



Technical Memorandum

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 PROJECT: 232-1-085120

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SUBJECT: **YOLO COUNTY TEMPORARY WELL PERMITTING PROCEDURES TO ADDRESS EXECUTIVE ORDER ~~N-7-22-N-3-23~~ SECTION 9**

1. INTRODUCTION

This Technical Memorandum (TM) was prepared for Yolo County Community Services Department, Environmental Health Division by Luhdorff and Scalmanini, Consulting Engineers to support the County's development and implementation of temporary, modified water well permitting procedures to comply with the Governor's Executive Order (~~EO~~ N-7-22-~~EO~~) issued on March 28, 2022 and replaced by EO N-3-23 on February 13, 2023¹. Included in Section ~~9-4~~ of the ~~EO N-3-23~~ are requirements that prior to issuing a new well permit, all well permit applications (with limited exceptions) must be evaluated and a determination must be made that (A) the proposed well is consistent with any applicable Groundwater Sustainability Plan (GSP) and (B) the well will not likely interfere with the operation and function of existing nearby wells or likely cause land subsidence that impacts nearby infrastructure.

- A. Section ~~49~~A of the EO specifies that well permit applications in medium or high priority groundwater basins or subbasins subject to the Sustainable Groundwater Management Act (SGMA) must be reviewed by the local Groundwater Sustainability Agency (GSA) to ensure it is not inconsistent with the GSP for the subbasin or basin where the well is planned.
- B. Section ~~49~~B of the EO states that a permit cannot be issued without first determining that the extraction of groundwater from the proposed well is (1) not likely to interfere with the production and functioning of existing nearby wells and (2) not likely to cause subsidence that would adversely impact or damage nearby infrastructure.

¹ EO N-7-22 was replaced with EO N-3-23 on February 13, 2023, although all key elements of Section 9 of the original EO (N-7-22) were unchanged and are still in effect under Section 4 in the new EO (N-3-23).

Yolo County is the well permitting entity for all areas of the County.

~~B.~~ This TM presents proposed modifications to the County's well permitting procedure to specifically address the County's responsibilities, as the well permitting entity, under Section 49B in the EO. ~~The EO N-3-23 is included as an attachment to this TM. All modified well permitting procedures outlined in this TM are in addition to existing County procedures and regulations relating to wells and groundwater extraction permit application review and issuance. Yolo County's well permitting review process conducted in compliance with EO Section 4B is separate from, but coordinated with, the applicable GSA's EO Section 4A well permitting review process.~~

2. BACKGROUND

Yolo County overlaps three groundwater subbasins of the Sacramento Valley Groundwater Basin with additional areas outside of any groundwater basin. Groundwater basins and subbasins in California have been delineated by the Department of Water Resources (DWR) to coincide with the extent of unconsolidated geologic materials of alluvial origin. The groundwater subbasins overlapping the County include the Yolo Subbasin with small areas within the Solano and Colusa Subbasins. The Yolo and Colusa Subbasins are designated as high priority subbasins by DWR and the Solano Subbasin is a medium priority subbasin. The area of the County within the Yolo, Solano, and Colusa Subbasins are referred to in this [Technical Memorandum TM](#) as the "Valley Floor areas" of the County. The County also includes areas in the western part of the County that are outside of any designated groundwater basin or subbasin. The areas outside of the Valley Floor areas of the County are referred to as "Upland areas" of the County in this document. **Figure 1** presents the groundwater subbasin boundaries in relation to the County and highlights the areas referred to as Valley Floor areas and Upland areas in this document.

The unconsolidated sediments that occur within the Valley Floor areas of the County have potential to store and yield large quantities of groundwater. The geologic materials in the Valley Floor areas consist primarily of unconsolidated alluvial sediments ranging from fine-grained clay to coarser-grained sands and gravels. Because these materials are unconsolidated, they also have potential to compact when the groundwater pore pressure is reduced (such as occurs when groundwater levels decline) within these materials. Most historical land subsidence and potential for future land subsidence in the County are attributable to this mechanism of compaction of unconsolidated sediments within the Valley Floor areas. The consolidated geologic materials comprising the Upland areas of the County have very little or no potential for compaction and any associated land subsidence.

