and 4 monitoring wells; the GSA does not consider 4 monitoring wells “temporarily going dry during a drought period to be an undesirable result.”<sup>57</sup> The 2024 GSP notes that no production wells in the Subbasin have been reported to go dry in the DWR’s Dry Well Reporting System.<sup>58</sup> Department staff consider the GSA’s assessment of how minimum thresholds may affect groundwater wells to be sufficiently detailed and thorough because it utilizes best available groundwater level and well construction information, includes number and location of potentially affected wells by well type, and captures impacts from varied levels of groundwater supply depletions across the Subbasin.

The 2024 GSP was also revised to include a drought vulnerability assessment project to further evaluate possible future well impacts and guide the GSA’s management actions.<sup>59</sup> The 2024 GSP provides a brief outline of initial activities for the assessment that are expected to extend over a two-year period.<sup>60</sup> As part of the drought vulnerability assessment, the GSA may develop a well mitigation program which may establish a “mitigation fund” to assist impacted well owners. The 2024 GSP affirms that “the Agency has committed to developing a mitigation program for wells that do go dry.”<sup>61</sup> Department staff believe the GSA’s decision to use results of the drought vulnerability assessment as the trigger for developing a well mitigation program is proactive and will allow the

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<sup>53</sup> 23 CCR § 354.28(b)(4).

<sup>54</sup> 2024 Fillmore GSP, Appendix J – Section 3.3.1.1, pp. 1514-1516.

<sup>55</sup> 2024 Fillmore GSP, Appendix J – Table 3-2, p. 1517.

<sup>56</sup> 2024 Fillmore GSP, Appendix J – Figure 3-10, p. 1552.

<sup>57</sup> 2024 Fillmore GSP, Section 3.2.3.1, p. 115.

<sup>58</sup> 2024 Fillmore GSP, Section 3.3.1.1, p. 118; Appendix J – Section 3.3.1.1, p. 1515.

<sup>59</sup> 2024 Fillmore GSP, Section 4.8, pp. 152-154.

<sup>60</sup> 2024 Fillmore GSP, Section 4.8, p. 153.

<sup>61</sup> 2024 Fillmore GSP, Section 3.3.1.1, p. 118.

Subbasin to be prepared for drought impacts under different climate change conditions if the assessment is conducted in the early stage of Plan implementation. Department staff encourage the GSA to initiate the drought vulnerability assessment before the next periodic evaluation of the Plan.

In addition, the 2024 GSP discusses in detail how minimum thresholds may impact GDEs in the Cienega Springs GDE area and the East Grove GDE area.<sup>62</sup> As described in [Section 4.1.2.2](#), the 2024 GSP revised minimum thresholds in shallow groundwater monitoring wells within or immediately adjacent to the two GDE areas to a level that would prevent die-off of riparian vegetation due to groundwater level declines based on results of a 2021 research study. Additionally, both the 2022 and 2024 GSPs include two projects in support of the Cienega Springs GDE area; the Cienega Springs Restoration Project to provide supplemental groundwater to the Cienega Springs GDE area during multi-year droughts when shallow groundwater levels decline to below the critical water level, and a second project to install additional shallow monitoring wells to fill data gaps in this GDE area.<sup>63</sup> In water year 2022 the GSA completed the second project by installing 3 shallow monitoring wells in the Cienega Springs Restoration Project site.<sup>64</sup> Department staff consider the GSA's assessment of how minimum thresholds may affect GDEs to be sufficiently detailed and thorough because the 2024 GSP revised minimum thresholds based on best available information and science, and the GSA reported progress on projects and management actions that support the GDEs in the Subbasin.

In summary, the 2024 GSP has been revised to present sufficiently detailed information on how minimum thresholds of groundwater levels may impact the beneficial uses and users of groundwater by wells and GDEs and includes reasonable projects for assessing and mitigating possible future impacts of climate change and lowering of groundwater levels. The GSA's responses sufficiently address Component 1c of the Deficiency.

#### **4.1.3 Conclusion**

Overall, Department staff believe the GSA has taken sufficient action to address the identified deficiencies by identifying the depletion of supply that is an undesirable result and establishing minimum thresholds that were determined by considering that depletion's impacts to beneficial uses and users. The well impact analysis presented in the 2024 GSP appears to be reasonable and supported with sufficiently detailed information. Department staff are also encouraged by the planned drought vulnerability assessment and the GSA's commitment to potential well mitigation. Despite the recommended corrective action, staff conclude that the 2024 GSP's sustainable management criteria for lowering of groundwater levels sufficiently meets the requirements of the GSP Regulations.

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<sup>62</sup> 2024 Fillmore GSP, Appendix J – Sections 3.3.1.2.1 – 3.3.1.2.2, pp. 1521-1522.

<sup>63</sup> 2024 Fillmore GSP, Sections 4.1 - 4.2, pp. 147-149.

<sup>64</sup> Fillmore Groundwater Subbasin Annual Report Water Year 2022, Section 7.2, p. 25.



## **4.2 DEFICIENCY 2. THE GSP DOES NOT SET SUSTAINABLE MANAGEMENT CRITERIA FOR DEPLETIONS OF INTERCONNECTED SURFACE WATER.**

### **4.2.1 Corrective Action 2**

The GSA must set preliminary sustainable management criteria for depletions of interconnected surface water associated with groundwater use, as required by the GSP Regulations,<sup>65</sup> based on best available information and science. The GSA should evaluate and disclose, sufficiently and thoroughly, the potential effects of the Plan’s sustainable management criteria for depletions of interconnected surface water on beneficial uses of the interconnected surface water and on groundwater uses and users.

### **4.2.2 Evaluation of Resubmitted Plan**

To address the deficiency, the GSAs included three components in the 2024 GSP: 1) identifying data gaps related to surface water-groundwater interconnection and beneficial uses and users of interconnected surface waters, in particular spawning and rearing habitats for southern California steelhead; 2) a new project of habitat suitability study to address the identified data gaps; and 3) preliminary sustainable management criteria using groundwater level as a proxy. Most of the material is provided in Chapter 3 (Sustainable Management Criteria) and Appendices D, J, and K of the 2024 Plan.

The 2022 GSP was revised to present details of the GSA’s understanding of interconnected stream reaches and their beneficial uses and users.<sup>66</sup> The 2024 GSP still retains the identification of consistently interconnected surface waters in the Subbasin as described in the 2022 GSP (i.e., reaches of the mainstem Santa Clara River near the Cienega Springs or East Grove GDE areas, and the upper reach of the Sespe Creek).<sup>67</sup> However, the 2024 GSP considers it possible to have steelhead spawning and rearing habitats in the East Grove GDE area along the western part of the Santa Clara River, where flow is perennial even during the extreme drought and is supported entirely by groundwater discharges in the dry summer months in most years.<sup>68</sup> Therefore, the 2024 GSP adds a high priority data gap: “determination of interconnection between groundwater and surface water and steelhead habitat suitability for the East Grove GDE area of the Santa Clara River.”<sup>69</sup> Department staff assume the term “interconnection” here means the location, quantity and timing of interconnected stream reaches,<sup>70</sup> based on the 2024 GSP’s statement that “data gaps remain regarding identifying the extent and timing of interconnectedness of other stream channel areas (e.g., Sespe Creek and central

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<sup>65</sup> 23 CCR §§ 354.26, 354.28, 354.30.

<sup>66</sup> 2024 Fillmore GSP, Appendix K – Section 5.6.3, pp. 1754 – 1757.

<sup>67</sup> 2024 Fillmore GSP, Appendix K – Section 5.6.3, p. 1755; Figure 2.2-27, p. 211; 2022 Fillmore GSP, Figure 2.2-27, p. 204.

<sup>68</sup> 2024 Fillmore GSP, Appendix K – Section 5.6.3, p. 1755; Appendix K – Figure 5-11, p. 1756; Appendix K – Figure 5-11, p. 1756; Section 2.2.2.7, p. 85; Section 3.3.6, p. 121.

<sup>69</sup> 2024 Fillmore GSP, Table 3.5-3, p. 145; Appendix K – Section 5.6.3, p. 1757; Appendix K – Table 6.1, p. 1759; Appendix D, Section 5.2.2, p. 405.

<sup>70</sup> 23 CCR §§ 354.28(c)(6).

[losing reach] portions of the Santa Clara River);”<sup>71</sup> and the GSA’s consideration of using field methods to quantify discharges from groundwater to surface water.<sup>72</sup> Department staff agree with the GSA that identifying interconnection and beneficial uses and users of the East Grove GDE area in the early stage of Plan implementation is important for managing interconnected surface waters in the Subbasin.

In addition, the 2024 GSP clearly identifies interconnectivity along the upper reach of the Sespe Creek (north of telegraph road) within the Subbasin as a data gap.<sup>73</sup> The revised 2024 GSP also indicate that the Sespe Creek (and its tributaries in upland areas) have “designated beneficial uses consistent with steelhead spawning and rearing habitat” and “has particular habitat importance.”<sup>74</sup> As a result, the 2024 GSP adds a medium priority data gap - “determination of interconnection between groundwater and surface water and steelhead habitat suitability for Sespe Creek north of Telegraph Road to the groundwater basin boundary”.<sup>75</sup> Considering the Sespe Creek’s habitat importance and stream depletions due to groundwater pumping that may adversely impact aquatic habitats, Department staff recommend the GSA treat this data gap as high priority and make efforts to fill it in the early stage of Plan implementation.

The 2024 GSP acknowledges that data gaps exist in understanding interconnectivity and beneficial uses of interconnected surface water in the Subbasin, in particular spawning and rearing habitats for the *Oncorhynchus mykiss* (southern California steelhead and trout) fish species. The 2024 GSP presents tables and maps for the critical habitats and designated beneficial uses along the mainstem Santa Clara River and the Sespe Creek in the Subbasin as defined by National Marine Fisheries Service (NMFS) and Los Angeles Regional Water Quality Control Board (LARWQCB).<sup>76</sup> The GSA disagrees with the NMFS designation and points out that LARWQCB does not list the [mainstem] Santa Clara River as critical habitat for steelhead spawning and rearing.<sup>77</sup> While retaining the GSA’s current understanding that the *Oncorhynchus mykiss* fish species primarily use the Santa Clara River for migration rather than spawning and rearing, the GSA recognizes that this assumption may have biased its determination regarding undesirable results in the Subbasin.<sup>78</sup> Although not explicitly explained, the 2024 GSP made it apparent to Department staff that the “Santa Clara River” means the mainstem Santa Clara River in the GSP’s discussions about depletions of interconnected surface water.

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<sup>71</sup> 2024 Fillmore GSP, Section 2.2.27, p. 86.

<sup>72</sup> Fillmore Groundwater Subbasin Annual Report Water Year 2023, Section 7.3, pp. 25-26.

<sup>73</sup> 2024 Fillmore GSP, Section 3.3.6, p. 121.

<sup>74</sup> 2024 Fillmore GSP, Appendix K – Section 5.6.2, p. 1753; Appendix K – Section 5.6.3, p. 1754; Figures 2.2-32, p. 216; Appendix K – Table 5-6, p. 1751; Appendix D – Section 5.2.2, p. 404.

<sup>75</sup> 2024 Fillmore GSP, Table 3.5-3, p. 145; Appendix K – Table 5-6, p. 1751, Section 3.3.6, p. 121.

<sup>76</sup> 2024 Fillmore GSP, Section 2.2.2.8, p. 89; Figures 2.2-31 and 2.2-32, pp. 215-216; Appendix K – Sections 5.6.1 and 5.6.2, pp. 1748 – 1753.

<sup>77</sup> 2024 Fillmore GSP, Section 2.2.2.8, p. 89; Appendix K – Sections 5.6.1, p. 1749; Appendix K – Sections 5.6.2, p. 1752; Section 5.6.3, pp. 1754-1755.

<sup>78</sup> 2024 Fillmore GSP, Section 3.2.1, pp. 113-114.

To address the identified data gaps related to beneficial uses and users of interconnected surface water, the 2024 GSP includes a new project to assess habitat suitability for *Oncorhynchus mykiss* spawning and rearing, and other protected aquatic species in the Subbasin.<sup>79</sup> The GSA will conduct a reconnaissance field visit in 2024 to decide on the area extent and methods of the study. Field investigations in 2024 will focus on the East Grove GDE area and employ methods such as snorkel survey, environmental DNA sampling, and stream temperature logging. The GSA will then develop a three-year study plan in 2024-2025, integrating data collected from the 2024 field investigations and information gained from the ongoing investigations in the Santa Clara River basin by UC Santa Barbara and CDFW. The GSA anticipates that results from each year will inform the subsequent year's study plan. Department staff is encouraged by the GSA's project plan to address the identified data gaps of surface water beneficial uses in the Subbasin and recommend that the GSA include the Sespe Creek in the study due to its habitat importance.

To fill data gaps related to surface water-groundwater interconnection, the 2024 GSP includes two projects of installing groundwater monitoring wells,<sup>80</sup> which have been completed in water year 2022.<sup>81</sup> The GSA installed three new shallow monitoring wells in the Cienega Springs GDE area, and four new nested wells in a single borehole in the East Grove GDE area along the Santa Clara River.<sup>82</sup> According to the Subbasin's water year 2023 Annual Report, the GSA is considering the improvement of GDE and surface water-groundwater interaction monitoring network, including using methods such as field measurements to estimate rates of groundwater discharging into surface water.<sup>83</sup> Department staff is satisfied with the GSA's efforts and progress in adding monitoring sites to fill data gaps in surface water-groundwater interconnection.

The 2024 GSP does not specifically describe the undesirable results it aims to avoid. Instead, the 2024 GSP includes general descriptions, such as "avoid significant and unreasonable adverse impacts on beneficial uses and users of surface water,"<sup>84</sup> or "surface water flow declines due to groundwater extractions that interfere with beneficial uses and users."<sup>85</sup> While the 2024 GSP acknowledges that data gaps regarding *Oncorhynchus mykiss* (steelhead) habitats in the Subbasin may have biased the GSA's determination,<sup>86</sup> at this time the 2024 GSP retains similar reasoning and the determination as presented in the 2022 GSP that "the Agency does not consider depletions of interconnected surface water a significant and unreasonable effect."<sup>87</sup> Department staff note that the 2024 GSP negates the designation of the Sespe Creek as

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<sup>79</sup> 2024 Fillmore GSP, Section 4.9, pp. 154-155; Appendix D – Section 7, pp. 448-449.

