
Central Valley Regional Water Quality Control Board

6 July 2018

David Guy
Sacramento Valley Water Quality Coalition
455 Capitol Mall, Suite 335
Sacramento, CA 95814

REVIEW OF THE SACRAMENTO VALLEY WATER QUALITY COALITION GROUNDWATER QUALITY TREND MONITORING WORKPLAN

Thank you for submitting the 16 May 2018 revised Sacramento Valley Water Quality Coalition Groundwater Quality Trend Monitoring Workplan (GQTMP), as required by the Executive Officer's 16 September 2016 Groundwater Assessment Report Conditional Approval Letter, the Executive Officer's 23 January 2018 Notice of Non-Compliance Letter, and Section IV.E of Attachment B to General Order R5-2014-0030 (General Order).

Central Valley Water Board staff has reviewed the revised GQTMP and determined that the well network still needs additional development and the GQTMP needs additional required information before GQTMP approval can be considered. If not adequately addressed in a timely manner, the deficiencies may impede the timely start of Trend Monitoring in your Coalition area. Please see the enclosed Staff Review Memo for details.

However, although you did not submit a complete GQTMP as required by 18 September 2017 or by the second required date of 16 May 2018, the Coalition is still expected to **begin sampling by Fall 2018 at all wells screened in the Upper Zone.**

While staff understands the potential usefulness of the Complimentary Wells, the goal of the GQTMP is to develop a complete network that meets the conditions of the General Order. For this reason, we are requiring further development of the Principal Well Network, which you are already working on.

By 31 July 2018, provide an addendum to your Phase II GQTMP that includes:

1. A final list of wells completed in the Upper Zone that you have permission to sample and that compose your Fall 2018 Trend Monitoring Network; and
2. A map showing the location of the Trend Monitoring Wells (if the well locations differ from the maps already provided).

By 1 May 2019, provide:

1. A revised GQTMP that addresses all 11 deficiencies in the enclosed memorandum;
2. All GQTMP analytical data to Geotracker; and
3. All GQTMP analytical data with the 2018 Annual Monitoring Report (AMR).

If you have any questions regarding this letter, please contact Dana Kulesza at (916) 464-4847 or by email at dana.kulesza@waterboards.ca.gov.

Sincerely,

Original signed by

Patrick Pulupa
Executive Officer

cc: Bruce Houdesheldt, Sacramento Valley Water Quality Coalition

Enclosure: Central Valley Water Board Staff Review Memo for the Sacramento Valley Water Quality Coalition GQTMP

Central Valley Regional Water Quality Control Board

TO: Sue McConnell, P.E.
Program Manager
Irrigated Lands Regulatory Program

David Sholes, P.G.
Senior Engineering Geologist
Irrigated Lands Regulatory Program

FROM: Dana Kulesza
Engineering Geologist
Irrigated Lands Regulatory Program

DATE: 6 June 2018

SUBJECT: REVIEW OF THE GROUNDWATER QUALITY TREND MONITORING
WORKPLAN FOR THE SACRAMENTO VALLEY WATER QUALITY COALITION

On 16 May 2018, the Central Valley Regional Water Quality Control Board (Central Valley Water Board) received the Sacramento Valley Water Quality Coalition (SVWQC or Coalition) *Groundwater Quality Trend Monitoring Workplan – Phase 2 – Determination of Network Wells* (GQTMP). Phase 1 of the GQTMP was received on 18 September 2017.

GQTMP Overview

The GQTMP uses the Groundwater High Vulnerability Areas (HVAs) as identified in the Groundwater Assessment Report (GAR) to prioritize GQTMP monitoring areas. Monitoring is proposed in both High and Low Vulnerability Areas, with most monitoring wells located in HVAs. There are approximately 1.3 million irrigated cropland acres enrolled in the Coalition.

The proposed well network currently consists of 35 Principal Wells, which are primarily community water supply wells that will be sampled by the Coalition in accordance with all Order requirements, and 34 Complementary Wells. The Complementary Wells are also community water system wells that are sampled by other entities for varying constituents at varying frequencies. Most Principal Wells have known screen interval depths within the Upper Zone of the unconfined groundwater aquifer (as defined by CV-SALTS). It is unknown how many of the proposed Complementary Wells are screened within the Upper Zone.