The Yolo, Solano, and Colusa Subbasins have developed GSPs that address undesirable results related to sustainability indicators consisting of groundwater levels, groundwater storage, groundwater quality, land subsidence, and interconnected surface water. The GSAs within each of the three subbasins in the County are responsible for implementing the GSP covering their jurisdiction and managing groundwater in a manner that is consistent with the GSP. The GSPs have defined sustainable management criteria (SMC) including minimum thresholds, measurable objectives, and undesirable results for all applicable sustainability indicators. The GSAs in the three subbasins have the authority and responsibility to ensure groundwater management is sustainable in the subbasins and undesirable results are avoided including through implementation of management actions and projects, as needed. Management actions available for GSAs to implement could include demand management efforts such as limitations on

groundwater pumping or incentives for reducing pumping and can also include augmentation of water supplies through enhanced recharge or other projects.

[The Yolo Subbasin Groundwater Agency \(YSGA\), the GSA responsible for implementing the Yolo Subbasin GSP, has identified "Focus Areas" based on physical characteristics and conditions, where additional review criteria are required by the YSGA to ensure wells are not inconsistent with the GSP. Other GSAs within the County also have their own well permitting review processes and requirements. Applicants should consult the appropriate GSA to ensure their application addresses all applicable GSA well permitting requirements.](#)