<sup>80</sup> 2024 Fillmore GSP, Sections 4.2 and 4.3, p. 149.

<sup>81</sup> Fillmore Groundwater Subbasin Annual Report Water Year 2023, Section 7, p. 21.

<sup>82</sup> Fillmore Groundwater Subbasin Annual Report Water Year 2022, Sections 7.2 and 7.3, pp. 25-26.

<sup>83</sup> Fillmore Groundwater Subbasin Annual Report Water Year 2023, Section 7.3, pp. 25-26.

<sup>84</sup> 2024 Fillmore GSP, Executive Summary, p. 15.

<sup>85</sup> 2024 Fillmore GSP, Table 3.0-1, p. 109.

<sup>86</sup> 2024 Fillmore GSP, Section 3.2.1, p. 114.

<sup>87</sup> 2024 Fillmore GSP, Section 3.2.1, pp. 113-114.

spawning and rearing habitat by LARWQCB in its discussion of undesirable results of stream depletions, despite the 2024 GSP's recognition of the Sespe Creek as a primary surface water body.<sup>88</sup> Department staff also note that significant and unreasonable adverse impacts from stream depletion may occur so long as there are groundwater extractions and interconnected surface waters in the Subbasin, and beneficial uses and users of interconnected surface waters.

Despite the 2024 GSP's projection that future conditions will be similar to historical conditions, the GSA should describe the specific undesirable results that the GSA aims to avoid, as required by the GSP Regulations. The GSA's current consideration of undesirable results, "namely loss of *O. mykiss* rearing and spawning habitat along the Santa Clara River,"<sup>89</sup> appears narrowly focused on one beneficial use along the mainstem Santa Clara River alone. For example, the 2024 GSP has not discussed how some of the important factors or information provided are considered by the GSA, such as the habitat importance of the Sespe Creek and its upland tributaries for steelhead spawning, rearing and migration,<sup>90</sup> the data gaps regarding how pumping may influence downstream migration of juvenile steelhead,<sup>91</sup> and how other species may be impacted by stream depletions due to pumping. Department staff believe the GSA's projects on filling data gaps in surface water-groundwater interconnection and beneficial uses and users of surface water will lead to better understanding of undesirable results of depletions of interconnected surface water. Department staff recommend that the GSA follow the Department's future guidance document to revise its description of undesirable results by the first periodic evaluation of the Plan (see [Recommended Corrective Action 2a](#)).

The 2024 GSP was revised to establish minimum thresholds for depletions of interconnected surface water, using groundwater levels as a proxy.<sup>92</sup> The 2024 GSP presents in graphics the empirical relationships between groundwater elevations in key wells and measured stream flows near the East Grove or Cienega Springs GDE areas.<sup>93</sup> The minimum thresholds (i.e., 348.86 feet msl at 03N20W01C04S and 493.98 feet msl at 04N18W31D04S)<sup>94</sup> correspond to approximately 5 cubic feet per second (cfs) streamflow near the East Grove area and zero streamflow near the Cienega Springs area, which are both within historical ranges of flow measurements. During the 2012-2016 drought the Santa Clara River went dry near Cienega Springs but had persisted stream flows for at least part of the reach near East Grove.<sup>95</sup> The minimum threshold for stream depletions near Cienega Springs was set the same as that for lowering of groundwater levels at well

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<sup>88</sup> 2024 Fillmore GSP, Section 3.2.1, p. 113; Section 2.2.2.8, p. 89; Figure 2.2-32, p. 216; Section 2.2.1.5.6, p. 64; Appendix K – Section 5.6.2, p. 1753.

<sup>89</sup> 2024 Fillmore GSP, Section 3.2.1, p. 113.

<sup>90</sup> 2024 Fillmore GSP, Appendix K – Section 5.6.2, p. 1753.

<sup>91</sup> 2024 Fillmore GSP, Appendix D – Section 5.2.2, p. 405.

<sup>92</sup> 2024 Fillmore GSP, Section 3.3.6, pp. 121-122.

<sup>93</sup> 2024 Fillmore GSP, Section 3.3.6, p. 121; Appendix J – Figure 2-4, p. 1538.

<sup>94</sup> 2024 Fillmore GSP, Section 3.3.6, p. 121.

<sup>95</sup> 2024 Fillmore GSP, Appendix D – Section 6.4.3, p. 448; Appendix D – Figure 4.3-2, p. 369.

04N18W31D04S (i.e., 493.98 feet msl).<sup>96</sup> Department staff note that Table 3.0-1 shows a different minimum threshold for the East Grove area (i.e., 325.86 feet msl at 03N20W01C04S) and recommend that the GSA resolve the inconsistency.<sup>97</sup> Department staff recognize that the established empirical relationships describe the general correlations between groundwater levels and streamflow under historical conditions. However, the relationships may change under different pumping schemes. In addition, the minimum thresholds do not quantify surface water depletions due to groundwater pumping in the Subbasin, as required by the GSP Regulations.<sup>98</sup>

Department staff understand that quantifying depletions of surface water from groundwater extractions is a complex task that likely requires developing new, specialized tools, models, and methods to understand local hydrogeologic conditions, interactions, and responses. During the initial review of GSPs, Department staff have observed that most GSAs have struggled with this new requirement of SGMA. However, staff believe that most GSAs will more fully comply with regulatory requirements after several years of Plan implementation that includes projects and management actions to address the data gaps and other issues necessary to understand, quantify, and manage depletions of interconnected surface waters. Accordingly, Department staff believes that affording GSAs adequate time to refine their Plans to address interconnected surface waters is appropriate and remains consistent with SGMA's timelines and local control preferences.

The Department will continue to support GSAs in this regard by providing, as appropriate, financial and technical assistance to GSAs, including the development of guidance describing appropriate methods and approaches to evaluate the rate, timing, and volume of depletions of interconnected surface water caused by groundwater extractions. Once the Department's guidance related to depletions of interconnected surface water is publicly available, the GSA, where applicable, should consider incorporating appropriate guidance approaches into their future periodic evaluations of the GSP (see [Recommended Corrective Action 2b](#)). GSAs should consider availing themselves of the Department's financial or technical assistance, but in any event must continue to fill data gaps, collect additional monitoring data, and implement strategies to better understand and manage depletions of interconnected surface water caused by groundwater extractions and define segments of interconnectivity and timing within their jurisdictional area (see [Recommended Corrective Action 2c](#)). Furthermore, GSAs should coordinate with local, state, and federal resources agencies as well as interested parties to better understand the full suite of beneficial uses and users that may be impacted by pumping induced surface water depletion (see [Recommended Corrective Action 2d](#)).

### 4.2.3 Conclusion

Department staff believe the GSA has taken sufficient action to address this deficiency by setting preliminary sustainable management criteria and planning to fill data gaps. The

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<sup>96</sup> 2024 Fillmore GSP, Appendix J – Table 3-4, p. 1523.

<sup>97</sup> 2024 Fillmore GSP, Table 3.0-1, p. 109.

<sup>98</sup> 23 CCR §§ 354.28(c)(6).

GSA has identified and developed plans to fill major data gaps related to surface water-groundwater interconnection and beneficial uses and users of interconnected surface waters. Department staff advise that the GSA further use the newly collected data and follow the Department's future guidance document to establish sustainable management criteria based on location, quantity, and timing of depletions, as required by the GSP Regulations, by the next periodic evaluation.

## 5 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.

The Department staff’s evaluation of the likelihood of the Plan to attain the sustainability goal for the Subbasin is provided below. Department staff consider the information presented in the Plan to satisfy the general requirements of the GSP Regulations.

### 5.1 ADMINISTRATIVE INFORMATION

The GSP Regulations require each Plan to include administrative information identifying the submitting Agency, its decision-making process, and its legal authority;<sup>99</sup> a description of the Plan area and identification of beneficial uses and users in the Plan area;<sup>100</sup> and a description of the ability of the submitting Agency to develop and implement a Plan for that area.<sup>101</sup>

The 2024 GSP describes the GSA, discusses its decision-making process, and provides its legal authority. The GSA is formed under a joint exercise of powers agreement (JPA) among the City of Fillmore, County of Ventura, and United Water Conservation District (United).<sup>102</sup> The GSA is governed by a six-member board of directors, consisting of the three JPA signatories, a director from each of the two subbasin (Fillmore and Piru) pumpers associations, and an “Environmental Stakeholder” director.<sup>103</sup> The 2024 GSP states that the JPA is the “legal foundational document for the GSA.”<sup>104</sup> The Fillmore Subbasin is entirely managed by the GSA.<sup>105</sup>

The 2024 GSP provides a description of the plan area. The Fillmore Subbasin is one of a series of subbasins extending along the Santa Clara River Valley and is located between the upslope Piru Subbasin to the east and the downslope, adjudicated Santa Paula Subbasin to the west.<sup>106</sup> The Fillmore Subbasin is a high priority basin and covers approximately 22,600 acres of land. Jurisdictions in the Subbasin include federal, state,

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<sup>99</sup> 23 CCR § 354.6 *et seq.*

<sup>100</sup> 23 CCR § 354.8 *et seq.*

<sup>101</sup> 23 CCR § 354.6(e).

<sup>102</sup> 2024 Fillmore GSP, Section 1.2, pp. 18-19; Appendix A, pp. 228-254.

<sup>103</sup> 2024 Fillmore GSP, Section 1.3.1, pp. 19-21.

<sup>104</sup> 2024 Fillmore GSP, Section 1.3.2, p. 21.

<sup>105</sup> 2024 Fillmore GSP, Section 2.1.1, p. 32.

<sup>106</sup> 2024 Fillmore GSP, Section 2.1.1, p. 31.



and local agencies.<sup>107</sup> A map of the Subbasin location, boundary, and adjacent subbasins is shown in Figure 1 below.

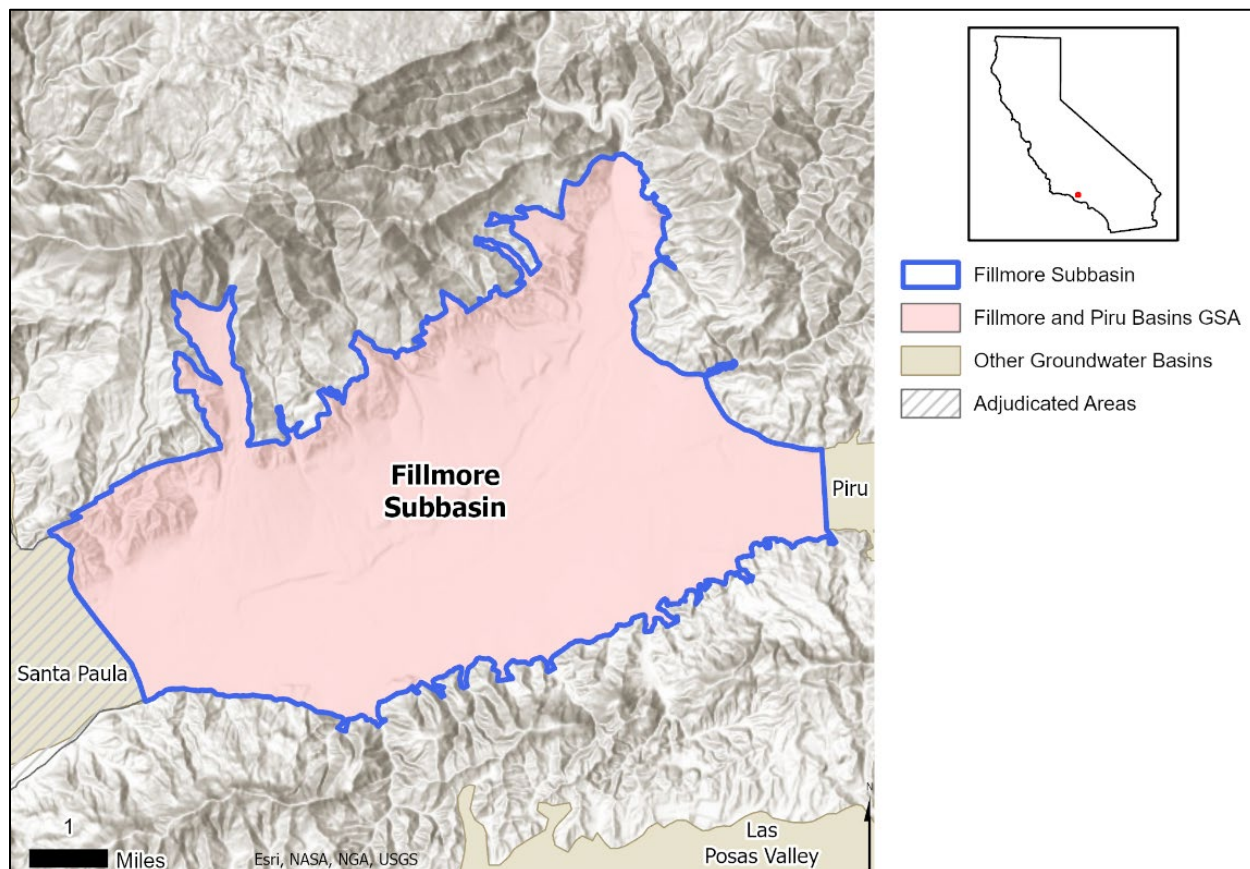


Figure 1: Fillmore Subbasin Location Map.

Land use in the Subbasin is primarily agricultural (58 percent), followed by open space (33 percent) and urban (9 percent).<sup>108</sup> The 2024 GSP describes the County Save Open Space and Agricultural Resources ordinance and city urban restriction boundaries which requires voter approval to change land use designations, and therefore puts limitations on urban growth.<sup>109</sup> The 2024 GSP states that urban land use is “planned to grow modestly (i.e., by about 800 AFY [acre-feet per year] in additional groundwater demand...)”.<sup>110</sup>

The 2024 GSP describes the beneficial uses and users in the Subbasin. Beneficial uses and users of groundwater in the Subbasin include agriculture, domestic, municipal, industrial (i.e., Fillmore Fish Hatchery), public water systems, and groundwater dependent ecosystems.<sup>111</sup> The 2024 GSP includes maps of well density by well type and

<sup>107</sup> 2024 Fillmore GSP, Section 2.1.1, p. 32.

<sup>108</sup> 2024 Fillmore GSP, Section 2.1.3, pp. 36-38; Table 2.1-2, p. 37.

