APPENDIX 3.K. GROUNDWATER LEVEL INTERIM MILESTONES WELL IMPACT ASSESSMENT

Prepared as part of the

Groundwater Sustainability Plan
Chowchilla Subbasin

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TECHNICAL MEMORANDUM

DATE: July 18, 2024 Project No. 23-1-048

TO: Chowchilla Subbasin GSAs

FROM: LSCE and DE

SUBJECT: Chowchilla Subbasin Groundwater Level Interim Milestones (IM) Well Impact Assessment

Groundwater Level Interim Milestones (IM) Well Impact Assessment

Groundwater level interim milestones (IMs) were evaluated to determine the impact to wells within Chowchilla Subbasin during the GSP implementation period. This evaluation considered agricultural, domestic, and public supply wells, and primarily focused on Lower Aquifer IMs.

Three water level surfaces were contoured for the 2025, 2030, and 2035 groundwater level IMs, respectively, at lower aquifer RMS wells. Well construction, where available, was compared to the IM surfaces to determine whether a well was likely to go dry when water levels were at the interim milestone level. A well was considered likely to go dry if the bottom of perforations (or total depth where perforation data was not available) was within 50-feet of the IM surface for agricultural and public supply wells or 10-feet of the IM surface for domestic wells. Wells with insufficient construction data were excluded from this analysis. Other reasons for wells to be excluded from the analysis included: wells being constructed prior to 1970, wells indicated to have been destroyed or abandoned, and wells indicated as likely to have gone dry prior to GSP implementation (i.e., bottom of perforations (or total depth) was within 50-feet for agricultural and public supply wells or 10-feet for domestic wells of the maximum simulated depth to water prior to water year 2020).

Agricultural wells in the Subbasin were evaluated using the DWR OSWCR dataset. A total of 714 WCRs for new wells since 1970 were available in Chowchilla Subbasin. A total of 115 wells were excluded from the MT evaluation. 86 wells were excluded from analysis due to having likely gone dry prior to GSP implementation and 29 wells were excluded from the analysis due to insufficient construction data. After exclusion of these wells, a total of 599 agricultural wells were available for the IM impact analysis. 49 wells (8% of wells included in analysis) were determined to be likely to go dry at the 2025 IM and 550 wells were likely not to be impacted at the 2025 IM. Wells that were determined to be likely to go dry at the 2025 IM were then removed from further analysis. This left 550 wells for comparison to the 2030 and 2035 IMs. No wells (0% of wells included in analysis) were determined to be likely to go dry at the 2030 IM and 550 wells were likely not to be impacted at the 2030 IM. No wells (0% of wells included in analysis) were determined to be likely to go dry at the 2035 IM and 550 wells were likely not to be impacted at the 2035 IM.

Domestic wells in the Subbasin were evaluated using the DWR OSWCR dataset. A total of 464 WCRs for new wells since 1970 were available in Chowchilla Subbasin. A total of 190 wells were excluded from the MT evaluation. 134 wells were excluded from analysis due to having likely gone dry prior to GSP implementation and 56 wells were excluded from the analysis due to insufficient construction data. After exclusion of these wells, a total of 274 domestic wells were available for the IM impact analysis. 49 wells (18% of wells included in analysis) were determined to be likely to go dry at the 2025 IM and 225 wells were likely not to be impacted at the 2025 IM. Wells that were determined to be likely to go dry at the 2025 IM were then removed from further analysis. This left 225 wells for comparison to the 2030 and 2035 IMs. No wells (0% of wells included in analysis) were determined to be likely to go dry at the 2030 IM and 225 wells were likely not to be impacted at the 2030 IM. No wells (0% of wells included in analysis) were determined to be likely to go dry at the 2035 IM and 225 wells were likely not to be impacted at the 2035 IM.