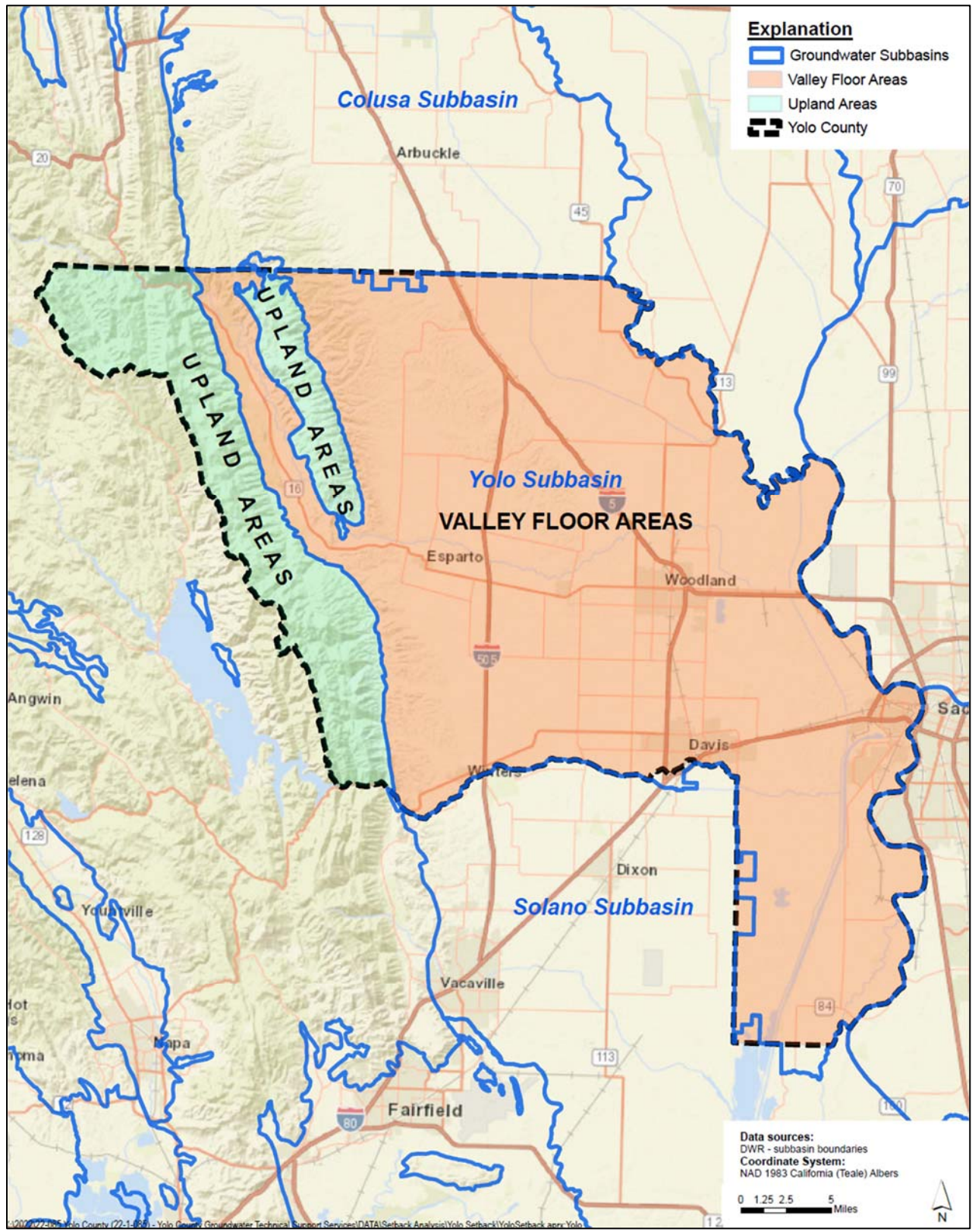


Figure 1. Map of Groundwater Subbasins Overlapping Yolo County

3. OVERVIEW OF PROCESS FOR REVIEWING WELL PERMIT APPLICATIONS FOR COMPLIANCE WITH EO N-73-232

Well permit applications will first be evaluated to determine if the proposed well is exempt from the additional EO well permitting process. Wells producing less than two acre-feet per year for individual domestic water use and public supply system wells are exempt from the EO. Monitoring wells ~~or~~ and other wells not intended for extraction of groundwater, are also exempt from the EO well permitting procedures. As indicated in the EO, well permit applications for the construction or alteration of other types of wells with the purpose of extracting groundwater (production wells) for non-domestic uses, including but not limited to agricultural (irrigation)- and industrial-wells uses, are subject to the EO. ~~In accordance with Section 9A of the EO, all new well permit applications for non-exempt wells located within the Valley Floor areas of the County will be provided to the respective GSA to complete a determination regarding whether the proposed well permit is consistent with the GSP. The County will review all non-exempt well permit applications for compliance with Section 9B.~~

Although the focus of this TM is the County's EO well permit review process, the following provides a summary of the EO Section 4A written verification process required of GSAs. In accordance with Section ~~49~~ 49A of the EO, all new well permit applications for non-exempt wells located within the Valley Floor areas of the County will be provided to the respective GSA to complete the analysis required by EO Section 4A, i.e., to determine a determination regarding whether the proposed well permit is consistent with the applicable GSP- and would not decrease the likelihood of achieving a sustainability goal for the basin covered by such a plan. Applicants should review the well permitting procedures for the GSA within which they are applying for a well permit. For wells in the Yolo Subbasin, which encompasses almost all of the Valley Floor areas in Yolo County, the YSGA will review non-exempt well applications pursuant to EO Section 4A. The YSGA has identified Focus Areas using various hydrologic data, reported citizen concerns, and professional judgment to delineate areas in the Yolo Subbasin that warrant additional information and analysis as part of the YSGA's written verification process, including a hydrogeologist report analyzing the proposed well's impact on groundwater conditions. The YSGA's current Focus Area map and current well permit review process are posted on the YSGA website: <https://www.yologroundwater.org/well-permit-verification>. For well permit applications not located in Focus Areas, YSGA review will be based on the exceedance or lack of exceedance of SMC established in the GSP. Applicants are advised to check with YSGA for changes to its written verification process and Focus Area map, which may be adjusted from time to time by action of the YSGA Board of Directors.

The County will review all non-exempt well permit applications for compliance with Section ~~9B4~~ 9B4B. In addition, all well permit renewals for non-exempt wells are subject to compliance with the County's well permitting procedures established to address the EO, as described in this TM.

The County will not issue well permits until: (1) the County has received written verification pursuant to EO Section 4A from the responsible GSA that the well is not inconsistent with the applicable GSP; and (2) applications have met the requirements of EO Section 4B, as described below. A flowchart is provided as Exhibit A to provide a visual overview of the County's EO well permit review process.