<sup>109</sup> 2024 Fillmore GSP, Section 2.1.3, pp. 37-38.

<sup>110</sup> 2024 Fillmore GSP, Section 2.1.3, p. 38.

<sup>111</sup> 2024 Fillmore GSP, Sections 2.1.5.1-2.5.1.2, pp. 42-44.



a map depicting communities dependent on groundwater, including disadvantaged communities and locations of domestic wells.<sup>112</sup>

The Subbasin is highly dependent on groundwater. Estimated total surface water uses averaged 157 acre-foot per year during water years 2018 - 2022.<sup>113</sup> Water resources in the Subbasin is managed by the Ventura County Watershed Protection District (VCWPD), United, and the City of Fillmore.<sup>114</sup> United operates the primary conjunctive use programs for groundwater replenishment purposes in the Subbasin which include "...conservation releases from Lake Piru through Santa Felicia Dam, flood flow releases from Castaic Lake, and State Water Project (SWP) imports via Pyramid Lake or Castaic Lake."<sup>115</sup> The three agencies have historically implemented surface water and groundwater monitoring and management programs in the Subbasin. Therefore, the GSA has the authority and capability to develop and implement the 2024 GSP.

The 2024 GSP does not provide an estimated cost of implementing the Plan; instead, the 2024 GSP states that the estimated cost is still under development.<sup>116</sup> The 2024 GSP also provides a brief discussion of how the GSA intends to meet costs of implementing the 2024 Plan, stating that the GSA has "...typically financed its operation via a groundwater extraction charge" and that "...the agency has other financial mechanisms that could be employed if needed."<sup>117</sup> Department staff recommend that the GSA provide its best estimate of the cost of implementing the 2024 Plan along with a more detailed description of how the Agency plans to meet those costs in future periodic evaluations of the Plan as required by the GSP Regulations<sup>118</sup> (see [Recommended Corrective Action 3](#)).

The administrative information section included in the 2024 GSP substantially complies with the requirements outlined in the GSP Regulations<sup>119</sup> at this time. Department staff have provided recommended corrective actions for this section which the GSA should consider and address by the next periodic evaluation.

## 5.2 BASIN SETTING

GSP Regulations require information about the physical setting and characteristics of the basin and current conditions of the basin, including a hydrogeologic conceptual model; a description of historical and current groundwater conditions; and a water budget

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<sup>112</sup> 2024 Fillmore GSP, Figures 2.1-4 through 2.1-7, pp. 175-178.

<sup>113</sup> Fillmore Groundwater Subbasin Annual Report Water Year 2023, Section 4, pp. 16 and 20.

<sup>114</sup> 2024 Fillmore GSP, Sections 2.1.2.1 – 2.1.2.3, pp. 34-36.

<sup>115</sup> 2024 Fillmore GSP, Section 2.1.2.2, pp. 35-36.

<sup>116</sup> 2024 Fillmore GSP, Section 1.3.3, p. 21.

<sup>117</sup> 2024 Fillmore GSP, Section 1.3.3, p. 21.

<sup>118</sup> 23 CCR §§ 354.6(e).

<sup>119</sup> 23 CCR §§ 354.2 et seq.

accounting for total annual volume of groundwater and surface water entering and leaving the basin, including historical, current, and projected water budget conditions.<sup>120</sup>

### 5.2.1 Hydrogeologic Conceptual Model

The hydrogeologic conceptual model is a non-numerical model of the physical setting, characteristics, and processes that govern groundwater occurrence within a basin, and represents a local agency's understanding of the geology and hydrology of the basin that support the geologic assumptions used in developing mathematical models, such as those that allow for quantification of the water budget.<sup>121</sup> The GSP Regulations require a descriptive hydrogeologic conceptual model that includes a written description of geologic conditions, supported by cross sections and maps,<sup>122</sup> and includes a description of basin boundaries and the bottom of the basin,<sup>123</sup> principal aquifers and aquitards,<sup>124</sup> and data gaps.<sup>125</sup>

The 2024 GSP provides a description of the regional geology and structures within the Subbasin, with supporting maps and cross sections. The Subbasin is located within the tectonically active Transverse Ranges, which encompasses a series of mountain ridges and valleys trending east-to-west due to north-to-south compression.<sup>126</sup> Geologic faulting and folding has resulted in complex synclinal structures of the Subbasin and surrounding areas. The Subbasin is filled with a mixture of deeper, consolidated (Tertiary and older) marine deposits that are considered as non-water-bearing bedrock, and shallower, unconsolidated (Quaternary) terrestrial and coastal deposits that are considered as water-bearing aquifers.<sup>127</sup> The 2024 GSP presents geology maps of the Subbasin sourced from various reports and studies, showing surface expressions, faults, and cross-sections.<sup>128</sup>

The 2024 Plan describes that the Subbasin is bounded by the Topatopa Mountains to the north and South Mountain to the south, along the contacts between the unconsolidated alluvium and the exposed bedrock.<sup>129</sup> Faults located along the Subbasin's boundaries significantly limit or divert groundwater flow.<sup>130</sup> The 2024 Plan also describes structural

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<sup>120</sup> 23 CCR § 354.12 *et seq.*

<sup>121</sup> DWR Best Management Practices for the Sustainable Management of Groundwater: Hydrogeologic Conceptual Model, December 2016: [https://water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/Groundwater-Management/Sustainable-Groundwater-Management/Best-Management-Practices-and-Guidance-Documents/Files/BMP-3-Hydrogeologic-Conceptual-Model\\_ay\\_19.pdf](https://water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/Groundwater-Management/Sustainable-Groundwater-Management/Best-Management-Practices-and-Guidance-Documents/Files/BMP-3-Hydrogeologic-Conceptual-Model_ay_19.pdf).

<sup>122</sup> 23 CCR §§ 354.14(a), 354.14(c).

<sup>123</sup> 23 CCR §§ 354.14(b)(2-3).

<sup>124</sup> 23 CCR § 354.14(b)(4) *et seq.*

<sup>125</sup> 23 CCR § 354.14(b)(5).

<sup>126</sup> 2024 Fillmore GSP, Section 2.2.1, p. 52.

<sup>127</sup> 2024 Fillmore GSP, Section 2.2.1.1, p. 52.

<sup>128</sup> 2024 Fillmore GSP, Figures 2.2-2 and 2.2-3, pp. 186-187; Figures 2.2-5 through 2.2-7, pp. 189-191.

<sup>129</sup> 2024 Fillmore GSP, Section 2.2.1.2, p. 53; Section 2.2.1.5.1, p. 62.

<sup>130</sup> 2024 Fillmore GSP, Section 2.2.1.2, pp. 53-54.

properties (e.g., basin narrows) of the Subbasin’s boundaries with the Piru Subbasin to the east and the Santa Paula Subbasin to the west.<sup>131</sup>

The 2024 GSP defines the bottom of the Subbasin as that of the water-bearing deposits, which is described by existing studies as “at least 2,000 ft at the axis of the Santa Clara syncline” or “about 5,000 feet below ground surface”.<sup>132</sup> The 2024 GSP states that there is uncertainty with regard to the depth of water bearing deposits in the Subbasin; however, the 2024 GSP indicates that the uncertainty “does not have a material impact of this GSP’s ability to ensure sustainable conditions because water wells are typically constructed less than 2,000 feet [below ground surface] and the substantial changes in groundwater storage (i.e., the water table fluctuations) occur at shallower depths.”<sup>133</sup> The 2024 GSP also suggests that few wells are more than 800 feet deep.<sup>134</sup>

The 2024 GSP identifies one principal aquifer in the Subbasin, which corresponds to Aquifer Zones A and B in United’s hydrogeologic conceptual model.<sup>135</sup> Aquifer Zones A and B are considered merged in the Subbasin.<sup>136</sup> The 2024 GSP describes the conceptual hydrostratigraphic units in detail including lithology, thickness, horizontal and vertical presences, and effects on groundwater flow.<sup>137</sup>

The 2024 GSP considers Aquifer Zone C in United’s model as a non-principal aquifer “because relatively little groundwater is pumped from this zone.”<sup>138</sup> Uncertainty exists regarding the amount of pumping from this aquifer zone. Based on average annual pumping rates over calendar years 2015 to 2019, 1 percent of the pumping was from Aquifer Zone C; however, 11 percent of the pumping originated from wells with screen intervals spanning the principal aquifer (Aquifer Zones A and B) and Aquifer Zone C, while another 15 percent of the pumping originated from wells with unknown screen intervals.<sup>139</sup> The 2024 GSP also acknowledges that the relative contributions from the principal aquifer versus Aquifer Zone C is uncertain.<sup>140</sup> Principal aquifers, as defined by the GSP Regulations, refer in part to aquifer systems that yield significant or economic quantities of groundwater. Because of the uncertainty and the possibility of a relatively substantial amount of pumping from Aquifer Zone C, Department staff recommend that additional justification for excluding Aquifer Zone C from the principal aquifer designation should be provided, or, alternatively, the Aquifer Zone C should be defined as a principal aquifer,

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<sup>131</sup> 2024 Fillmore GSP, Section 2.1.1, p. 31; Section 2.2.1.4.2, pp. 57-58; Figures 2.2-5 and 2.2-7, pp. 189 and 191.

<sup>132</sup> 2024 Fillmore GSP, Section 2.2.1.3, p. 54.

<sup>133</sup> 2024 Fillmore GSP, Section 2.2.1.3, p. 54.

<sup>134</sup> 2024 Fillmore GSP, Appendix E-1 – Section 2.4.5, p. 518; Appendix E-1 – Table 3-9, pp. 593-625.

<sup>135</sup> 2024 Fillmore GSP, Section 2.2.1.4, p. 54.

<sup>136</sup> 2024 Fillmore GSP, Section 2.2.1.4.1, p. 56.

<sup>137</sup> 2024 Fillmore GSP, Section 2.2.1.4.1, pp. 54-56; Figure 2.2-1, p. 185; Figure 2.2-4, p. 188.

<sup>138</sup> 2024 Fillmore GSP, Section 2.2.1.4, p. 54.

<sup>139</sup> 2024 Fillmore GSP, Table 2.2-2, p. 62.

<sup>140</sup> 2024 Fillmore GSP, Table 2.2-2, p. 62.

and the GSP should provide the additional required information for principal aquifers as required<sup>141</sup> (see [Recommended Corrective Action 4](#)).

The 2024 Plan discusses the physical and structural properties of the principal aquifer and aquitards.<sup>142</sup> The thickness of the principal aquifer varies from 300 to 700 feet, generally shallowest at the Subbasin’s southern boundary. The principal aquifer is considered largely unconfined, except for the Subbasin’s flank areas where a semi-continuous aquitard occurs at shallow depths.<sup>143</sup> The 2024 Plan presents aquifer hydraulic properties as estimated through the United’s model.<sup>144</sup> The 2024 Plan also discusses general water quality and sources of water quality impairments in the principal aquifer.<sup>145</sup>

The 2024 GSP describes the primary uses of the principal aquifer, which include pumping for agricultural, domestic, municipal, and industrial users as well as evapotranspiration by vegetation (i.e., groundwater dependent ecosystems).<sup>146</sup> The average pumping rates over years 2015 to 2019 are tabulated for each beneficial use category.<sup>147</sup> GDEs are depicted<sup>148</sup> and their water demands are estimated through the United’s groundwater flow model.<sup>149</sup>

Regarding data gaps and uncertainties of the hydrogeologic conceptual model, the 2024 GSP acknowledges “lack of groundwater level data in the shallow groundwater of the principal aquifer along the streams (e.g., Santa Clara River and Sespe Creek)” and describes data gap addressal via installation of monitoring wells.<sup>150</sup> The 2024 GSP also describes the lack of surface water flow monitoring data due to difficulties of maintaining gauging stations. The 2024 GSP acknowledges that shallow groundwater data collected at more locations in the future could improve model simulations of surface water flows.<sup>151</sup>

The 2024 GSP also provides descriptions and maps of recharge and discharge areas, topography, soil characteristics, surface water bodies, and imported water supplies of the Subbasin.<sup>152</sup> In particular, the discussions of surface water cover wetted stream reaches during wet and dry periods, surface water diversions, recycled wastewater reuse, and beneficial uses of surface water.<sup>153</sup> The 2024 GSP describes that the Subbasin receives variable amounts of imported water from the SWP, released from Lake Piru or

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<sup>141</sup> 23 CCR § 354.14(b)(4) *et seq.*

<sup>142</sup> 2024 Fillmore GSP, Sections 2.2.1.4.2 – 2.2.4.1.3, pp. 57-60.

<sup>143</sup> 2024 Fillmore GSP, Section 2.2.1.4.2, p. 56.

<sup>144</sup> 2024 Fillmore GSP, Section 2.2.1.4.2, pp. 58-59; Table 2.2-1, p. 59.

<sup>145</sup> 2024 Fillmore GSP, Section 2.2.1.4.4, pp. 60-61.

<sup>146</sup> 2024 Fillmore GSP, Section 2.2.1.4.5, pp. 61-62.

<sup>147</sup> 2024 Fillmore GSP, Table 2.2-2, p. 62.

<sup>148</sup> 2024 Fillmore GSP, Figure 2.2-30, p. 214.

<sup>149</sup> 2024 Fillmore GSP, Section 2.2.1.4.5, p. 62.

<sup>150</sup> 2024 Fillmore GSP, Section 2.2.1.6, p. 67.

<sup>151</sup> 2024 Fillmore GSP, Section 2.2.1.6, p. 67.

<sup>152</sup> 2024 Fillmore GSP, Sections 2.2.1.5.1 – 2.2.1.5.7, pp. 62-66; Figures 2.2.8 through 2.2-11, pp. 192-195.

<sup>153</sup> 2024 Fillmore GSP, Section 2.2.1.5.6, pp. 66-68; Figures 2.2.11-2.2.14, pp. 195-198.

occasionally from Castaic Lake.<sup>154</sup> Surface water deliveries in water years 2010 through 2019 are presented in a table.<sup>155</sup>

The hydrogeologic conceptual model section included in the 2024 GSP substantially complies with the requirements outlined in the GSP Regulations<sup>156</sup> at this time. Department staff have provided recommended corrective actions for this section which the GSA should consider and address by the next periodic evaluation.

