

Deficiency 1 – GSPs do not set their Sustainable Management Criteria (SMCs) for chronic lowering of groundwater levels in a manner consistent with the requirements of SGMA and the GSP regulations	
DWR Recommended Corrective Action	Planned GSP Changes
<p>Revise GSPs to define SMC for chronic lower of groundwater by utilizing information specific to the subbasin.</p> <ul style="list-style-type: none"> Characterize undesirable results by describing the significant and unreasonable effects that could be, or are being caused by, lowering groundwater levels that GSAs are seeing to avoid. Define the criteria used to determine when and where the effects of the groundwater conditions will cause undesirable results and describe the potential effects on the beneficial uses and users of groundwater that may occur or are occurring from undesirable results, analysis could include both physical and economic impacts. 	<ul style="list-style-type: none"> Added discussion of primary concerns related to Undesirable Results for groundwater levels are: <ul style="list-style-type: none"> Groundwater levels declining in dry periods to a point that they will not likely recover during normal/wet periods A significant and unreasonable number of shallow domestic wells going dry Reiterate the significant aquifer we have in the Kings, several hundred feet below current levels with water of suitable quality Mention the impracticality and catastrophic economic impact of trying to maintain water levels at current or recent levels, so have set MO and MT levels lower recognizing that implementation to reach sustainability will take several years and basin plans to reach by 2040 as required Added language acknowledging the impact on shallow wells and included an estimate for each GSA of the potential number of wells constructed after 1989 that may go dry at or above planned minimum threshold levels Added Shallow Well Mitigation Program as a project in Chapter 6 – Projects and Management Actions of each GSA <ul style="list-style-type: none"> Description in Chapter 6 includes detailed description of possible program and addresses all regulation requirements for defining a project Program will be further studied and defined by 2024 Development of local funding anticipated to take 12-24 months following final program definition as it will likely require Prop 218 election to assess lands Program will likely be implemented on GSA level rather than basin level as there is wide range in number of potentially impacted wells

Deficiency 1 (cont.) – GSPs do not set their Sustainable Management Criteria (SMCs) for chronic lowering of groundwater levels in a manner consistent with the requirements of SGMA and the GSP regulations	
DWR Recommended Corrective Action	Planned GSP Changes
<p>Revise Minimum Thresholds (MTs) to quantify groundwater conditions which represent a point in the subbasin that, if exceeded, may cause undesirable results. GSPs description of MTs should include:</p> <ul style="list-style-type: none"> Information and criteria relied upon to establish and justify the minimum thresholds supported by the basin setting and qualified by uncertainty in the understanding of the basin setting Relationship between these minimum thresholds and each sustainability indicator to show how these basin conditions would avoid undesirable results for each sustainability indicator A technical description explaining how operating the subbasin to the proposed minimum thresholds would not be expected to cause undesirable results in adjacent basins or affect the ability of adjacent basins to achieve their sustainability goals How the minimum thresholds may affect the interests of beneficial uses and users of groundwater or land uses and property interests. 	<ul style="list-style-type: none"> MTs set below MOs based on 5-year drought using 2012-2016 data MOs based on the historic 1997-2012 decline in each Indicator Well and the planned incremental mitigation/correction as projects/programs implemented between now and 2040. <ul style="list-style-type: none"> MO levels are below current water levels Undesirable Result (UR) set at 15% of Indicator wells exceeding MTs <div data-bbox="1029 535 1764 998" data-label="Figure"> <p>The graph, titled "Groundwater Level - Sustainability Management", plots "Depth to Groundwater (ft)" on the y-axis against years from 1990 to 2050 on the x-axis. It shows a steady decline in groundwater levels from 1997 to 2012, represented by blue dots and an orange trend line. At 2020, a vertical line marks the start of "Operational Flexibility (5yr Drought)". From 2020 to 2050, the graph shows a "Measurable Objective" (dotted orange line) and a "Minimum Threshold" (dashed red line). A bracket labeled "Incremental Mitigation (10,20,30,40%)" indicates the range between the MO and the MT. A green line at the bottom represents the "Base of Unconfined Aquifer". A text box notes: "Undesirable Result is when 15% of the Indicator Wells have exceeded their Minimum Threshold".</p> </div> <ul style="list-style-type: none"> Adding language to focus on managing basin to MOs, and identifying actions basin may need to take before MTs are reached Language previously included regarding relationship to other SMCs, adjacent basins and affects on beneficial uses and users updated to reflect changes in MT definitions.
<p>Addressing these issues may require changes to projects and management actions.</p>	<ul style="list-style-type: none"> Shallow Well Mitigation Program added as a Project No other changes planned

Summary of Kings Basin GSP Changes for Deficiencies and Required Corrective Actions