4. WELLS EXEMPT FROM COMPLIANCE WITH EO SECTION ~~9B4B~~

The following [well applications](#) are exempt from compliance with the EO well permitting process because they are explicitly exempted in the EO or because they are unlikely to interfere with the operation of nearby wells or cause land subsidence.:

- Wells producing less than two acre-feet per year for individual domestic water use [on the same parcel as the well; domestic water uses include those non-commercial uses associated with a residential dwelling and related yard, garden and barnyard uses, and small personal crops within the same parcel as the residential dwelling.](#)
- Public supply system wells as defined in Health & Safety Code § 116275.
- Monitoring wells or other wells not intended for extraction of groundwater.
- ~~Replacement production wells meeting the requirements for exemption herein.~~
- ~~Minor alterations of production wells meeting the requirements for exemption herein.~~

[Applicants for a domestic well permit must complete and submit Exhibit B, and applicants seeking a permit for a public water system well must complete and submit Exhibit C.](#)

[The following wells are exempt from further EO review by the County for compliance with EO Section 4B, but still require GSA review:](#)

- [Replacement production wells meeting the requirements for exemption herein.](#)
- [Minor alterations of production wells meeting the requirements for exemption herein.](#)

With respect to permit applications for replacement production wells and minor alterations of production wells [meeting the requirements for exemption described below](#), additional Environmental Health well permit application requirements and review procedures for determining compliance with EO Section ~~49B~~ will not be applied to such permits. The continued production of groundwater at a proposed well site in a manner consistent with previous operation of the well being replaced or modified is unlikely to interfere with the operation and function of nearby wells or cause land subsidence that impacts nearby infrastructure. [However, as noted above, such replacement production well and minor alterations of production wells must still be reviewed by the applicable GSA and receive written verification from the GSA confirming consistency with the applicable GSP as required by EO Section 4A. See below for additional information](#)

[All well permit applicants should be aware that](#) the future operation of all wells, [including EO-exempt wells](#), within the Valley Floor areas of the County are subject to potential management actions implemented by GSAs to manage groundwater and ensure groundwater sustainability is maintained and undesirable results, including those related to land subsidence, are avoided.

Replacement Production Wells

A replacement production well is defined as a production well that is intended to replace an existing [active](#) production well. A replacement well must be located within ~~2400~~ feet of the well it is replacing and have similar construction characteristics (e.g., same or smaller casing size, similar proposed depth, similar screen interval) and groundwater production as the well it is replacing. A replacement well must be located within 200 feet of, and on the same parcel as, the well it is replacing.

[To be considered a replacement well under the County's permitting process, the well being replaced must have been in active use for at least one year during the most recent five years and the applicant](#)

must certify and adequately demonstrate the recent active use of the well through supporting documentation (e.g., electrical or power records, pumping/flowmeter records, maintenance records). Production wells that will increase total groundwater pumping relative to the well they are replacing are not exempt from the additional compliance requirements of EO Section 49B. Efforts must be made to locate records of the construction details, including the DWR Well Completion Report (WCR), of the well that is being replaced. Copies of WCRs can be accessed or requested from DWR through the following link: <https://water.ca.gov/Programs/Groundwater-Management/Wells/Well-Completion-Reports>. If records of the construction details for well depth and screen interval are not available for a well being replaced, the applicant should make reasonable efforts to obtain the information through downhole investigative methods including tagging the total completed depth of the well or other methods.

Replacement production wells within the Yolo Subbasin must also be reviewed by the Yolo Subbasin Groundwater Agency (YSGA) pursuant to ~~paragraph 5 of~~ the YSGA's [Resolution No. 22-01](#) review procedures. Replacement wells within the Colusa and Solano Subbasins are subject to review in accordance with permitting procedures adopted by the respective GSAs for these areas. An application for proper destruction of the well being replaced must be submitted at the time of submittal of the replacement well installation application. Formal ~~abandonment and~~ destruction of wells being replaced must be conducted within six (6) months of the completion date (date of final inspection) of the replacement well and shall be performed in accordance with County requirements for well destructions.

Applicants seeking a permit for a replacement well must complete and submit [Exhibit D](#).

