

STATE OF CALIFORNIA
REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL COAST REGION

SUPPLEMENTAL SHEET FOR REGULAR MEETING OF – JANUARY 29-30, 2015
Prepared on January 27, 2015

ITEM NUMBER: 16

SUBJECT: Irrigated Lands Regulatory Program – Water Board Review of the Manner in Which Central Coast Groundwater Coalition Groundwater Testing Results are Disclosed to the Public

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KEY INFO: Location: Region-Wide
Type of Discharge: Irrigated Lands Runoff / Leaching to Groundwater
Existing Orders: Order No. RB3-2012-0011 and WQ 2013-0101

THIS ACTION: Board Review of Staff’s Recommendation Regarding the Manner in Which Central Coast Groundwater Coalition Groundwater Testing Results are Disclosed to the Public

SUMMARY

This supplemental sheet includes the following two comment letters received for Item 16 (attached):

1. Concerned Member of the Public, Comment Letter dated January 26, 2015
2. Central Coast Groundwater Coalition (CCGC), Comment Letter dated January 26, 2015

As described in the Staff Report for Item 16, the question before the Board is:

Whether the Board wishes to make changes to the process for reviewing and approving CCGC contour maps, as established in the CCGC Workplan Approval letter.

Neither comment letter addresses this issue. Rather, the comment letters primarily focus on the following next steps, which are staff’s evaluation of the CCGC contour maps and carrying out the actions described in the Executive Officer’s Workplan Approval letter. While the Board is invited to provide feedback to staff on these next steps, they are not part of this discretionary review. As discussed in the Staff Report, staff reviewed CRLA’s request for discretionary review concerning the use of contour maps and concluded that the Workplan Approval letter establishes an appropriate process and criteria for assessing the ability of CCGC to provide a detailed and accurate visual display of individual well data (contour maps). Staff does not recommend changing the CCGC Workplan Approval letter.

Together, the individual comment letters submitted by the member of the public and CCGC again identify the two competing perspectives related to CRLA’s request for discretionary review regarding the manner in which CCGC groundwater testing results are made available to the public.

Due to the threat of nitrate pollution impacts to safe drinking water and public health, comments from the member of the public request that the Board provide immediate public access to the CCGC water quality data (to increase transparency). In contrast, the CCGC comment letter supports the use of contour maps to respond to the CCGC members concerns regarding privacy and desire for anonymity of grower information as it relates to specific well nitrate levels. These are the same competing perspectives that were central to the discretionary review item discussed at the July 2014 and November 2014 Board Meetings regarding the drinking water notification process for wells with exceedances of drinking water standards.

Background

At the time of adoption of the Agricultural Order in March 2012, groundwater monitoring cooperatives were not yet developed for the Central Coast. When the Executive Officer issued the Workplan Approval letter in July 2013, CCGC existed in concept, but was still in the process of formalizing their non-profit status and governance, and did not yet have established program boundaries, a known membership, or known groundwater sampling locations. Despite these unknowns, CCGC proposed in their workplan submittal to display groundwater nitrate information to the public using contour maps, in lieu of displaying actual well data. CCGC conveyed to staff that their members desired anonymity and had concerns specifically related to personal privacy and biosecurity issues, especially as it relates to specific well nitrate levels.

While the proposed contour maps provide a high level of anonymity for CCGC members, displaying groundwater data using contour maps in lieu of displaying actual data is less transparent than providing groundwater data to the public via GeoTracker GAMA, the standard approach for other regulatory programs. However, in an effort to support agricultural representatives in developing a groundwater monitoring cooperative, staff worked with CCGC to develop a specific set of criteria (as outlined in the Workplan Approval letter) that would ensure that contour maps provided reliable information to the public with a high degree of confidence.

As described in the Staff Report, the Workplan Approval letter includes specific criteria for assuring this reliability and approving the contour maps (Conditions 10 through 13, summarized in Table 2 of the Staff Report). The criteria (i.e. sample density, hydrogeologic variability, levels of uncertainty) are standard factors that professionals consider when developing and evaluating contour maps. Staff concluded that these criteria were necessary if the contour maps were to be used, in lieu of providing the actual data to the public. At the time of Workplan approval, it was unknown whether the contour maps developed by the CCGC could meet the criteria, as many aspects of CCGC's implementation (i.e. program boundaries, membership, sampling points, and well density) were not yet finalized. Staff does not recommend changing the criteria described in the CCGC Workplan Approval letter.

Response to CCGC Comment Letter

As discussed above, the CCGC comment letter submitted on January 26, 2015 does not address the issue before the Board, but rather the consequence of carrying out the process described in the Executive Officer's Workplan Approval letter. While the Board is invited to provide feedback to staff on these "next steps," they are not part of this discretionary review. Staff responds to the general CCGC comments in the table below.