Preliminary Draft Status of the Monitoring Well Network

The GQTMP proposes a set of 69 wells that have not been fully vetted for meeting Order requirements or Trend Monitoring availability. From page 11 of the GQTMP:

As discussed in *Section 2.2.1*, some preliminary vetting has occurred for the proposed GQTM network wells, though the entire vetting process has not been completed. **Figure 2-13** shows the vetting status of proposed network wells. As mentioned above, preliminary vetting of network wells included efforts at determining whether wells are still in existence, acquiring available well construction information, and evaluating suitability of well sites for monitoring based on a preliminary evaluation using well site location information (e.g., land use data, aerial photography). It is anticipated that ongoing vetting efforts will continue up to, and potentially during, the first sampling event. The ongoing vetting process will focus on linking wells with their well completion

reports, detailed well site evaluation, and securing well owner agreements for use of their wells in the GQTM program. As a result of the ongoing vetting process, the proposed GQTM network outlined here is subject to change, as wells may be added and removed from the network as additional information becomes available. Any additional available well details or necessary modifications to the proposed network resulting from the well vetting will be presented and discussed in the first annual GQTM report.

Evolving Network Design

The Groundwater Trend Monitoring Program will need to be a dynamic process that evolves as needed through time, and the GQTMP recognizes this. From page 12 of the GQTMP:

The initial GQTM well network is expected to be dynamic. The GQTM network design represents the beginning of an ongoing process of network development and refinement. The spatial representation and statistical validity of the GQTM well network will be evaluated on an annual basis with respect to the objectives of the program. Specific attention will focus on the adequacy of monitoring in areas where the direction and magnitude of temporal trends in groundwater quality suggest a consistent pattern that is likely to be attributable to influences from irrigated agriculture. Recommendations will be made regarding the potential addition, elimination, or substitution of wells.

Staff Review

The GQTMP was reviewed to determine compliance with requirements pursuant to section VIII.D.3 of Waste Discharge Requirements General Order R5-2014-0030-R1 (Order), and sections IV and V of Attachment B (Monitoring and Reporting Program) to the Order.

Staff review findings for each required GQTMP component are provided in Table 1 below. A description of incomplete components is provided for each item, whereas the components not discussed are complete and do not need to be revised or addressed.

Staff recommends that the Executive Officer approve monitoring wells screened in the Upper Zone and require monitoring to begin at these wells in fall 2018. The Coalition should submit a list and map of the Upper Zone wells that it has permission to sample in Fall 2018. Staff does not recommend approval of monitoring at GQTMP wells with unknown screen depths, or at wells screened within the Lower Zone. An updated GQTMP should be submitted in spring 2019 which addresses staff review findings in Table 1.

Table 1. Groundwater Trend Monitoring Workplan (GQTMP) Requirements and Staff Review Findings.

Item No.	Requirement	Item meets requirement	Incomplete / Not included	Section(s) in GQTMP	Staff Review Findings
1	The trend monitoring network will be implemented over both high and low vulnerability areas.		✓		The well network must also include low vulnerability areas.
2	The trend monitoring network will employ shallow wells, but not necessarily wells completed in the uppermost zone of first encountered groundwater.	✓		1.2, 2.1.1	The target depth zone for all wells is the Upper Zone of the unconfined aquifer This is the appropriate depth zone for GQTMP wells.
3	The proposed monitoring well network shall consist of a sufficient number of wells to provide coverage in the third-party geographic area so that current water quality conditions of groundwater and composite regional effects of irrigated agriculture can be assessed according to the trend monitoring objectives.		✓	2	<p>a) The GQTMP proposes 69 wells plus additional wells in some areas once appropriate wells are found. The proposed density of “more than 69 wells” for 1.3 million ILRP-enrolled irrigated cropland acres may be considered sufficient, depending on how many additional wells will be added. Further comment will be provided when information on the additional wells is provided. The GQTMP should include all wells that will be sampled.</p> <p>b) Wells that meet the Order requirements for being of “shallow depth” (i.e., majority of screened interval within the Upper Zone) need to be evaluated separately from wells that are of unknown depth or those that are fully screened in the Lower Zone. Wells screened in the Upper Zone need to be identified and/or installed. The GQTMP does not state how many of the 35 Principal Wells and 34 Complementary Wells</p>

