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**MEMORANDUM**

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**TO:** YSGA BOARD OF DIRECTORS

**FROM:** YSGA EXECUTIVE OFFICER

**SUBJECT:** GROUNDWATER MONITORING AND REPORTING

**DATE:** JUNE 15, 2018

**CC:** YSGA WORKING GROUP

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**BACKGROUND**

A monitoring network should promote the collection of data 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 GSP.

**GSP REGULATIONS**

DWR's Groundwater Sustainability Plan (GSP) Regulations require that the GSP include monitoring protocols adopted by the YSGA for data collection and management, as follows:

1. Monitoring protocols shall be developed according to best management practices.
2. The YSGA may rely on DWR's Monitoring Best Management Practices or may adopt similar monitoring protocols that will yield comparable data.
3. Monitoring protocols shall be reviewed at least every five years as part of the periodic evaluation of the Yolo Subbasin GSP, and modified as necessary. (GSP Regs § 352.2).
4. Monitoring protocols shall include a description of technical standards, data collection methods, and other procedures for monitoring sites (GSP Regs § 354.34).

Additionally, DWR's GSP Regulations require development of monitoring objectives and data reporting requirements for a monitoring network. The monitoring network should be capable of collecting sufficient data to demonstrate short-term, season, and long-term trends in groundwater and relates surface water conditions and yield representative information about groundwater conditions as necessary to evaluate GSP implementation (GSP Regs § 354.32 and § 354.34). The monitoring network objectives shall be implemented to accomplish the following:

1. Demonstrate progress towards achieving measurable objectives described in the GSP.
2. Monitor impacts to the beneficial uses and users of groundwater.
3. Monitor changes in groundwater conditions relative to measurable objectives and minimum thresholds.
4. Quantify annual changes in water budget components.

The YSGA shall determine the density of monitoring sites and frequency of measurements required to demonstrate short-term, seasonal, and long-term trends based on the following factors:

1. Amount of current and projected groundwater use.
2. Aquifer characteristics.
3. Impacts to beneficial uses and users of groundwater and land uses and project interests affected by groundwater production, and adjacent subbasins that could affect the ability of the subbasin to meet the sustainability goal.
4. Whether the YSGA has adequate long-term existing monitoring results to demonstrate an understanding of aquifer response. (GSP Regs § 354.34).

The Yolo Subbasin GSP shall describe the following information about the monitoring network:

1. Scientific rationale for the monitoring site selection process.
2. Consistency with data and reporting standards described in GSP Regs § 352.4 (Data and Reporting Standards).
3. For each sustainability indicator, the quantitative values for the minimum threshold, measurable objective, and interim milestone that will be measured at each monitoring site (or representative site). (GSP Regs § 354.34).

Each monitoring site shall be documented in the GSP on a map, and reported in tabular format, documenting the monitoring site type, frequency of measurement, and purposes for which the monitoring site is being used. The monitoring network must be designed to effectively monitor the sustainability indicators (GSP Regs § 354.34). If desired, the YSGA may designate representative monitoring sites based on requirements discussed in GSP Regulations § 354.36.

An evaluation of the monitoring network must be included in the GSP and each five-year assessment, including determination of uncertainty and whether data gaps affect the GSP in achieving the sustainability goal for the subbasin. The YSGA shall describe measures to fill data gaps before the next five-year assessment and shall adjust the monitoring frequency and distribution to provide an adequate level of detail about site-specific surface water and groundwater conditions and to assess the effectiveness of management actions discussed in GSP Regulations § 354.38.

The YSGA shall develop and maintain a data management system that that can store and report information relevant to the development or implementation of the GSP and monitoring of the Yolo Subbasin (GSP Regs § 352.6).

### **YOLO SUBBASIN GSP PLANNING PROCESS**

The members of the YSGA have an extensive groundwater level monitoring network that has been utilized for over 60 years comprising over 450 monitoring, agricultural, and domestic wells. There are also 12 wells that are outfitted with continuous, real-time telemetry. The data gathered from each agency is currently reported to Max Stevenson (as administrator for the YSGA) and included in the Water Resources Information Database (WRID).

The groundwater monitoring and reporting portion of the Yolo Subbasin GSP is captured in two tasks of the GSP Work Plan: 1) Monitoring Network Update and 2) Data Management System Update.

1. The Monitoring Network Update task involves evaluating and comparing the Yolo Subbasin network wells to the Hydrogeologic Conceptual Model; this comparison will confirm whether the wells provide quality data for development of the sustainable management criteria and for monitoring of measurable objectives. This information will determine how best to upgrade the monitoring network and perform the monitoring required to implement the Yolo Subbasin GSP. Methods to gather missing information will consist of videoing wells, using Real Time Kinetic surveying, and gathering required data for wells missing identification numbers. To address existing data gaps, the YSGA will incorporate up to four real-time monitoring wells and up to ten bi-annual monitoring wells.
2. The Data Management System Update task involves updating the WRID to meet criteria required by SGMA and to enhance WRID functionality. The current WRID interface will be improved to facilitate public dissemination of data and to support the Public Notification and Communication task. The system will be updated to streamline data reporting to DWR for the Yolo Subbasin GSP.

**Cost Estimate:** \$632,500

\$386,000 Proposition 1 Grants Funds

\$246,500 Agency Cost Share = \$222,500 Historical + \$24,000 Future

**Schedule:** February 2018 – September 2019