CCGC Comment	Staff Response
<p>The criticisms of the CCGC analysis are premature. Judgments of the contour maps should appropriately be delayed until after the delivery and staff review of the characterization report.</p>	<p>The CCGC Workplan¹ and the Executive Officer's Workplan Approval letter (Att. 2) clearly identify the deliverables and timeframe for submittal, approval, and next steps. On page 12 of the CCGC Workplan, Table 3 "Deliverables and Schedule "</p> <ul style="list-style-type: none"> • identifies a deliverable titled "Technical Memo on concentration of nitrates in domestic supply wells in the Salinas Valley/ Lockwood Valley"; • describes the elements of the Tech Memo as "Finalize data upload to GeoTracker, discussion of sampling results including contour map and shapefile of nitrate concentrations"; • identifies a due date for the Tech Memo of April 30, 2014. <p>A similar approach and schedule is described for the other CCGC program areas (Pajaro Valley due July 31, 2014; Gilroy/Hollister due October 31, 2014). Staff provided comments to CCGC regarding Salinas Valley and Pajaro Valley Tech Memos, and is in the process of finalizing comments on the Gilroy/Hollister Tech Memo. The focus of this discussion is staff's evaluation of the Salinas Valley Tech Memo and associated contour map. The Tech Memos were intended to provide the data, including contour maps, for each of the specific program areas.</p> <p>Both the CCGC Workplan (p.14) and Executive Officer's Workplan Approval letter (p.6) clearly identify the timeframe for the contour map approval and posting of information on GeoTracker GAMA. Both documents indicate that "the Central Coast Water Board agrees to display cooperative program data as contour maps on GeoTracker after January 1, 2015." The documents further state that "if by January 1, 2015, the functionality does not exist in GeoTracker to properly display the approved contour maps, the cooperative program has the option to submit static images (e.g. pdf, bitmap) of the contour maps by March 15, 2015." The documents further clarify that If the cooperative program does not choose to submit static images of the contour maps or if the cooperative program does not submit contour maps that meet Conditions 10 through 13, then the data will be displayed as individual wells on GeoTracker."</p> <p>The CCGC Workplan also includes a deliverable titled " Final Report on Concentration of Nitrates in Domestic Supply Wells Across the Coalition Region". This deliverable is intended to be a compilation of the information contained in the specific program area Tech Memos. The due date for this deliverable is identified as March 15, 2015. Based upon the fact that this Report is due in March, more than two months after the intended timeframe for review and approval (if possible) of contour maps, it is clear that the evaluation of contour maps was not contingent on submissions in this Report. Rather, this</p>

¹ CCGC Work Plans for Northern and Southern Counties - Dated 11/01/2013
http://www.waterboards.ca.gov/centralcoast/water_issues/programs/ag_waivers/docs/groundwater/1finalcgc_workplan_110113.pdf

	<p>Report was intended to be a final compilation of data and information.</p>
<p>The staff seems to imply that the CCGC has manipulated or excluded data to obtain a higher level of compliance with the nitrate MCL. Explanations of why wells were excluded are provided in both tech memos and no criticism of those explanations were provided by staff for the second technical memorandum. The two contour maps are a result of the addition of more data to the analysis and revised methodology described in the tech memo and correspondence with Regional Board staff.</p>	<p>Staff's intent is to state that the contour maps indicate data has been excluded from the interpretation only based on depth, but do not identify data excluded for other reasons. Staff does not speculate on the intention or motive of CCGC's reasoning to exclude data, only to point out that the reason for exclusion is not apparent on the contour map. The purpose of considering the contour maps for display to the public on GeoTracker GAMA, in lieu of actual data requires that the contour map include all the relevant information, including confidence intervals and excluded data. It is the contour maps that are proposed to be displayed on GeoTracker GAMA, not the entire Tech Memo, so the contour map must include all necessary information identified in the criteria.</p>
<p>The staff report misrepresents the requirements of the Order by stating that the CCGC needed to characterize groundwater quality in agricultural areas (p3 of staff report). In fact, the Order states: As stated in the background section above, "at a minimum, the cooperative groundwater monitoring effort must include sufficient monitoring to adequately characterize the groundwater aquifer(s) in the local area of the participating Dischargers, characterize the groundwater quality of the uppermost aquifer, and identify and evaluate groundwater used for domestic drinking water purposes." This means that the CCGC characterization effort does not need to have high confidence in the contour lines across the entire region, particularly in areas with few members.</p>	<p>Staff does not disagree with the CCGC statement of the groundwater monitoring requirements in the Agricultural Order. In addition, the Monitoring and Reporting Program² (MRP, Part 2) includes general statements requiring individual dischargers to initiate sampling of private domestic drinking water and agricultural groundwater wells on their farm/ranch to evaluate groundwater conditions in agricultural areas, identify areas at greatest risk for nitrogen loading and exceedance of drinking water standards, and identify priority areas for follow up actions.</p> <p>As described above, at the time of the adoption of the Agricultural Order (March 2012) and the Workplan Approval letter (July 2013), the exact CCGC membership and program areas were still unknown. Staff's expectation was that the CCGC program areas would be coincident with the CCGC membership, and as a result the program area would focus on characterizing the area of the participating dischargers.</p> <p>The conditions in the Workplan Approval letter apply to the program area, as defined by the CCGC. The CCGC defined their program areas and subsequently developed contour maps for these program areas. Staff recommended to CCGC early on to define their program areas and focus their characterization on areas where there were CCGC member parcels and sufficient sampling points and/or existing data to decrease the levels of uncertainty. CCGC defined the program areas such that they include some areas with limited CCGC membership and sparse data; consequently the resulting contour map has low confidence in these areas.</p>
<p>The staff report misrepresents that the CCGC could have found additional wells to supplement the data and analyses in the tech</p>	<p>The CCGC Workplan (p.10) states that " If there are wells with depth and screened interval information on non-member parcels, this will greatly improve the certainty in the characterization of domestic drinking water quality, and we will</p>