Minor Production Well Alterations

Minor alterations to production wells are modifications to the well structure that are not intended to increase the discharge rate for the well or significantly alter the depth interval from which groundwater is extracted with the well. Minor alterations may include activities such as installing casing liners, patches, or other work although such work must not modify the well in a manner that increases the total groundwater pumping. Applications for permits for minor well alterations will be subject to review by the YSGA pursuant to ~~paragraph 5 of~~ the YSGA's [Resolution No. 22-01](#) [EO review procedures](#) for wells within the Yolo Subbasin, including wells within the YSGA's defined Focus Areas, and in accordance with permitting procedures adopted by the respective GSAs in the Colusa and Solano Subbasins.

5. WELLS SUBJECT TO COMPLIANCE WITH EO SECTION [9B4A AND 4B](#) (NON-EXEMPT WELLS)

Procedure for GSA Verification Required by EO Section 4A

Section 4A of the EO prohibits the County from issuing a permit for non-exempt wells unless the respective GSA provides written verification that the extraction of groundwater from the proposed non-exempt well would not: (i) be inconsistent with an adopted sustainable management program, and (ii) decrease the likelihood of achieving a GSA sustainability goal. Accordingly, the County submits well permit applications to the respective GSA to review. Applicants must comply with all applicable verification requirements of the GSA. Most of the County is within the Yolo Subbasin and well permits in the Yolo Subbasin will be referred to the YSGA for evaluation. If the applicable GSA includes best management or other proposed or recommended conditions for the well as part of its written verification, the County will include those items as required conditions of the well permit to ensure compliance with the EO.

Procedure to Address EO Section ~~9B-4B~~ (1): Determining Well is Not Likely to Interfere with Existing Wells

Well permit applications subject to the EO, including for new production wells (not replacement production wells, as defined on the prior page) and production wells or well alterations considered beyond the definition herein of the replacement production wells or minor well alterations, must be determined unlikely to interfere with the function and operation of existing nearby wells to comply with EO Section ~~49B~~(1). There are two ways by which an applicant can demonstrate that a proposed new well or well alteration work is unlikely to interfere with the function and operation of nearby wells: 1) meeting minimum separation distance from existing nearby wells, or 2) submitting a report by a professional geologist or hydrogeologist (licensed in the State of California) including associated information concluding that the proposed well or well alteration work will not interfere with the function and operation of nearby wells. Existing wells owned by the applicant located on the same parcel as the proposed well or on a parcel adjacent to the parcel with the proposed well are exempt from the minimum well separation distance requirement.

The County requires minimum well separation distances for ensuring proposed new wells or well alterations are unlikely to interfere with the function and operation of nearby wells. **Table 1** presents these minimum required distances from nearby active wells according to the proposed well pumping capacity and proposed well location ~~in relation to (i.e., Valley Floor or areas versus Upland areas)~~. [The minimum well separation distances in Table 1 were developed with consideration of the hydrogeologic and well characteristics within the County. Documentation of the methods used to develop the minimum well separation distance criteria is included as an attachment to this TM.](#)

Table 1. Minimum Well Separation Distances

Pumping Capacity (gallons per minute)	Minimum Well Separation Distance (feet)
<i>Wells Within the Valley Floor Areas of the County</i>	
<500	250
500-999	500
1000-1499	1000
1500-1999	2000
≥2000	Report Required

<i>Wells in the Upland Areas of the County</i>	
<15	500
15-99	1000
≥100	Report Required

For proposed wells within the Valley Floor areas with engineered design pumping capacities greater than or equal to 2,000 gallons per minute, a report completed by a licensed professional geologist or hydrogeologist is required to conclude the well is unlikely to interfere with the function and operation of nearby wells. For proposed wells in the Upland areas with engineered design pumping capacities greater than or equal to 100 gallons per minute, a report by a licensed professional geologist or hydrogeologist will be required. If the location of the proposed new well or well alteration does not meet the minimum separation distances from existing wells presented in **Table 1**, the applicant may submit a report prepared by a licensed professional geologist or hydrogeologist presenting site-specific information (e.g., aquifer properties) and analyses concluding that the well is unlikely to interfere with the function and operation of nearby wells.