### 5.2.2 Groundwater Conditions

The GSP Regulations require a written description of historical and current groundwater conditions for each of the applicable sustainability indicators and groundwater dependent ecosystems that includes the following: groundwater elevation contour maps and hydrographs,<sup>157</sup> a graph depicting change in groundwater storage,<sup>158</sup> maps and cross-sections of the seawater intrusion front,<sup>159</sup> maps of groundwater contamination sites and plumes,<sup>160</sup> maps depicting total subsidence,<sup>161</sup> identification of interconnected surface water systems and an estimate of the quantity and timing of depletions of those systems,<sup>162</sup> and identification of groundwater dependent ecosystems.<sup>163</sup>

The 2024 GSP states that precipitation is important to consider when evaluating groundwater conditions in the Subbasin.<sup>164</sup> Long-term (decades long) and intermediate (about five-year long) wet and dry periods are consistent with climate variability of the region. Groundwater level hydrographs from wells with long-term records show similar trends as precipitation.<sup>165</sup>

The 2024 GSP presents in Figure 2.2-18 long-term hydrographs of 11 wells in the Fillmore and Piru Subbasins.<sup>166</sup> Long-term groundwater elevation data are from as early as 1930, with most data from 1970 through 2020.<sup>167</sup> The 2024 GSP states that the hydrographs show periods of stable “basin full” conditions, interrupted by periods of water level declines and subsequent recoveries associated with drought cycles.<sup>168</sup> The lowest groundwater levels during the 2012-2016 drought are considered generally similar to historical lows in previous droughts.<sup>169</sup> Temporal variations of groundwater levels are

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<sup>154</sup> 2024 Fillmore GSP, Section 2.2.1.5.7, pp. 66-67.

<sup>155</sup> 2024 Fillmore GSP, Table 2.2-8, p. 96.

<sup>156</sup> 23 CCR § 354.14 *et seq.*

<sup>157</sup> 23 CCR §§ 354.16(a)(1-2).

<sup>158</sup> 23 CCR § 354.16(b).

<sup>159</sup> 23 CCR § 354.16(c).

<sup>160</sup> 23 CCR § 354.16(d).

<sup>161</sup> 23 CCR § 354.16(e).

<sup>162</sup> 23 CCR § 354.16(f).

<sup>163</sup> 23 CCR § 354.16(g).

<sup>164</sup> 2024 Fillmore GSP, Section 2.2.2.1, p. 68; Figure 2.2-15, p. 199.

<sup>165</sup> 2024 Fillmore GSP, Section 2.2.2.1, p. 68.

<sup>166</sup> 2024 Fillmore GSP, Figure 2.2-18, p. 202.

<sup>167</sup> 2024 Fillmore GSP, Figure 2.2-18, p. 202.

<sup>168</sup> 2024 Fillmore GSP, Section 2.2.2.2, p. 69.

<sup>169</sup> 2024 Fillmore GSP, Section 2.2.2.2, p. 69.

greatest (about 70 feet) in the northern and eastern portions of the Subbasin, and more modest (about 40 feet) towards the west.<sup>170</sup>

The 2024 GSP also presents groundwater elevation contours in the principal aquifer for Spring 2019 (seasonal high) and Fall 2019 (seasonal low).<sup>171</sup> The contour maps show generally westward groundwater flow directions, and that groundwater pumping led to water level troughs in the Sespe Creek, City of Fillmore, and Bardsdale areas.<sup>172</sup>

The 2024 Plan depicts annual and cumulative changes of groundwater storage, as well as annual pumping and water year types for the period of 1988-2019.<sup>173</sup> The storage changes are estimated using United’s groundwater flow modeling.<sup>174</sup> Average annual storage change is estimated to be an overdraft of 2,000 acre-foot per year during 1998-2015 (historical period), and a surplus of 1,900 acre-foot per year during 2016-2019 (current period).<sup>175</sup> Staff note that groundwater storage declines experienced from 2012 to 2016—and depicted on Figure 2.2-19—have not recovered by 2019 to the conditions in 2005/2006 or 2011, which represent near zero change in cumulative storage.<sup>176</sup> The 2024 GSP states that the most recent drought (2012-2016) is part of a long-term drought that dates to 2000.<sup>177</sup> Fourteen years during 2000-2019 are noted by the 2024 GSP as below normal, dry, or critical water years.<sup>178</sup> The 2024 GSP suggests that the time needed for groundwater level recovery is longer because of the extended period of long-term drought.<sup>179</sup>

The 2024 GSP states that seawater intrusion is not applicable because of substantial horizontal and vertical distances from the ocean (i.e., 15 miles inland and groundwater levels being at least 170 feet above mean sea level).<sup>180</sup> Department staff agree with the 2024 GSP’s assessment of seawater intrusion.

The 2024 GSP describes current and historical groundwater quality issues in the Subbasin, and identifies total dissolved solids (TDS), sulfate, chloride, nitrate, and boron as the primary constituents of concern (COC).<sup>181</sup> The 2024 Plan discusses where concentrations of the primary COC have exceeded water quality standards in 2015,<sup>182</sup> as well as concentrations of additional potential constituents of concern including

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<sup>170</sup> 2024 Fillmore GSP, Section 2.2.2.2, p. 69.

<sup>171</sup> 2024 Fillmore GSP, Figures 2.2-16 and 2.2-17, pp. 193-194.

<sup>172</sup> 2024 Fillmore GSP, Section 2.2.2.2, p. 69.

<sup>173</sup> 2024 Fillmore GSP, Section 2.2.2.3, pp. 69-71; Figure 2.2-19, p. 203.

<sup>174</sup> 2024 Fillmore GSP, Section 2.2.2.3, p. 70.

<sup>175</sup> 2024 Fillmore GSP, Section 2.2.3.3.2, p. 97; Table 2.2-10, p. 98; Section 2.2.3.4, pp. 99-101; Table 2.2-12, p. 101.

<sup>176</sup> 2024 Fillmore GSP, Figure 2.2-19, p. 203.

<sup>177</sup> 2024 Fillmore GSP, Section 2.2.2.3, pp. 70-71.

<sup>178</sup> 2024 Fillmore GSP, Figure 2.2-19, p. 203.

<sup>179</sup> 2024 Fillmore GSP, Section 2.2.2.3, p. 71.

<sup>180</sup> 2024 Fillmore GSP, Section 2.2.2.4, p. 71.

<sup>181</sup> 2024 Fillmore GSP, Section 2.2.2.5.1, pp. 72-73.

<sup>182</sup> 2024 Fillmore GSP, Section 2.2.2.5.2, pp. 73-79.

radiochemistry (gross alpha and uranium), selenium, lead, iron, and manganese.<sup>183</sup> Elevated concentrations above Water Quality Objectives (WQO) have been reported in some groundwater wells in the Subbasin for each of the primary COCs in 2015.<sup>184</sup> Historical time-series graphs,<sup>185</sup> and water quality trend analysis in long-term (1983-2018) and short-term (available data in 2000-2020) durations are also included in the 2024 Plan.<sup>186</sup> The 2024 GSP presents maps of short-term groundwater quality trends for the primary COC, and a map of locations of known groundwater contamination sites.<sup>187</sup> The 2024 Plan notes increasing trends of TDS, sulfate and boron in the Pole Creek Fan area, increasing trends of nitrate in some wells, and overall increasing trends of chloride in the Subbasin.<sup>188</sup>

The 2024 GSP states that land subsidence is a low risk in the Subbasin based on various studies including numerical groundwater flow modeling and Interferometric Synthetic Aperture Radar (InSAR) surveys.<sup>189</sup> The 2024 GSP presents a map of cumulative change in land elevations from 2015-2019 for the entire Subbasin based on InSAR data.<sup>190</sup> The 2024 Plan concludes that both annual and cumulative rates of land subsidence are insignificant.<sup>191</sup>

Surface water is considered “interconnected” along the upper portion of Sespe Creek and two reaches of the Santa Clara River near the Subbasin boundaries, “uncertain” along the lower portion of Sespe Creek, and “unlikely” in the central portion of the Santa Clara River and most tributaries (i.e., Poll Creek, Boulder Creek, and Timber Canyon Creek). The two reaches of the Santa Clara River near the Subbasin boundaries (i.e., Cienega Springs and East Grove) are referred to as “significant interconnected surface water systems;”<sup>192</sup> and their surrounding areas are called areas of rising groundwater, where surface water is often entirely sourced from groundwater especially during dry periods.<sup>193</sup> Streamflow in the Cienega Springs area exhibit larger variability than the East Grove area and dried out during the drought years of 2014-2016.<sup>194</sup> The 2024 Plan includes a map that identifies interconnected stream reaches within the Subbasin.<sup>195</sup> Lack of groundwater level data along streams (e.g., Santa Clara River and Sespe Creek) is described as data gap to be addressed (see [Section 5.2.1](#)).

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<sup>183</sup> 2024 Fillmore GSP, Section 2.2.2.5.2, pp. 79-81.

<sup>184</sup> 2024 Fillmore GSP, Section 2.2.2.5.2, pp. 73-79.

<sup>185</sup> 2024 Fillmore GSP, Appendix K – Appendix D and E, pp. 1953-2532.

<sup>186</sup> 2024 Fillmore GSP, Appendix K – Section 4, pp. 1673-1703.

<sup>187</sup> 2024 Fillmore GSP, Figures 2.2-20 to 2.2-25, pp. 204-209.

<sup>188</sup> 2024 Fillmore GSP, Section 2.2.2.5.2, pp. 75-79; Figure 2.2-20 to 2.2-24, pp. 204-208.

<sup>189</sup> 2024 Fillmore GSP, Section 2.2.2.6, p. 84.

<sup>190</sup> 2024 Fillmore GSP, Figure 2.2-26, p. 210.

<sup>191</sup> 2024 Fillmore GSP, Section 2.2.2.6, pp. 84-85.

<sup>192</sup> 2024 Fillmore GSP, Section 2.2.2.7, p. 85.

<sup>193</sup> 2024 Fillmore GSP, Section 2.2.2.7, p. 85.

<sup>194</sup> 2024 Fillmore GSP, Section 2.2.2.7, p. 85; Figure 2.2-12, p. 196.

<sup>195</sup> 2024 Fillmore GSP, Figure 2.2-27, p. 211.



The 2024 GSP estimates stream depletions at the two rising groundwater areas with the United’s regional groundwater flow model by comparing two model scenarios: one with historical pumping rates and another that excludes pumping within a 1-mile band centered along the Santa Clara River channel.<sup>196</sup> The estimated average monthly depletion rates during 1988-2019 range from zero (when surface water stops flowing during droughts) at the Cienega Springs area to the maximums of 10 cubic feet per second (cfs) and 20 cfs at the East Grove and Cienega Springs areas, respectively.<sup>197</sup> The 2024 GSP also presents estimated annual depletions for the two areas in a table.<sup>198</sup> However, the 2024 GSP does not provide supporting information using best available science or information to exclude pumping in other parts of the Subbasin beyond the 1-mile band which may also cause stream depletion. Therefore, Department staff consider these estimations using a 1-mile band as potentially inaccurate and most likely an underestimation of the stream depletion due to pumping that is occurring in the Subbasin. Department staff recommend the GSA follow the Department’s future guidance document to develop more appropriate methods to quantify the location, timing, and rate of depletion (see [Recommended Corrective Action 2](#)).

The 2024 GSP includes a description of five units of GDEs in the Subbasin.<sup>199</sup> Two of the GDE units (i.e., the Cienega Riparian Complex and the East Grove Riparian Complex) are associated with areas of rising groundwater.<sup>200</sup> The 2024 GSP states that GDE health is monitored with the Normalized Difference Vegetation Index (NDVI), Normalized Difference Moisture Index (NDMI), and groundwater records of nearby wells.<sup>201</sup> The 2024 GSP indicates that vegetation health in the Cienega Riparian Complex has not recovered from die-off effects of the 2012-2016 drought.<sup>202</sup> The 2024 GSP identifies three species with critical habitat areas in the Subbasin, including Southern California steelhead,<sup>203</sup> and maps the critical habitats and surface water beneficial uses as they relate to fish.<sup>204</sup> The 2024 GSP also lists ongoing habitat management and special-status species recovery plans in the Fillmore and Piru Subbasins.<sup>205</sup>

The groundwater conditions section included in the 2024 GSP substantially complies with the requirements outlined in the GSP Regulations<sup>206</sup> at this time. Department staff have provided recommended corrective actions for this section which the GSA should consider and address by the next periodic evaluation.

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<sup>196</sup> 2024 Fillmore GSP, Section 2.2.2.7, p. 86.

<sup>197</sup> 2024 Fillmore GSP, Section 2.2.2.7, p. 86; Figure 2.2-29, p. 213.

<sup>198</sup> 2024 Fillmore GSP, Table 2.2-4, p. 87.

<sup>199</sup> 2024 Fillmore GSP, Section 2.2.2.8, pp. 87-88; Table 2.2-5, p. 88; Figure 2.2-30, p. 214.

<sup>200</sup> 2024 Fillmore GSP, Section 2.2.2.8, p. 87.

<sup>201</sup> 2024 Fillmore GSP, Section 2.2.2.8, p. 87.

<sup>202</sup> 2024 Fillmore GSP, Section 2.2.2.8, p. 87.

<sup>203</sup> 2024 Fillmore GSP, Section 2.2.2.8, pp. 86-87; Table 2.2-7, p. 87.

<sup>204</sup> 2024 Fillmore GSP, Figures 2.2-31 and 2.2-32, pp. 215-216.

<sup>205</sup> 2024 Fillmore GSP, Section 2.2.2.8, p. 89.