Public supply wells in the Subbasin were evaluated using the comprehensive dataset compiled for the Revised GSP (described in **Section 2.1.1.2** and **Table 2-4** of the Revised GSP). A total of 39 public supply wells were available in Chowchilla Subbasin. A total of 27 wells were excluded from the MT evaluation. 4 wells were excluded from analysis due to having likely gone dry prior to GSP implementation and 23 wells were excluded from the analysis due to insufficient construction data. After exclusion of these wells, a total of 12 public supply wells were available for the IM impact analysis. Only 1 well[1] (8% of wells included in analysis) was determined to be likely to go dry at the 2025 IM and 11 wells were likely not to be impacted at the 2025 IM. Wells that were determined to be likely to go dry at the 2025 IM were then removed from further analysis. This left 11 wells for comparison to the 2030 and 2035 IMs. No wells (0% of wells included in analysis) were determined to be likely to go dry at the 2030 IM and 11 wells were likely not to be impacted at the 2030 IM. No wells (0% of wells included in analysis) were determined to be likely to go dry at the 2035 IM and 11 wells were likely not to be impacted at the 2035 IM.

Results of the IM well impact analysis is summarized in **Table 1**.

[1] The public supply well that was determined to go dry at the 2025 IM is the City of Chowchilla Well 11.

Table 1. Interim Milestone Well Impact Analysis			
	Agriculture/ Irrigation[1]	Domestic[2]	Municipal/ Public Supply[1,3]
Total Count of Wells:	714	464	38
Count of Wells with Insufficient Depth Data:	29	56	23
Count of Wells Likely Dry or Replaced Prior to 2020:	86	134	4
Count of Wells for 2025 IM impact analysis:	599	274	12
Count of Wells that Would Go Dry at the 2025 IM:	49	49	1
Percent of Wells Impacted at 2025 IM:	8%	18%	8%
Count of Wells for 2030 IM impact analysis:	550	225	11
Count of Wells that Would Go Dry at the 2030 IM:	0	0	0
Percent of Wells Impacted at 2030 IM:	0%	0%	0%
Count of Wells for 2030 IM impact analysis:	550	225	11
Count of Wells that Would Go Dry at the 2035 IM:	0	0	0
Percent of Wells Impacted at 2035 IM:	0%	0%	0%
Count of Wells Not Impacted:	550	225	11
Percent of Wells Not Impacted at IMs:	92%	82%	92%

NOTE:
1. Bottom perforation is considered to be less than DTW/MT if perforation is within 50-feet of water level.
2. Bottom perforation is considered to be less than DTW/MT if perforation is within 10-feet of water level.
3. Municipal/Public Supply analysis utilizes comprehensive PWS dataset, includes both active and inactive wells.

Comparison to State Water Resources Control Board (SWRCB) Staff Interim Milestone Analysis

As part of their review of the May 2023 Chowchilla Revised GSP, the State Water Resources Control Board (SWRCB) Staff conducted their own IM well impact analysis (details shared with the Chowchilla Subbasin on July 11). A total of 546 domestic wells were included in the SWRCB analysis and 227 were found to go dry at the 2025 IM, 230 to go dry at the 2030 IM, and 90 to go dry at the 2035 IM[2]. A total of 19 public supply wells were included in the SWRCB analysis and 2 were found to go dry at the 2025 IM, 2

[2] While not explicitly stated in communications from the SWRCB Staff, it appears that all wells were compared to each IM interval and that wells that were found to go dry at a previous IM interval were not excluded from further analysis. This likely resulted in a double counting of wells going dry at subsequent IM intervals.

to go dry at the 2030 IM, and 1 to go dry at the 2035 IM[3]. Agricultural wells were not included in the SWRCB analysis.

However, there are several key differences between these two analyses that contribute to the variation in results. The main assumption that is believed to cause the biggest discrepancy between the results of each analysis is that the SWRCB staff only excluded wells that went dry before 2015, while the Chowchilla Subbasin analysis excluded wells that went dry prior to 2020 (when SGMA was implemented). This likely results in a large number of wells that went dry between 2015 and 2020 being included in the SWRCB analysis. Additionally, the SWRCB staff used both the DWR OSWCR database and USGS well data, which likely introduced duplicate wells into the analysis. The SWRCB staff did not filter well records based on year drilled, while the Chowchilla Subbasin GSAs analysis only considered wells drilled after 1970 (older wells were excluded under the assumption that they were likely either abandoned or subsequently modified). Lastly, the SWRCB did not filter wells based on status, while the Chowchilla Subbasin GSAs analysis only considered new well constructions.

[3] See footnote 2.