Item No.	Requirement	Item meets requirement	Incomplete / Not included	Section(s) in GQTMP	Staff Review Findings
					<p>currently proposed for the well network meet the Upper Zone screened depth requirement.</p> <p>c) Only wells that meet the Order requirements for minimum annual sampling and reporting requirements will be considered part of the GQTMP Network. Monitoring data for wells not meeting these requirements should be submitted separately. The sampling frequency and analytes for all proposed Complementary Wells is not provided, so it is not known how many meet the minimum requirements.</p> <p>d) Ensure that wells are added within all Very High and High Monitoring Priority Areas.</p>
4a	The rationale for the number, distribution, and location of trend monitoring wells. The rationale needs to consider 4b through 4d:		✓		The rationale for delineation of the monitoring subarea tiers is described and understood; however, rationale is needed for the number and locations of wells chosen within these subareas.
4b	The variety of agricultural commodities produced within the third-party's boundaries (particularly those commodities comprising the most irrigated agricultural acreage).		✓		Although crop types may have been considered to delineate monitoring subarea tiers during GQTMP Phase I, top acreage commodities need to be considered when specifically choosing the number and location of wells. The consideration of this factor needs to be specifically described in relation to the number and location of chosen wells.

Item No.	Requirement	Item meets requirement	Incomplete / Not included	Section(s) in GQTMP	Staff Review Findings
4c	The conditions discussed/identified in the GAR related to the vulnerability prioritization within the third-party area.	✓		2.2	
4d	The areas identified in the GAR as contributing significant recharge to urban and rural communities where groundwater serves as a significant source of supply.		✓		Although drinking water recharge may have been considered to delineate monitoring subarea tiers during GQTMP Phase I, it needs to be considered when specifically choosing the number and location of wells. The consideration of this factor needs to be specifically described in relation to the number and location of chosen wells.
5	Well details. Details for wells proposed for trend monitoring, including: i. GPS coordinates; ii. Physical address of the property on which the well is situated (if available); iii. California State well number (if known); iv. Well depth; v. Top and bottom perforation depths; vi. A copy of the water well drillers log (if available); vii. Depth of standing (static) water level, if available (this may be obtained after implementing the program); and viii. Well seal information (type of material, length of seal).		✓	Tables 2-3; 2-4; Appendix	Some Well Information Sheets are missing. Explanation provided is that not all data has been gathered yet (well vetting has not been completed). Provide all required well details.
6	Sampling shall occur at a minimum annually at the same time of year for conductivity, pH, dissolved oxygen, temperature, and nitrate as nitrogen. In addition, sampling shall occur the first year and once every five years thereafter for total dissolved solids, carbonate, bicarbonate, chloride, sulfate, boron, calcium, sodium, magnesium, and potassium.	✓		3	

Item No.	Requirement	Item meets requirement	Incomplete / Not included	Section(s) in GQTMP	Staff Review Findings
7	Following collection of sufficient data from each well, the third party will evaluate trends (MRP IV.C.3) using methods proposed in the GQTMP.	✓		p. 31 & 4.1 of Phase I	Trend analysis will be completed and submitted once every five years.
8	Sections 6735 and 7835 of the California Business and Professions Code requires that all final reports shall bear the signature and seal or stamp of the licensee and the date of signing and sealing or stamping.	✓		Title page	
9	Reporting Provision IX.2 of the Order requires that all reports be accompanied by a cover letter containing the certification statement provided in IX.3 and signed by an authorized representative.	✓		Cover letter	
10	Order Attachment B, Provision V.B requires that annually, the third-party shall upload into the State Board Geotracker GAMA database the prior year's groundwater monitoring results.		✓		Add a description of the planned process and work timelines for this requirement.
11	MRP IV.C.3 and V.B require that in each AMR, the third-party shall submit (a) the prior year's groundwater monitoring results as an Excel workbook containing an export of all data records uploaded into the State Board Geotracker database; (b) a map of all sampled wells; and (c) time concentration charts.		✓		Add a statement that this will occur.