<sup>206</sup> 23 CCR § 354.16 *et seq.*



### 5.2.3 Water Budget

GSP Regulations require a water budget for the basin that provides an accounting and assessment of the total annual volume of groundwater and surface water entering and leaving the basin, including historical; current; and projected water budget conditions,<sup>207</sup> and the sustainable yield.<sup>208</sup>

The 2024 GSP estimates historical, current, and projected water budgets with the United's Ventura Regional Groundwater Flow Model, which was developed with the MODFLOW-NWT numerical code and calibrated over the period of 1985-2019.<sup>209</sup> The model was reviewed by an expert panel and considered "suitable for assisting with long-term sustainable management of the groundwater resources" in the Subbasin.<sup>210</sup> The water budget information is provided in tabular and graphical forms for the surface water and groundwater systems.<sup>211</sup>

The 2024 GSP includes a historical water budget for water years 1988-2015,<sup>212</sup> a current water budget for water years 2016-2019,<sup>213</sup> and a projected water budget that applies DWR's 2070 central tendency climate factors to the historical hydrology of water years 1943-2019.<sup>214</sup> The average annual change in groundwater storage in the historical water budget was an overdraft of 2,000 acre-feet per year (AFY).<sup>215</sup> The current water budget reports an average annual change in groundwater storage of 1,900 AFY.<sup>216</sup> The projected water budget with climate change estimates an annual storage surplus of 400 AFY.<sup>217</sup> The 2024 GSP explains that while temporary overdraft occurs during periods of multiple years of below average precipitation, the Subbasin "refills" following one or more wet years.<sup>218</sup> Therefore, as the 2024 GSP states, the Subbasin does not exhibit long-term overdraft.<sup>219</sup> Department staff note that by 2019 the Subbasin's groundwater storage had still not recovered to the "basin full" conditions following the extended drought years of 2012-2016.<sup>220</sup> Staff recommend that the GSA continue to report groundwater storage conditions in annual reports and periodic evaluations.

The 2024 GSP presents inconsistent estimates of the sustainable yield of the Subbasin in different parts of the Plan, as either 50,000 AFY or 50,800 AFY.<sup>221</sup> In comparison to the historical average pumping (46,800 AFY), the 2024 GSP states that the Subbasin can

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<sup>207</sup> 23 CCR §§ 354.18(a), 354.18(c) *et seq.*

<sup>208</sup> 23 CCR § 354.18(b)(7).

<sup>209</sup> 2024 Fillmore GSP, Section 2.2.3, p. 90; Appendix E-1, p. 479; Appendix E-4, p. 1363.

<sup>210</sup> 2024 Fillmore GSP, Appendix E-4, p. 1371.

<sup>211</sup> 2024 Fillmore GSP, Section 2.2.3, pp. 90-106; Figures 2.2-34 through 2.2-39, pp. 218-223.

<sup>212</sup> 2024 Fillmore GSP, Section 2.2.3.3, pp. 94-99.

<sup>213</sup> 2024 Fillmore GSP, Section 2.2.3.4, pp. 99-101.

<sup>214</sup> 2024 Fillmore GSP, Section 2.2.3.5, pp. 101-105.

<sup>215</sup> 2024 Fillmore GSP, Table 2.2-10, p. 98.

<sup>216</sup> 2024 Fillmore GSP, Table 2.2-12, p. 101.

<sup>217</sup> 2024 Fillmore GSP, Table 2.2-14, p. 105.

<sup>218</sup> 2024 Fillmore GSP, Section 2.2.3.6, p. 105.

<sup>219</sup> 2024 Fillmore GSP, Section 2.2.3.6, p. 105.

<sup>220</sup> 2024 Fillmore GSP, Figure 2.2-36, p. 220.

<sup>221</sup> 2024 Fillmore GSP, Section 2.2.3.7, p. 106; Section 3.1, p. 111.

pump an additional 3,200 AFY on average without causing chronic declines of groundwater levels,<sup>222</sup> and that “the sustainable yield for the [Subbasin] is estimated to be 50,000 AFY.”<sup>223</sup> The 2024 GSP also states “the estimated minimum sustainable yield for the [Subbasin] is calculated to be 50,800 AFY,” based on the average annual pumping rate of 50,400 AFY and the storage surplus of 400 AFY in the projected water budget.<sup>224</sup> Although the two estimates are very close—differing by less than 2 percent—Department staff recommend the GSP present a consistent estimate of sustainable yield in future periodic evaluations of the Plan.

The water budget described in the 2024 GSP substantially complies with the GSP Regulations and appears to be developed using the best available science. The 2024 GSP provides the required historical, current, and future accounting and assessment of the total annual volume of groundwater and surface water entering and leaving the Subbasin including an estimate of the sustainable yield of the Subbasin.

#### **5.2.4 Management Areas**

The GSP Regulations provide the option for one or more management areas to be defined within a basin if the GSA has determined that the creation of the management areas will facilitate implementation of the Plan. Management areas may define different minimum thresholds and be operated to different measurable objectives, provided that undesirable results are defined consistently throughout the basin.<sup>225</sup>

The 2024 GSP designates the Cienega Riparian Complex GDE unit which spans the Fillmore and Piru Subbasins as a management area to mitigate GDE vegetation die-off due to groundwater level declines during drought periods.<sup>226</sup> The GDE unit extends equally into the two subbasins. There are currently four representative monitoring sites for this management area, which are all located in the Fillmore Subbasin.<sup>227</sup> For the GDE unit, the 2024 GSP establishes minimum thresholds for the chronic lowering of groundwater levels sustainability indicator at the “critical water level,” defined as 10 feet below the 2011 average groundwater levels based on recent research studies.<sup>228</sup> The minimum thresholds for this management area are significantly higher than those for subbasin-wide groundwater level declines (i.e., 50 feet below the 2011 average groundwater levels) that are considered protective of well pumping.<sup>229</sup> The measurable objectives for the GDE unit are the 2011 average groundwater levels, the same as those for subbasin-wide groundwater level declines.<sup>230</sup>

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<sup>222</sup> 2024 Fillmore GSP, Section 2.2.3.7, p. 106.

<sup>223</sup> 2024 Fillmore GSP, Section 3.1, p. 111.

<sup>224</sup> 2024 Fillmore GSP, Section 2.2.3.7, p. 106.

<sup>225</sup> 23 CCR § 354.20.

<sup>226</sup> 2024 Fillmore GSP, Section 2.2.4, p. 107; Section 3.2.2, p. 114; Table 3.0-1, p. 109; Figure 2.2-30, p. 214.

<sup>227</sup> 2024 Fillmore GSP, Figure 3.5-4, p. 227; 2024 Piru GSP, Figure 3.5-4, p. 221.

<sup>228</sup> 2024 Fillmore GSP, Section 3.3.1.2, p. 119.

<sup>229</sup> 2024 Fillmore GSP, Section 3.3.1.1, p. 118.

<sup>230</sup> 2024 Fillmore GSP, Section 3.4, p. 123; Table 3.0-1, p. 109.

The GSP’s description and sustainable management criteria for this management area are supported with sufficient information and justification, and significantly complies with the GSP Regulations. Department staff note that the 2024 GSP adds similar minimum thresholds and measurable objectives for the East Grove Riparian Complex GDE unit for the same purpose of protecting vegetation die-off.<sup>231</sup> Department staff recommend the GSA clarify whether the East Grove GDE unit is also considered a management area by the next periodic evaluation.

### 5.3 SUSTAINABLE MANAGEMENT CRITERIA

GSP Regulations require each Plan to include a sustainability goal for the basin and to characterize and establish undesirable results, minimum thresholds, and measurable objectives for each applicable sustainability indicator, as appropriate. The GSP Regulations require each Plan to define conditions that constitute sustainable groundwater management for the basin including the process by which the GSA characterizes undesirable results and establishes minimum thresholds and measurable objectives for each applicable sustainability indicator.<sup>232</sup>

#### 5.3.1 Sustainability Goal

GSP Regulations require that GSAs establish a sustainability goal for the basin. The sustainability goal should be based on information provided in the GSP’s basin setting and should include an explanation of how the sustainability goal is likely to be achieved within 20 years of Plan implementation.<sup>233</sup>

The 2024 GSP states that the sustainability goal is memorialized in the guiding principles that were adopted by the Fillmore and Piru Basins Groundwater Sustainability Agency in November 2019.<sup>234</sup> From the over 40 guiding principles described, two are described as being the “most pertinent to the sustainability goal”. They are:

- 1) *“sustainable groundwater conditions in the Basins are critical to support, preserve, and enhance the economic viability, social well-being, environmental health, and cultural norms of all beneficial users and uses including Tribal, domestic, municipal, agricultural, environmental and industrial users;” and*
- 2) *“[Fillmore and Piru Basins GSA] is committed to conduct sustainable groundwater practices that balance the needs of and protect the groundwater resources for all Beneficial Users in the Basins.”<sup>235</sup>*

The 2024 GSP also refers to the definition of “sustainability goal” in Water Code 10721(u) which emphasizes measures targeted to ensure that a basin is operated within its

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<sup>231</sup> 2024 Fillmore GSP, Section 3.2.3.1, p. 115; Appendix J – Section 3.3.3.2, p. 1524; Figure 3.5-4, p. 227.

<sup>232</sup> 23 CCR § 354.22 *et seq.*

<sup>233</sup> 23 CCR § 354.24.

<sup>234</sup> 2024 Fillmore GSP, Section 3.1, p. 111.

<sup>235</sup> 2024 Fillmore GSP, Section 3.1, p. 111.

sustainable yield and states that “based on the evaluation of historical, current, and projected water budgets (Section 2.2.3), the sustainable yield for the Basin is estimated to be 50,000 AFY.”<sup>236</sup> Information presented in the 2024 GSP suggest that the Subbasin’s historical groundwater extractions are within the sustainable yield and that projected groundwater extractions are sustainable.<sup>237</sup> However, the 2024 GSP does not discuss the measures that will be implemented to ensure that the Subbasin will be operated within its sustainable yield although the GSA requires pumpers in the Subbasin to report their groundwater extractions.<sup>238</sup> Department staff recommend that the GSA further discuss management actions to ensure the Subbasin’s groundwater extractions do not exceed the sustainable yield.

Department staff recommend the GSA explicitly define the sustainability goal and explain how the sustainability goal is likely to be achieved within 20 years of Plan implementation and is likely to be maintained through the planning and implementation horizon, as required by the GSP Regulations<sup>239</sup> (see [Recommended Corrective Action 5](#)).

Because the 2024 GSP describes the Subbasin’s groundwater conditions as relatively stable, references guiding principles adopted by the GSA, and recognizes the requirement to operate the Subbasin within its sustainability yield, Department staff conclude that the recommended corrective action does not prevent Plan approval at this time. Staff recommend that the GSA address it by the next periodic evaluation of the Plan.

### **5.3.2 Sustainability Indicators**

Sustainability indicators are defined as any of the effects caused by groundwater conditions occurring throughout the basin that, when significant and unreasonable, cause undesirable results.<sup>240</sup> Sustainability indicators thus correspond with the six undesirable results – chronic lowering of groundwater levels indicating a significant and unreasonable depletion of supply if continued over the planning and implementation horizon, significant and unreasonable reduction of groundwater storage, significant and unreasonable seawater intrusion, significant and unreasonable degraded water quality, including the migration of contaminant plumes that impair water supplies, land subsidence that substantially interferes with surface land uses, and depletions of interconnected surface water that have significant and unreasonable adverse impacts on beneficial uses of the surface water<sup>241</sup> – but refer to groundwater conditions that are not, in and of themselves, significant and unreasonable. Rather, sustainability indicators refer to the effects caused by changing groundwater conditions that are monitored, and for which criteria in the form of minimum thresholds are established by the agency to define when the effect becomes significant and unreasonable, producing an undesirable result.

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<sup>236</sup> 2024 Fillmore GSP, Section 3.1, p. 111.

<sup>237</sup> 2024 Fillmore GSP, Section 2.2.3.7, p. 106; Section 2.2.3.3.3, p. 99.

<sup>238</sup> 2024 Fillmore GSP, Section 3.5.1.4, pp. 130-131.

<sup>239</sup> 23 CCR § 354.24.

<sup>240</sup> 23 CCR § 351(ah).

<sup>241</sup> Water Code § 10721(x).

GSP Regulations require that GSAs provide descriptions of undesirable results including defining what are significant and unreasonable potential effects to beneficial uses and users for each sustainability indicator.<sup>242</sup> GSP Regulations also require GSPs provide the criteria used to define when and where the effects of the groundwater conditions cause undesirable results for each applicable sustainability indicator. The criteria shall be based on a quantitative description of the combination of minimum threshold exceedances that cause significant and unreasonable effects in the basin.<sup>243</sup>

GSP Regulations require that the description of minimum thresholds include the information and criteria relied upon to establish and justify the minimum threshold for each sustainability indicator.<sup>244</sup> GSAs are required to describe how conditions at minimum thresholds may affect beneficial uses and users,<sup>245</sup> and the relationship between the minimum thresholds for each sustainability indicator, including an explanation for how the GSA has determined conditions at each minimum threshold will avoid causing undesirable results for other sustainability indicators.<sup>246</sup>

GSP Regulations require that GSPs include a description of the criteria used to select measurable objectives, including interim milestones, to achieve the sustainability goal within 20 years.<sup>247</sup> GSP Regulations also require that the measurable objectives be established based on the same metrics and monitoring sites as those used to define minimum thresholds.<sup>248</sup>

The following subsections thus consolidate three facets of sustainable management criteria: undesirable results, minimum thresholds, and measurable objectives. Information, as presented in the Plan, pertaining to the processes and criteria relied upon to define undesirable results applicable to the Subbasin, as quantified through the establishment of minimum thresholds, are addressed for each applicable sustainability indicator. A submitting agency is not required to establish criteria for undesirable results that the agency can demonstrate are not present and are not likely to occur in a basin.<sup>249</sup>

#### *5.3.2.1 Chronic Lowering of Groundwater Levels*

In addition to components identified in 23 CCR §§ 354.28 (a-b), for the chronic lowering of groundwater, the GSP Regulations require the minimum threshold for chronic lowering of groundwater levels to be the groundwater elevation indicating a depletion of supply at a given location that may lead to undesirable results that is supported by information

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<sup>242</sup> 23 CCR §§ 354.26(a), 354.26(b)(c).

<sup>243</sup> 23 CCR § 354.26(b)(2).

<sup>244</sup> 23 CCR § 354.28(b)(1).

<sup>245</sup> 23 CCR § 354.28(b)(4).

<sup>246</sup> 23 CCR § 354.28(b)(2).

<sup>247</sup> 23 CCR § 354.30(a).

<sup>248</sup> 23 CCR § 354.30(b).

<sup>249</sup> 23 CCR § 354.26(d).

about groundwater elevation conditions and potential effects on other sustainability indicators.<sup>250</sup>

In the Department’s Incomplete Determination, the Department identified deficiencies related to the sustainable management criteria for the chronic lowering of groundwater levels. The GSA revised this portion of the 2022 Plan, and Department staff have evaluated this sustainability indicator in [Section 4.1](#) of this Staff Report. As presented above, Department staff concluded that the GSA took sufficient action to correct this deficiency, but staff also provided recommended corrective actions based on the revised 2024 GSP.