Rev 5/16/22

Deficiency 2 – GSPS do not set Minimum Thresholds (MTs) and Measurable Objectives (MOs) for land subsidence in a manner consistent with their undesirable result definition and the requirements of SGMA and GSP regulations	
Deficiency and DWR Recommended Corrective Action	GSP Revisions
<p>SKGSA should define an undesirable result for land subsidence and either establish SMCs, with consideration given to what other corrective actions, or provide additional information and data to adequately demonstrate that an undesirable result related to land subsidence is not present and is not likely to occur.</p>	<ul style="list-style-type: none"> The SKGSA GSP will be updated with similar approach to other GSAs
<p>GSAs should develop a coordinated basin-wide approach to identify the land uses and property interests that have been affected or are likely to be affected by land subsidence, including an explanation of how the GSAs have determined and considered those uses and interests. Additionally, the GSAs should identify the amount of subsidence the identified land uses and property interests can tolerate throughout GSP implementation. GSAs should revise their MTs for land subsidence to reflect the intent of SGMA and incorporate the information gained following the identification of land uses and property interests and the amount of subsidence that may be tolerated.</p>	<ul style="list-style-type: none"> Primary concern is loss of capacity in gravity flow water conveyance systems Confined aquifer groundwater pumping and potentiometric surface maps are data gap for the basin. GSAs with significant confined aquifer pumping will develop a project to fill this data gap. Land uses and properties impacted identified as: <ul style="list-style-type: none"> Lands adjacent to channels or canals that may be flooded if sections of channel have subsided Downstream users that can no longer receive surface water for irrigation or recharge Transportation infrastructure that would need to be modified to accommodate raising of channel banks that have subsided Cumulative MT set at 3 feet (based on typical channel freeboard) within a 36 sq mi area, with recognition that the MT may be exceeded in some areas during the planning period (2020-2040) Incremental milestones set at 1 foot per 5 years, but acknowledge this is dependent on hydrologic conditions
<p>GSAs should revise the MOs for land subsidence to reflect the intent of SGMA that land subsidence be avoided or minimized once sustainability is achieved.</p>	<ul style="list-style-type: none"> MO set to be minimized to the extent within GSAs control, but recognize this not likely until groundwater levels have been stabilized within Kings subbasin as well as adjacent subbasins MO set at 1in/yr based on error with InSAR data
<p>GSAs should provide an explanation for how the implementation of projects and management actions is</p> <ul style="list-style-type: none"> Consistent with the reestablished MTs and MOs Achieving the long-term avoidance or minimization of land subsidence Ensuring the subbasin will not exceed the cumulative amount of land subsidence the identified land uses, and property interests can tolerate 	<ul style="list-style-type: none"> If MT is exceeded, GSA will: <ul style="list-style-type: none"> Study if channel capacity has been lost and impacted beneficial users/uses Raise canal banks if practical If banks cannot be raised and other infrastructure mitigated, GSA will implement management actions in Ch. 6

<p>Deficiency 3 – GSPs do not consistently identify interconnected surface water systems, or provide the location, quantity, and timing of depletions of those systems due to groundwater use. The GSPs do not define SMCs for the depletions of interconnected surface water in the manner required by the GSP regulations.</p>	
DWR Recommended Corrective Action	Planned GSP Changes
<p>DWR staff recommend that the GSAs should identify depletion of interconnected surface water as a data gap and how it will be addressed as soon as possible. The plan to address the data gap should address how the GSAs will:</p> <ul style="list-style-type: none"> • Acquire or develop data and tools to identify the location, quantify and timing of the depletion of interconnected surface water due to groundwater use • Develop SMCs based on the rate or volume of surface water depletions caused by groundwater use that has adverse impacts on beneficial uses and users of the surface water 	<ul style="list-style-type: none"> • Revising much of the language to list as a data gap and not set SMCs. • Including plan and timeline to gather missing information and determine extent of interconnection, as well as estimate of possible groundwater pumping • Will leave in background on San Joaquin River Restoration program and Kings River Fisheries management program as both are involved in better understanding surface water uses/losses along those rivers in order to maintain required flows.

Deficiency 4 – GSPs do not provide adequate information to support the selection of degraded water quality SMCs	
DWR Recommended Corrective Action	Planned GSP Changes
<p>CKGSA should discuss/describe data water quality data available within the GSA and set SMCs similar to other GSAs in the basin.</p>	<ul style="list-style-type: none"> • CKGSA being revised to be similar to other GSPs and primarily utilize existing public water system wells as other GSAs did
<p>Each GSA should describe how the statistically significant increase of concentration [for wells with constituents above the MCL] is quantified and provide the numerical values established for the SMCs for degraded water quality at each well in their network. GSAs should discuss the specific method used to establish the SMC for each well.</p>	<ul style="list-style-type: none"> • Significant increase language removed and replaced with, “For wells that have had recent historic concentrations of Chemicals of Concern above MCLs, the degradation of water quality to a level in excess of 20% greater than the historically high concentration of the Chemical of Concern in the well.” • Also adding a listing of any wells in the network that have exceedances of MCL for any Chemicals of Concern, and then identifying the MCL based on 20% greater than historic high level. • MTs to remain as MCLs where levels have not exceeded MCL • Undesirable Result to remain 15% of wells in WQ network exceeding MT
<p>Describe how the GSA will evaluate whether or not the GSA actions are attributing to the degradation of groundwater quality and how the monitoring network and frequency contribute to understanding the potential causes of groundwater quality degradation.</p>	<ul style="list-style-type: none"> • Water Quality data will be collected annually and compared against MT levels. • If a MT exceedance occurs, a site-specific investigation will be conducted to try to determine if GSA actions have contributed to groundwater quality degradation. The investigation may include, but will not be limited to the following: <ul style="list-style-type: none"> • Verification of groundwater gradient and flow direction in the area • Changes in the historic cropping record in the area compared against historic groundwater quality data • Groundwater quality compared against groundwater level changes in the area • Available groundwater pumping records for wells in the area will be reviewed and compared against groundwater quality trends • Available groundwater recharge records for recharge sites in the area will be reviewed and compared against groundwater quality data • A Phase I Environmental Site Assessment (Phase I ESA) could potentially be performed to assess the possibility of degradation resulting from third party activities • Should investigations indicate GSA actions have contributed to the change in groundwater quality conditions, then management actions described in Chapter 6 will be implemented in the area where the water quality has changed.