For all non-exempt well permit applications not exempt from EO Item 49B (as described above), the applicant must submit a map and list of known active wells within a radial distance equal to the minimum separation distance required for the well (as presented in **Table 1**) plus 500 feet. The map should include the proposed well site with known nearby active domestic, public supply, agricultural/irrigation, industrial, or other groundwater production wells. Active wells include wells recently operated (within last five years) as production wells and equipped with an operational pumping and discharge assembly, or wells in the process of being prepared to be operated. The table listing known nearby wells must include the well type, latitude/longitude coordinates, distance from the proposed well site (in feet), and Assessor's Parcel Number (APN). Any wells owned by the applicant should be indicated on the map and list of nearby wells. The County will review the information on nearby wells provided by the applicant in conjunction with additional review of available well location information from Environmental Health's database to confirm the minimum well separation is satisfied. However, it is the responsibility of the applicant to investigate and confirm the accuracy and completeness of the list of nearby wells.

Applications relying on the submittal of a report by a licensed professional geologist or hydrogeologist to address the minimum separation distance requirement must include a map and list of known wells within the appropriate separation distance demonstrated in the report, plus an additional 500 feet. The report must also include technical analyses and justification for why the proposed separation distance is unlikely to impact the function and operation of nearby wells, in addition to addressing the requirements of EO Section 4B (i.e., interference with existing wells and subsidence). Such a report submitted to comply with Section 4B may be satisfied through submittal of a report that complies with the GSA permit review/~~process~~ verification process and hydrogeologist report requirements (if required), so long as the technical analysis and justification provided in the report also comply with the County's requirements for addressing EO Section 4B, as described in this TM.

Procedure to Address EO Section 94B (2): Determining Well is Not Likely to Cause Land Subsidence

As described above, the principal cause of land subsidence in the Valley Floor areas of the County is the regional persistent lowering of groundwater levels and associated decreases in pore pressure in the groundwater system. Such conditions are a result of the aggregate groundwater extraction by many wells and are distinct from intermittent water level changes associated with seasonal fluctuations or localized pumping influences from a given individual well. The Upland areas of the County outside of the Sacramento Valley Groundwater Basin have hydrogeologic properties that make the occurrence of land subsidence caused by groundwater pumping very unlikely because of the consolidated nature of many of the geologic materials in these areas and limited thickness of any alluvial sediments in these parts of the County. For new well permit applications in Upland areas of the County where land subsidence caused by groundwater pumping is very unlikely to occur because of the geologic setting, the well will be determined unlikely to cause land subsidence and no review of the well permit application for potential to cause land subsidence will be required.

The procedure for reviewing the compliance of new well permit applications with EO Section 49B(2) within the Valley Floor areas of the County will rely on the review of the GSA where the well is located. The GSAs are the local entities responsible for implementing the GSPs in the Valley Floor areas of the County. The GSPs include thresholds and metrics for undesirable results, including for land subsidence impacts on infrastructure. The objective of the GSPs is to avoid undesirable results. Therefore, if a well is determined to not be inconsistent with the applicable GSP, based on the review process established by the responsible GSA, the County will consider it to be unlikely to cause land subsidence that will damage nearby infrastructure.

Well Permit Term

All well permits (exempt and non-exempt wells) will continue to be valid for two years from the date of issuance while the EO is in effect due to delayed drilling times associated with the EO-required procedures. If a permittee cannot complete the permitted well within two years, and applies for an extension before the permit expires, the County may extend the permit for two additional years. As noted above, all non-exempt well permit renewals are subject to compliance with the County's EO well permitting procedures described in this TM.

6. PERIODIC REVIEW OF PROCESS

The County, in consultation with the GSAs in the County, will periodically review the well permitting process and groundwater conditions, including the status of groundwater sustainability indicators (groundwater levels, groundwater storage, groundwater quality, land subsidence, depletion of interconnected surface water), groundwater use, and trends in well permit applications within the County and may adjust the well permitting procedures to ensure the process complies with the EO and addresses other County well permitting responsibilities. The County will initiate a review of the well permitting process upon receiving notification from any GSA within the County about significant changes in groundwater conditions, land uses and water demands, water supply, or effects on beneficial users. Additionally, the County may initiate a review of the well permitting process in response to findings presented in GSP periodic evaluations and updates conducted for the subbasins in the County, as are required by SGMA at least every five years.