In addition to the facets of sustainable management criteria evaluated in [Section 4.1](#) of this Staff Report, the 2024 GSP establishes measurable objectives for the chronic lowering of groundwater levels at “average 2011 groundwater elevations, which represent ‘basin full’ conditions.”<sup>251</sup> Department staff believe the measurable objectives are consistent with the 2024 GSP’s description of the basin setting which describes the Subbasin’s hydrology to “exhibit a repetitive sequence of lower water levels during drought periods with recovery during subsequent wet periods,” and “not exhibit evidence of chronic, long-term water level declines.”<sup>252</sup> The 2024 GSP explains that water levels recovering to similar “basin full” conditions following a drought would indicate sustainable conditions in the Subbasin.<sup>253</sup> The measurable objectives are also supported by the 2024 GSP’s model projection that the Subbasin’s water levels would recover to similar “basin full” conditions even with significant increases in future pumping.<sup>254</sup> Therefore, Department staff consider it reasonable to establish the measurable objectives as the groundwater levels that occur at the “basin full” conditions.

However, the 2024 GSP does not establish interim milestones for chronic lowering of groundwater levels and does not provide an explanation for why they were not established. Interim milestones allow GSA, the public (i.e., beneficial users of groundwater) and the Department to track the progress of the Plan, in increments of five years, to achieve the sustainability goal in the Subbasin. Department staff recommend that the GSA establish interim milestones for this sustainability indicator; due to the relationship between the Subbasin’s water levels and cycles of wet and dry periods as described above, staff further recommend that the GSA consider establishing interim milestones at the “basin full” conditions, the same as the measurable objectives.

The sustainable management criteria for chronic lowering of groundwater levels sustainability indicator included in the 2024 GSP substantially complies with the requirements outlined in the GSP Regulations<sup>255</sup> at this time. Department staff have

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<sup>250</sup> 23 CCR § 354.28(c)(1) *et seq.*

<sup>251</sup> 2024 Fillmore GSP, Section 3.4, p. 123; Tables 3.0-1 and 3.0-2, pp. 109-110.

<sup>252</sup> 2024 Fillmore GSP, Appendix J – Section 2.4, p. 1506.

<sup>253</sup> 2024 Fillmore GSP, Appendix J – Section 3.3.4, p. 1524.

<sup>254</sup> 2024 Fillmore GSP, Appendix J – Section 2.4, p. 1506.

<sup>255</sup> 23 CCR §§ 354.22-30.

provided recommended corrective actions for this sustainability indicator which the GSA should consider and address by the next periodic evaluation.

### 5.3.2.2 *Reduction of Groundwater Storage*

In addition to components identified in 23 CCR §§ 354.28 (a-b), for the reduction of groundwater storage, the GSP Regulations require the minimum threshold for the reduction of groundwater storage to be a total volume of groundwater that can be withdrawn from the basin without causing conditions that may lead to undesirable results. Minimum thresholds for reduction of groundwater storage shall be supported by the sustainable yield of the basin, calculated based on historical trends, water year type, and projected water use in the basin.<sup>256</sup>

The 2024 GSP describes the undesirable results from reduction of groundwater storage as “the loss of ability to pump groundwater,”<sup>257</sup> or “inadequate groundwater volume in storage to last through multi-year drought without pumping reductions.”<sup>258</sup> The 2024 GSP uses groundwater levels as a proxy and establishes sustainable management criteria (i.e., undesirable results, minimum thresholds and measurable objectives) for reduction of groundwater storage as the same as those for the chronic lowering of groundwater levels sustainability indicator in subbasin-wide areas outside of GDE areas (i.e. monitoring the ability to pumping groundwater from production wells).<sup>259</sup> The GSA explains that the amount of groundwater in storage is linked to groundwater levels and exhibit similar cyclic behaviors of decline during drought periods with recovery during wet periods.<sup>260</sup> Department staff largely agree with the GSA’s assessment of the relationship between groundwater levels and storage, but recommend the GSA continue to evaluate and confirm this relationship in the Subbasin in annual reports and periodic evaluations of the Plan.

Department staff consider it reasonable to use the groundwater level sustainable management criteria for depletion of supply in production wells as a proxy to manage groundwater storage reduction. The GSA’s descriptions of undesirable results for the two sustainability indicators are similar and, therefore, maintaining sustainable water levels for production wells would mean sustainable volume of groundwater storage. Staff conclude that the GSP substantially complies with this part of the GSP Regulations.

### 5.3.2.3 *Seawater Intrusion*

In addition to components identified in 23 CCR §§ 354.28 (a-b), for seawater intrusion, the GSP Regulations require the minimum threshold for seawater intrusion to be defined

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<sup>256</sup> 23 CCR § 354.28(c)(2).

<sup>257</sup> 2024 Fillmore GSP, Section 3.2.3.2, p. 116.

<sup>258</sup> 2024 Fillmore GSP, Tale 3.0-1, p. 109.

<sup>259</sup> 2024 Fillmore GSP, Section 3.3.2, p. 119; Section 3.2.4, p. 116; Section 3.4, p. 123; Appendix J – Sections 3.4.3 and 3.4.4, pp. 1524-1525.

<sup>260</sup> 2024 Fillmore GSP, Appendix J – Section 3.4, pp. 1524-1525.

by a chloride concentration isocontour for each principal aquifer where seawater intrusion may lead to undesirable results.<sup>261</sup>

The 2024 GSP states that “undesirable results related to seawater intrusion are not applicable to this Basin due to the large horizontal and vertical distances separating groundwater levels from seawater.”<sup>262</sup> The 2024 GSP details that the western boundary of the [Fillmore and Piru Subbasins] is approximately 15 miles inland and groundwater elevations have been at least 170 feet above mean sea level.<sup>263</sup> In addition, the 2024 GSP states that “seawater intrusion has not historically migrated beyond the coastal plain (e.g., Oxnard Basin) even during severe drought conditions.”<sup>264</sup> Department staff agree with the GSA’s rationale for not setting sustainable management criteria for seawater intrusion in the Subbasin.

#### *5.3.2.4 Degraded Water Quality*

In addition to components identified in 23 CCR §§ 354.28 (a-b), for degraded water quality, the GSP Regulations require the minimum threshold for degraded water quality to be the degradation of water quality, including the migration of contaminant plumes that impair water supplies or other indicator of water quality as determined by the Agency that may lead to undesirable results. The minimum threshold shall be based on the number of supply wells, a volume of water, or a location of an isocontour that exceeds concentrations of constituents determined by the Agency to be of concern for the basin. In setting minimum thresholds for degraded water quality, the Agency shall consider local, state, and federal water quality standards applicable to the basin.<sup>265</sup>

The 2024 GSP describes significant and unreasonable effects of water quality degradation as “water quality degradation beyond historical conditions.”<sup>266</sup> The 2024 GSP also states that “significant and unreasonable water quality degradation would result if water quality exceeds Maximum Contaminant Levels (MCLs) (e.g., nitrate above the MCL can result in Blue Baby Syndrome) or water quality significantly exceeds historical concentrations.”<sup>267</sup> The 2024 GSP gives examples of undesirable results that impair agricultural or domestic beneficial uses and users because of high concentrations of constituents, such as boron, chloride, nitrate, sulfate, TDS, and “constituents with a maximum contaminant level (MCL) listed in Title 22 of the CCR.”<sup>268</sup>

Five primary COC (i.e., boron, chloride, nitrate, sulfate, TDS) were identified in the 2024 GSP, with presentations of their maximum contaminant levels (MCLs)<sup>269</sup> and/or water

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<sup>261</sup> 23 CCR § 354.28(c)(3).

<sup>262</sup> 2024 Fillmore GSP, Section 3.2.2, p. 114.

<sup>263</sup> 2024 Fillmore GSP, Section 2.2.2.4, p. 71; Appendix J – Section 3.1, p. 1510.

<sup>264</sup> 2024 Fillmore GSP, Appendix J – Sections 3.1, p. 1510.

<sup>265</sup> 23 CCR § 354.28(c)(4).

<sup>266</sup> 2024 Fillmore GSP, Section 3.2.2, p. 114.

<sup>267</sup> 2024 Fillmore GSP, Section 3.2.3.2, p. 116.

<sup>268</sup> 2024 Fillmore GSP, Appendix J – Section 3.2.1, p. 1512.

<sup>269</sup> 2024 Fillmore GSP, Table 2.2-3, p. 73; Appendix K – Table 4-2, p. 1682.



quality objectives (WQOs).<sup>270</sup> Although information in the 2024 GSP's basin setting section indicate that the five primary COC will be the focus of SGMA implementation,<sup>271</sup> the 2024 GSP has not specifically defined the COC in its water quality sustainable management criteria (e.g., no reference to COC in Chapter 3). Instead, the 2024 GSP's Appendix J states that "the proposed metrics are the water quality analyte values and units included in existing and future regulations...."<sup>272</sup> Department staff understand that the GSA intends to be thorough in its water quality evaluation but recommend that the GSA clearly identify which COC are included in its current sustainable management criteria for water quality and whether the minimum thresholds are established at the MCL/WQO or based on historical concentrations (see [Recommended Corrective Action 6a](#)).

The 2024 GSP does not describe the combination of minimum threshold (i.e., MCL or WQO, as discussed below) exceedances among the 21 representative monitoring wells used to define when and where the effects of groundwater conditions cause undesirable results for degraded water quality in the Subbasin. The GSA plans to depend on the existing groundwater quality monitoring programs of United and Ventura County Watershed Protection District (VCWPD) for GSP implementation.<sup>273</sup> Exceedances of MCL or WQO for each of the primary COC have been reported in some monitoring wells in 2015.<sup>274</sup> Increasing concentration trends have also been observed in some monitoring wells.<sup>275</sup> In its discussions of "Multiple Minimum Thresholds Used to Determine Undesirable Results," the 2024 GSP appears to suggest that the GSA's responsibility is limited to evaluating water quality parameters against the minimum thresholds associated with water quality standards and to "not implement projects or management actions that further degrade water quality beyond historical conditions."<sup>276</sup> However, The GSP Regulations require the criteria to be a quantitative description of the combination of minimum threshold exceedances.<sup>277</sup> Furthermore, Department staff note that SGMA specifies undesirable results as "caused by groundwater conditions occurring throughout the basin" not just from projects or management actions of groundwater sustainability agencies. Degraded water quality caused by groundwater pumping, changes in groundwater levels, changes in the direction of groundwater flow, or changes in horizontal or vertical movement of groundwater within the Subbasin should be considered in the assessment of undesirable results. Additionally, the 2024 GSP does not describe the time interval or frequency of sample collection to evaluate the occurrence of water quality undesirable results even as the monitoring programs by United and VCWPD differ in sampling frequencies. The GSA considers semiannual sampling necessary to assess

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<sup>270</sup> 2024 Fillmore GSP, Section 2.2.2.5.2, pp. 73-79.

<sup>271</sup> 2024 Fillmore GSP, Section 2.2.2.5.4, pp. 83-84.

<sup>272</sup> 2024 Fillmore GSP, Appendix J – Section 3.2.2, p. 1512.

<sup>273</sup> 2024 Fillmore GSP, Sections 3.5.1.2 – 3.5.1.2.1, pp. 127-128; Figure 2.1-9, p. 180, Figure 3.5-2, p. 225.

<sup>274</sup> 2024 Fillmore GSP, Section 2.2.2.5.2, pp. 74-79.

<sup>275</sup> 2024 Fillmore GSP, Section 2.2.2.5.2, pp. 74-79; Appendix K – Section 4.1.2, pp. 1681-1697.

<sup>276</sup> 2024 Fillmore GSP, Section 3.2.4, p. 116.

<sup>277</sup> 23 CCR § 354.26(b)(2).

seasonal trends but identifies as a data gap that VCWPD samples its 14 monitoring wells only in the fall.<sup>278</sup> Therefore, Department staff recommend that the GSA develop a method or rationale to quantify what it considers as “water quality [that] significantly exceeds historical concentrations” for each COC and remove any limitation to specific activities the GSA is engaged in to define the quantitative criteria of water quality undesirable results as required by the GSP Regulations<sup>279</sup> (see [Recommended Corrective Action 6b](#)).

The 2024 GSP establishes minimum thresholds for water quality degradation as “WQOs [Water Quality Objectives] and MCLs established by the LARWQCB [Los Angeles Regional Water Quality Control Board] Basin Plan and California DDW [Water Board Division of Drinking Water], respectively.”<sup>280</sup> Department staff consider it reasonable to use federal and state water quality standards as minimum thresholds to protect beneficial uses and users of groundwater. However, it is unclear how the 2024 GSP applies the two standards to establish minimum thresholds when their values differ. In addition, WQO may vary among the three management areas as designated in the LARWQCB Basin Plan.<sup>281</sup> Therefore, Department staff recommend that the GSA clearly convey the numeric values of minimum thresholds for each constituent of concern at each representative monitoring well and present the information in a tabular format (i.e., the minimum thresholds, measurable objectives, and interim milestones for each constituent of concern at each representative monitoring sites) as required by the GSP Regulations<sup>282</sup> (see [Recommended Corrective Action 6c](#)).

The 2024 GSP establishes measurable objectives for degraded water quality the same as the minimum thresholds (i.e., MCLs and WQOs) for each constituent of concern.<sup>283</sup> Department staff believe these measurable objectives meet the GSP Regulations’ requirement of using the same matrix and monitoring sites as minimum thresholds<sup>284</sup> and are protective of drinking water and agricultural beneficial uses of groundwater by using the federal and state water quality standards. However, the GSP does not establish water quality interim milestones in five-year increments as required by the GSP Regulations.<sup>285</sup> Department staff recommend that the GSA establish interim milestones for water quality.

Overall, the GSP has established minimum thresholds and measurable objectives of degraded water quality that are consistent with federal and state water quality standards and protective of drinking water and agricultural uses of groundwater. The recommended corrective actions do not preclude Plan approval at this time. Department staff expect the

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<sup>278</sup> 2024 Fillmore GSP, Section 3.5.4.2.2, p. 142; Section 2.2.2.5.4, pp. 83-84; Section 3.5.1.2.1, pp. 127-128.

<sup>279</sup> 23 CCR § 354.26(b)(2).

<sup>280</sup> 2024 Fillmore GSP, Section 3.3.4, p. 120.

<sup>281</sup> 2024 Fillmore GSP, Section 2.2.2.5.2, pp. 74-79.

<sup>282</sup> 23 CCR § 354.36(a).

<sup>283</sup> 2024 Fillmore GSP, Section 3.4, p. 123.

<sup>284</sup> 23 CCR § 354.30(b).

<sup>285</sup> 23 CCR § 354.30(a).

GSA to address the recommended corrective actions by the next periodic evaluation of the Plan.

### 5.3.2.5 Land Subsidence

In addition to components identified in 23 CCR §§ 354.28 (a-b), the GSP Regulations require the minimum threshold for land subsidence to be the rate and extent of subsidence that substantially interferes with surface land uses and may lead to undesirable results.<sup>286</sup> Minimum thresholds for land subsidence shall be supported by identification of land uses and property interests that have been affected or are likely to be affected by land subsidence in the basin, including an explanation of how the Agency has determined and considered those uses and interests, and the Agency’s rationale for establishing minimum thresholds in light of those effects and maps and graphs showing the extent and rate of land subsidence in the basin that defines the minimum thresholds and measurable objectives.<sup>287</sup>

The 2024 GSP states that the Fillmore and Piru Subbasins have a low risk of subsidence based on previous studies and evaluation of recent InSAR datasets.<sup>288</sup> Numerical modeling suggests just over 0.1 foot of subsidence in the historical period of 1891-1993, and recent InSAR observations show insignificant changes in land elevations from 2015 to 2019.<sup>289</sup> The 2024 GSP explains that “the [Subbasin] is composed largely of coarse-grained aquifer material, making it resistant to inelastic land subsidence.”<sup>290</sup> Additionally, the GSA’s updated subsidence evaluation concluded that “there has not been any measurable net subsidence in the [Fillmore and Piru Subbasins] since [InSAR] measurements started in June 2015.”<sup>291</sup> The GSA monitors land subsidence in the entire Fillmore Subbasin with InSAR datasets provided by TRE Altimira and DWR.<sup>292</sup>

The 2024 GSP describes significant and unreasonable effects of land subsidence as “inelastic land subsidence that damages critical infrastructure (water distribution systems, roads, railways, bridges, etc.),”<sup>293</sup> and describes “loss of aquifer storage (i.e., compaction of pore spaces)” as another potential effect of inelastic land subsidence.<sup>294</sup> Although the 2024 GSP does not identify the infrastructures or areas of concern, the GSA’s updated subsidence evaluation examined InSAR data at 8 infrastructure locations (i.e., railways and bridges), and 8 additional locations with geographical or hydrogeological characteristics that may be susceptible to subsidence.<sup>295</sup>

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<sup>286</sup> 23 CCR § 354.28(c)(5).

<sup>287</sup> 23 CCR §§ 354.28(c)(5)(A-B).

<sup>288</sup> 2024 Fillmore GSP, Section 2.2.2.6, p. 84.

<sup>289</sup> 2024 Fillmore GSP, Section 2.2.2.6, p. 84.

<sup>290</sup> 2024 Fillmore GSP, Section 2.2.2.6, pp. 84-85.

<sup>291</sup> Technical Memorandum - Fillmore and Piru Basins Subsidence Update, DBS&A, Feb. 10, 2023, p. 6.

<sup>292</sup> 2024 Fillmore GSP, Section 3.5.1.7, p. 133.

<sup>293</sup> 2024 Fillmore GSP, Section 3.2.2, p. 114.

<sup>294</sup> 2024 Fillmore GSP, Section 3.2.3.2, p. 116.

<sup>295</sup> Technical Memorandum - Fillmore and Piru Basins Subsidence Update, DBS&A, Feb. 10, 2023, pp. 2-3.

However, the 2024 GSP has not described the quantitative criteria used to determine when and where the effects of land subsidence cause undesirable results in the Subbasin as required by the GSP Regulations.<sup>296</sup> It is unclear when InSAR data will be evaluated and whether minimum threshold exceedances at one or multiple locations will lead to the determination of undesirable results occurring in the Subbasin. Department staff recommend that the GSP include the quantitative criteria of undesirable results for land subsidence (see [Recommended Corrective Action 7a](#)).

The 2024 GSP establishes the minimum thresholds for inelastic land subsidence as “1 foot per year or 1 foot cumulative displacement over 5 years,”<sup>297</sup> and the measurable objectives as “within 0.1 ft/yr (i.e., the error of the InSAR method).”<sup>298</sup> However, the 2024 GSP does not explain the process, criteria or rationale used to justify the the minimum thresholds. More specifically, the 2024 GSP does not explain why avoiding “1 foot per year or 1 foot cumulative displacement over 5 years” would prevent the long-term, cumulative effects of subsidence on critical infrastructures in the Subbasin throughout the SGMA planning and implementation horizon. For example, the GSA has not presented analysis of the total amount of land subsidence that the Subbasin’s infrastructures can tolerate. Furthermore, Department staff note that it was the intention of the legislature that the implementation of SGMA would avoid or minimize subsidence<sup>299</sup> once basins achieve their sustainability goal. Because land subsidence has been historically insignificant in the Subbasin, Department staff recommend that the GSA establish conservative minimum thresholds (e.g., close to InSAR measurement error) to avoid future land subsidence (see [Recommended Corrective Action 7b](#)).

Overall, the 2024 GSP has presented sufficiently detailed information to demonstrate that land subsidence due to groundwater pumping has not been observed historically in the Subbasin. Because the Subbasin’s groundwater levels are relatively stable, Department staff do not anticipate land subsidence occurring soon. Department staff expect the GSA to address the recommended corrective actions related to the sustainable management criteria of land subsidence by the next periodic evaluation of the Plan.

#### *5.3.2.6 Depletions of Interconnected Surface Water*

SGMA defines undesirable results for the depletion of interconnected surface water as those that have significant and unreasonable adverse impacts on beneficial uses of surface water and are caused by groundwater conditions occurring throughout the basin.<sup>300</sup> The GSP Regulations require that a Plan identify the presence of interconnected surface water systems in the basin and estimate the quantity and timing of depletions of those systems.<sup>301</sup> The GSP Regulations further require that minimum thresholds be set based on the rate or volume of surface water depletions caused by groundwater use,

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<sup>296</sup> 23 CCR § 354.26(b)(2).

<sup>297</sup> 2024 Fillmore GSP, Section 3.3.5, p. 120.

<sup>298</sup> 2024 Fillmore GSP, Section 3.4, p. 123.

<sup>299</sup> Water Code § 10720.1(e).

<sup>300</sup> Water Code § 10721(x)(6).

<sup>301</sup> 23 CCR § 354.16(f).

supported by information including the location, quantity, and timing of depletions, that adversely impact beneficial uses of the surface water and may lead to undesirable results.<sup>302</sup>

In the Department's Incomplete Determination, the Department identified deficiencies related to the sustainable management criteria of depletions of interconnected surface water. The GSA revised this portion of the Plan and Department staff provide evaluation for this sustainability indicator in [Section 4.2](#) of this Staff Report. As presented above, Department staff concluded the GSAs had taken sufficient actions to correct the deficiencies and provided additional recommended corrective actions based on the changes the Agency has made to the sustainable management criteria for this sustainability indicator.

## 5.4 MONITORING NETWORK

The GSP Regulations describe the monitoring network that must be developed for each sustainability indicator including monitoring objectives, monitoring protocols, and data reporting requirements. Collecting monitoring data of a sufficient quality and quantity is necessary for the successful implementation of a groundwater sustainability plan. The GSP Regulations require a monitoring network of sufficient quality, frequency, and distribution to characterize groundwater and related surface water conditions in the basin and evaluate changing conditions that occur through implementation of the Plan.<sup>303</sup> Specifically, a monitoring network must be able to monitor impacts to beneficial uses and users,<sup>304</sup> monitor changes in groundwater conditions relative to measurable objectives and minimum thresholds,<sup>305</sup> capture seasonal low and high conditions,<sup>306</sup> include required information such as location and well construction and include maps and tables clearly showing the monitoring site type, location, and frequency.<sup>307</sup> Department staff encourage GSAs to collect monitoring data as specified in the GSP, follow SGMA data and reporting standards,<sup>308</sup> fill data gaps identified in the GSP prior to the first periodic evaluation,<sup>309</sup> update monitoring network information as needed, follow monitoring best management practices,<sup>310</sup> and submit all monitoring data to the Department's Monitoring Network Module immediately after collection including any additional groundwater monitoring data that is collected within the Plan area that is used for groundwater management decisions. Department staff note that if GSAs do not fill their identified data

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<sup>302</sup> 23 CCR § 354.28(c)(6).

<sup>303</sup> 23 CCR § 354.32.

<sup>304</sup> 23 CCR § 354.34(b)(2).

<sup>305</sup> 23 CCR § 354.34(b)(3).

<sup>306</sup> 23 CCR § 354.34(c)(1)(B).

<sup>307</sup> 23 CCR §§ 354.34(g-h).

<sup>308</sup> 23 CCR § 352.4 *et seq.*

<sup>309</sup> 23 CCR § 354.38(d).

<sup>310</sup> Department of Water Resources, 2016, [Best Management Practices and Guidance Documents](#).

gaps, the GSA's basin understanding may not represent the best available science for use to monitor basin conditions.

The 2024 GSP includes monitoring networks for chronic lowering of groundwater levels, reduction of groundwater storage, degraded water quality, land subsidence, and depletions of interconnected surface water sustainability indicators. The 2024 GSP proposes to use the chronic lowering of groundwater levels monitoring network as a proxy for the reduction of groundwater storage sustainability indicator. The 2024 GSP also proposes to use groundwater levels as a proxy to monitor the depletions of interconnected surface water sustainability indicator.

The Subbasin's existing groundwater level monitoring network includes 41 wells, with 14 wells monitored by VCWPD on a quarterly basis, and 31 wells monitored by United on monthly, bimonthly, semiannual, or event-based schedules.<sup>311</sup> These wells include 28 in the principal aquifer, 1 in the non-principal aquifer, 5 screened across multiple zones, and 7 with unknown construction; Department staff recommend the GSA continue to pursue methods to verify screen intervals for the 7 wells with unknown construction.<sup>312</sup> Additionally, three shallow monitoring wells at the Cienega Springs Project site and four nested wells in a single borehole at the East Grove site were installed in 2022.<sup>313</sup> The 2024 GSP selects a total of 18 wells as representative monitoring sites (RMS) for the chronic lowering of groundwater levels monitoring network.<sup>314</sup> The proposed density of groundwater level monitoring wells exceeds the range (0.2 – 10 wells per 100 square miles) recommended by the Department's Best Management Practices.<sup>315</sup>

The 2024 GSP proposes to use the chronic lowering of groundwater levels monitoring network as a proxy for the reduction of groundwater storage monitoring network which Department staff consider reasonable.<sup>316</sup>

The 2024 GSP states seawater intrusion is not applicable to this Subbasin; therefore, no monitoring network is proposed for this sustainability indicator.<sup>317</sup> Department staff agree the sustainability indicator for seawater intrusion is not present in this Subbasin and does not require a monitoring network at this time.

The 2024 GSP identifies 21 wells in the degraded water quality monitoring network, including 1 monitoring well and 6 production wells that are sampled by United in both spring and fall and 14 production wells that are sampled by VCWPD in the fall only.<sup>318</sup> The 2024 GSP identifies five primary COC that have historically been analyzed by the

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<sup>311</sup> 2024 Fillmore GSP, Section 3.5.1.1.1, p. 125; Figure 3.5-1, p. 224.

<sup>312</sup> 2024 Fillmore GSP, Table 3.5-1, p. 126.

<sup>313</sup> Fillmore Groundwater Subbasin Annual Report Water Year 2022, Sections 7.2 and 7.3, pp. 25-26.

<sup>314</sup> 2024 Fillmore GSP, Table 3.0-2, p. 110; Figure 3.5-4, p. 227.

<sup>315</sup> 2024 Fillmore GSP, Section 3.5.1.1.3, p. 126.

<sup>316</sup> 2024 Fillmore GSP, Section 3.3.2, p. 119; Section 3.2.4, p. 116; Section 3.4, p. 123; Appendix J – Sections 3.4.3 and 3.4.4, p. 1525.

<sup>317</sup> 2024 Fillmore GSP, Section 3.2.2, p. 114.

<sup>318</sup> 2024 Fillmore GSP, Section 3.5.1.2, pp. 127-128; Figure 2.1-9, p. 180; Figure 3.5-2, p. 225.



monitoring programs, including total dissolved solids (TDS), sulfate, chloride, nitrate, and boron.<sup>319</sup> The 2024 GSP states both United and VCWPD have traditionally reported on the trends of these analytes in annual or biennial reports, except for boron, for which only United has systematically sampled and reported.<sup>320</sup> As discussed in [Section 5.3.2.4](#), Department staff have noted areas of improvement in the monitoring frequency and provided a related recommended corrective action.

The 2024 GSP proposes to monitor land elevations related to the undesirable results of land subsidence through InSAR datasets provided by TRE Altimira and DWR.<sup>321</sup> Department staff note the InSAR datasets largely cover the entire Subbasin and consider it appropriate to use the datasets for subsidence monitoring.

The 2024 GSP proposes to use groundwater levels at a key well location as a proxy for depletions of interconnected surface water monitoring.<sup>322</sup> The 2024 GSP also describes additional monitoring sites currently in the Subbasin but these sites are not designated as part of the monitoring network for the depletions of interconnected surface water sustainability indicator. The additional monitoring sites in the Subbasin include a streamflow monitoring network of 8 manual stream gaging locations operated by United and 2 recording stream gages operated by USGS or VCWPD, along the Santa Clara River, Sepse Creek, and Pole Creek.<sup>323</sup> The 2024 GSP identifies and proposes to address data gaps in shallow groundwater levels near streams by adding shallow monitoring wells in GDE areas.<sup>324</sup> As discussed in [Section 4.2.2](#), Department staff recommend the GSA follow the Department's future guidance on methods and approaches to evaluate the location, quantity, and timing of depletions of interconnected surface water (see [Recommended Corrective Action 2](#)). Staff further recommend that the GSP establish a dedicated monitoring network for depletions of interconnected surface waters that includes surface water monitoring sites and shallow groundwater level monitoring sites.

Overall, the 2024 GSP's descriptions of monitoring networks for the sustainability indicators with the exception of depletions of interconnected surface water appear supported by the best available information and substantially comply with the requirements outlined in the GSP Regulations.

## 5.5 PROJECTS AND MANAGEMENT ACTIONS

The GSP Regulations require a description of the projects and management actions the submitting Agency has determined will achieve the sustainability goal for the basin,

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<sup>319</sup> 2024 Fillmore GSP, Section 2.2.2.5.1, pp. 71-73.

<sup>320</sup> 2024 Fillmore GSP, Section 2.2.2.5.1, p. 73.

<sup>321</sup> 2024 Fillmore GSP, Section 3.5.1.7, p. 133.

<sup>322</sup> 2024 Fillmore GSP, Section 3.3.6, p. 121.

<sup>323</sup> 2024 Fillmore GSP, Section 3.5.1.5, p. 131; Figure 2.1-10, p. 181.

<sup>324</sup> 2024 Fillmore GSP, Section 2.2.1.6, p. 67; Fillmore Groundwater Subbasin Annual Report Water Year 2022, Sections 7.2 and 7.3, pp. 25-26.

including projects and management actions to respond to changing conditions in the basin.<sup>325</sup> Each Plan's description of projects and management actions must include details such as: how projects and management actions in the GSP will achieve sustainability, the implementation process and expected benefits, and prioritization and criteria used to initiate projects and management actions.<sup>326</sup>

The 2024 GSP presents 9 projects and management actions to enhance the Subbasin's water resources and help reach desired future conditions.<sup>327</sup> If implemented, these projects and management actions will improve monitoring, address data gaps, provide supplemental water, plan for drought mitigation, and evaluate land subsidence.

The 2024 GSP indicates that some of the projects described are already being implemented; these projects are referred to as Projects 1 - 3.<sup>328</sup> Project 1 involves supporting the Cienega Springs Restoration Project by providing supplemental groundwater to GDE areas to mitigate GDE impacts of multi-year droughts.<sup>329</sup> Project 2 and Project 3 consist of the construction of monitoring wells in Cienega Springs or other areas of the Subbasin to improve monitoring and address data gaps in shallow groundwater levels.<sup>330</sup> The GSA's water year 2022 Annual Report shows that Project 2 and Project 3 have been completed, with the installation of three shallow monitoring wells at Cienega Springs and four nested monitoring wells in a single borehole at East Grove.<sup>331</sup>

According to the 2024 GSP, Projects 4 through 7 are not necessarily needed to maintain a sustainable condition in the Subbasin but could provide water resource benefits.<sup>332</sup> These four projects encompass purchasing supplemental water when available, enhancing the water quality monitoring network in the Pole Creek Fan vicinity, removing non-native vegetation species that are intensive water users, and evaluating infrastructure subsidence vulnerability.<sup>333</sup> The 2024 GSP states that additional details of these projects are continuing to be developed.<sup>334</sup> The GSA's water year 2023 Annual Report suggests that the GSA has decided not to conduct further evaluation of subsidence infrastructure vulnerability based on the results of an updated subsidence evaluation in 2023.<sup>335</sup> Department staff understand that many details will be developed when the GSA elects to implement the projects; but identifying details and a process would allow the GSA to be more prepared when implementation does occur. Department staff recommend the GSA include water budget benefits of supplemental water and/or

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<sup>325</sup> 23 CCR § 354.44(a).

<sup>326</sup> 23 CCR § 354.44(b) *et seq.*

<sup>327</sup> 2024 Fillmore GSP, Section 4, p. 147.

<sup>328</sup> 2024 Fillmore GSP, Section 5.2, pp. 156-157.

<sup>329</sup> 2024 Fillmore GSP, Section 4.1, pp. 147-149.

<sup>330</sup> 2024 Fillmore GSP, Sections 4.2-4.3, p. 149.

<sup>331</sup> Fillmore Groundwater Subbasin Annual Report Water Year 2022, Sections 7.2 and 7.3, pp. 25-26.

<sup>332</sup> 2024 Fillmore GSP, Section 5.2, p. 157.

<sup>333</sup> 2024 Fillmore GSP, Sections 4.4-4.7, pp. 150-152.

<sup>334</sup> 2024 Fillmore GSP, Section 5.2, p. 157.

<sup>335</sup> Fillmore Groundwater Subbasin Annual Report Water Year 2023, Section 7.2, p. 25.



non-native vegetation removal in future annual reports and periodic evaluations of the Plan if the GSA decides to implement the two projects.

The GSA added Projects 8 and 9 in the 2024 GSP.<sup>336</sup> Project 8 involves conducting drought vulnerability assessments for all wells within the Subbasin and developing a drought mitigation program to assist well owners if warranted by results of the assessment. The 2024 GSP does not specify the initiation date of Project 8, but the assessment is expected to span a two-year period to collect well construction information from well owners and revise the groundwater flow model. Project 9 consists of developing a study plan in 2024-2025 and conducting a three-year study that collects field data and integrates ongoing investigations by other organizations. The initial field work planned for 2024 includes a reconnaissance field visit, snorkel survey, potential environmental DNA sampling, and stream temperature logging. Department staff are encouraged by the GSA's schedule on Project 9 and recommend that the GSA initiate Project 8 in the early stage of Plan implementation to be better prepared for climate change and drought impacts.

Overall, the 2024 GSP provides a reasonable discussion of how the projects and management actions are related to the Subbasin's sustainability. The projects and management actions are developed to monitor basin conditions, maintain sustainability or mitigate potential undesirable results. The 2024 GSP describes projects and management actions in a manner that substantially complies with the GSP Regulations.

## **5.6 CONSIDERATION OF ADJACENT BASINS/SUBBASINS**

SGMA requires the Department to "...evaluate whether a groundwater sustainability plan adversely affects the ability of an adjacent basin to implement their groundwater sustainability plan or impedes achievement of sustainability goals in an adjacent basin."<sup>337</sup> Furthermore, the GSP Regulations state that minimum thresholds defined in each GSP be designed to avoid causing undesirable results in adjacent basins or affecting the ability of adjacent basins to achieve sustainability goals.<sup>338</sup>

The Fillmore Subbasin has two adjacent subbasins that are hydrologically connected to it through the Santa Clara River and subsurface flows – the upgradient Piru Subbasin and the downgradient Santa Paula Subbasin. The Santa Paula Subbasin is adjudicated and does not require a GSP under SGMA. The Piru Subbasin is a high priority basin that requires a GSP. The Fillmore and Piru Subbasins are managed by the same GSA and have sustainable management criteria established using similar methods and in coordination across the subbasins. Though the 2024 GSP does not explicitly discuss how the Fillmore Subbasin's Plan may impact the adjacent subbasins, based on information available, Department staff have no reason to believe that the Fillmore Subbasin's GSP

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<sup>336</sup> 2024 Fillmore GSP, Sections 4.8-4.9, pp. 152-155.

<sup>337</sup> Water Code § 10733(c).

<sup>338</sup> 23 CCR § 354.28(b)(3).

will adversely affect the Piru Subbasin’s ability to implement its GSP or reach its sustainability goals or negatively impact the adjacent subbasins’ sustainability.

## **5.7 CONSIDERATION OF CLIMATE CHANGE AND FUTURE CONDITIONS**

The GSP Regulations require a GSA to consider future conditions and project how future water use may change due to multiple factors including climate change.<sup>339</sup>

Since the GSP was adopted and submitted, climate change conditions have advanced faster and more dramatically. It is anticipated that the hotter, drier conditions will result in a loss of 10% of California’s water supply. As California adapts to a hotter, drier climate, GSAs should be preparing for these changing conditions as they work to sustainably manage groundwater within their jurisdictional areas. Specifically, the Department encourages GSAs to:

1. Explore how their proposed groundwater level thresholds have been established in consideration of groundwater level conditions in the basin based on current and future drought conditions.
2. Explore how groundwater level data from the existing monitoring network will be used to make progress towards sustainable management of the basin given increasing aridification and effects of climate change, such as prolonged drought.
3. Take into consideration changes to surface water reliability and that impact on groundwater conditions.
4. Evaluate updated watershed studies that may modify assumed frequency and magnitude of recharge projects, if applicable, and
5. Continually coordinate with the appropriate groundwater users, including but not limited to domestic well owners and state small water systems, and the appropriate overlying county jurisdictions developing drought plans and establishing local drought task forces to evaluate how their Plan’s groundwater management strategy aligns with drought planning, response, and mitigation efforts within the basin.

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<sup>339</sup> 23 CCR § 354.18.

## 6 STAFF RECOMMENDATION

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Department staff believe sufficient action has been taken by the GSAs to address the deficiencies identified. Department staff recommend **APPROVAL** of the Plan with the required and recommended corrective actions listed below. The Plan conforms with Water Code Sections 10727.2 and 10727.4 of SGMA and substantially complies with the GSP Regulations. Implementation of the Plan will likely achieve the sustainability goal for the Fillmore Subbasin. The GSA has identified several areas for improvement of its Plan and Department staff concur that those items are important and should be addressed as soon as possible. Department staff have also identified additional recommended corrective actions that should be considered by the GSA for the first periodic evaluation of its GSP. Addressing these recommended corrective actions will be important to demonstrate that implementation of the Plan is likely to achieve the sustainability goal.

The recommended corrective actions include:

### RECOMMENDED CORRECTIVE ACTION 1

Department staff recommend the following as it relates to chronic lowering of groundwater levels:

- a) Revise the quantitative description of undesirable results<sup>340</sup> for wells going dry to be based on seasonal low groundwater levels to ensure potential impacts to beneficial uses and users are considered.
- b) Revise the quantitative description of undesirable results<sup>341</sup> for vegetation die-off to be specific about the location (i.e., GDE areas) and number of the representative monitoring sites with minimum threshold exceedances that would constitute an undesirable result for that GDE area.
- c) Revise the GSP to include a discussion of the relationship between the minimum thresholds for chronic lowering of groundwater levels and the other sustainability indicators.<sup>342</sup>

### RECOMMENDED CORRECTIVE ACTION 2

Department staff understand that estimating the location, quantity, and timing of stream depletion due to ongoing, Subbasin-wide pumping is a complex task and that developing suitable tools may take additional time; however, it is critical for the Department's ongoing and future evaluations of whether GSP implementation is on track to achieve sustainable groundwater management. The Department plans to provide guidance on methods and approaches to evaluate the rate, timing, and volume of depletions of interconnected

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<sup>340</sup> 23 CCR § 354.26(b)(2).

<sup>341</sup> 23 CCR § 354.26(b)(2).

<sup>342</sup> 23 CCR § 354.28(b)(2).

surface water and support for establishing specific sustainable management criteria in the near future. This guidance is intended to assist GSAs to sustainably manage depletions of interconnected surface water.

In addition, the GSA should work to address the following items by the first periodic evaluation of the GSP:

- a) Describe the undesirable results of depletions of interconnected surface water that the Agency aims to avoid.
- b) Consider utilizing the interconnected surface water guidance, as appropriate, when issued by the Department to establish quantifiable minimum thresholds, measurable objectives, and management actions.
- c) Continue to fill data gaps, collect additional monitoring data, and implement the current strategy to manage depletions of interconnected surface water and define segments of interconnectivity and timing.
- d) Prioritize collaborating and coordinating with local, state, and federal regulatory agencies as well as interested parties to better understand the full suite of beneficial uses and users that may be impacted by pumping induced surface water depletion within the GSA's jurisdictional area.

### **RECOMMENDED CORRECTIVE ACTION 3**

Develop and disclose the estimated cost of implementing the Plan, including projects and management actions deemed likely to be required by GSA, along with a general description of how the GSA plans to meet those costs.<sup>343</sup>

### **RECOMMENDED CORRECTIVE ACTION 4**

Provide further justification for the exclusion of Aquifer Zone C from the principal aquifer given the uncertainty regarding the quantity of groundwater extracted from this zone. If additional justification is not possible, identify the pumping originating from Aquifer Zone C as a data gap in the hydrogeologic conceptual model, develop a plan and schedule to address the data gap, and include Aquifer Zone C as part of the principal aquifer until such a time that its removal can be justified with more certainty.<sup>344</sup>

### **RECOMMENDED CORRECTIVE ACTION 5**

Define the sustainability goal<sup>345</sup> and explain how the sustainability goal is likely to be achieved within 20 years of Plan implementation and is likely to be maintained through the planning and implementation horizon by the next periodic evaluation of the Plan.

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<sup>343</sup> 23 CCR § 354.6(e).

<sup>344</sup> 23 CCR § 354.14(b)(4).

<sup>345</sup> 23 CCR § 354.24.

## RECOMMENDED CORRECTIVE ACTION 6

Department staff recommend the following as it relates to degraded water quality:

- a) Clarify the constituents of concern that are included in the GSP's current sustainable management criteria for degraded water quality.<sup>346</sup>
- b) Provide quantitative descriptions of what the GSA considers as significant and unreasonable effects of "water quality degradation beyond historical conditions" for each constituent of concern in the Subbasin, including quantitative descriptions of historical conditions (e.g., number of representative monitoring sites with exceedances of water quality standards). Describe the criteria used to define when and where the effects of degraded water quality cause undesirable results of the constituent of concern in the Subbasin.<sup>347</sup> The criteria shall be based on quantitative descriptions of the combination of minimum threshold exceedances that cause significant and unreasonable effects in the Subbasin. The definition of the undesirable result quantitative criteria should not be limited to minimum threshold exceedances directly caused by GSA activity.
- c) Identify the method (e.g., MCL, WQO), numeric value and unit, and sampling frequency for each constituent of concern at each representative monitoring site in descriptions of minimum thresholds for degraded water quality.<sup>348</sup> Present in a tabular format the minimum threshold, measurable objective, and interim milestone for each constituent of concern at each representative monitoring site.

## RECOMMENDED CORRECTIVE ACTION 7

Department staff recommend the following as it relates to land subsidence:

- a) Describe the criteria<sup>349</sup> used to define when and where the effects of the groundwater conditions cause undesirable results for land subsidence. More specifically, describe how InSAR datasets will be used to determine the occurrence of undesirable results of land subsidence.
- b) Revise the minimum thresholds to minimize or avoid future land subsidence in the Subbasin.<sup>350</sup>

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<sup>346</sup> 23 CCR § 354.26 *et seq.*

<sup>347</sup> 23 CCR § 354.26(b)(2).

<sup>348</sup> 23 CCR § 354.36(a).

<sup>349</sup> 23 CCR § 354.26(b)(2).

<sup>350</sup> Water Code § 10720.1(e).