² Monitoring and Reporting Program R3-2012-0011-01
http://www.waterboards.ca.gov/centralcoast/water_issues/programs/ag_waivers/docs/tier1_finalmrp_060514.pdf

<p>memos. During discussions with staff on the morning of November 17, 2014 at Regional Board Offices in San Luis Obispo John Robertson stated that they could not find additional wells to sample and they could not therefore request that the CCGC find additional wells.</p>	<p>work with Water Board staff to gain access and sample these wells. Stage 3 – if after Stages 1 and 2 an insufficient number of wells are identified to effectively characterize drinking water quality within reasonable certainty in specific areas, domestic water supply wells without depth and screened interval information will be sampled. These wells may be owned by nonmembers and the CCGC will rely on the CCRWQCB to gain access to the wells."</p> <p>CCGC did not alert staff of any proposal to sample non-CCGC member wells and did not request staff's assistance in gaining access to any non-CCGC member wells. CCGC also did not propose any additional sampling for use as a validation data set to confirm adequacy of the contour map.</p> <p>The context for staff's comment regarding "finding additional wells" related to whether or not additional wells existed. Staff's comment was intended to convey that the Water Board cannot require CCGC to sample a well if it does not exist. However, the requirement to sample a particular well is a separate issue from the question as to whether or not sufficient data exists to construct a contour map that meets the conditions of the Workplan Approval letter. It is possible that for some areas with sparse data or low number of wells, CCGC may have data for all wells that exist, but the data may still be insufficient for developing an approvable contour map.</p>
<p>There appears to be confusion on the part of the staff with respect to the relationship between the standard deviations and confidence intervals and the interpretation of those terms. There is clearly a level of confidence that can be assigned based on the calculated standard deviation estimates. This has been represented in maps presented in the second Technical Memorandum.</p>	<p>Staff agrees that information contained within the CCGC Tech Memos regarding confidence intervals is confusing. The Workplan Approval letter (Condition 11) states that any contour maps produced must include the confidence interval for estimated values. The contour map must present the data within an adequate confidence interval that is acceptable for providing reliable information to the public.</p> <p>Similarly, the CCGC Workplan (p. 12) states that "the analysis will explicitly provide the confidence value for any location on the contour map."</p> <p>The CCGC Salinas Valley Tech Memo submitted in December 2014 includes several different contour maps including: kriged nitrate concentration contour maps, map showing the distribution of standard deviation of kriged nitrate concentrations, map showing distribution of estimated probability of exceeding the drinking water standard for nitrate, map showing distribution of concentrations of nitrate at the lower bound of 66 % confidence interval, map showing distribution of concentrations of nitrate at the lower bound of the 95 % confidence interval, map showing overlay of 66% confidence level estimated areas over the MCL, map showing overlay of 95% confidence level estimated areas over the MCL.</p> <p>Staff assumes that the contour map that CCGC proposes to be displayed on GeoTracker GAMA is the kriged nitrate concentration map, however this particular map does not include any information regarding confidence intervals or level of uncertainty. It is also unclear to staff which map is intended to "explicitly provide the confidence value for any location on</p>

	the contour map" as described on p. 12 of the CCGC workplan.
<p>It is unclear what criteria staff is using to reject or accept the contour maps. CCGC consultants opine that the degree to which the mapped concentrations agree with measured concentrations should be the primary criterion. Appendix A and additional information provide below show the consistent agreement of predicted concentrations with measured concentrations in samples collected by multiple entities including the CCGC and in GeoTracker.</p>	<p>Staff respectfully disagrees. Mapped concentrations should agree with the measured concentrations. However, this alone is not a sufficient criterion. The CCGC contour maps infer concentrations in many areas where there are no measurements, and the degree to which the mapped nitrate concentrations predict and represent actual concentrations in these areas is unknown.</p> <p>The criteria staff is using to evaluate the contour maps is described in Conditions 10-13 of the Workplan Approval letter and also described in Table 2 of the Staff Report titled "Summary of CCGC Contour Map Criteria".</p>
<p>The CCGC submits that decisions to accept or reject contour maps should be based on the final maps to be presented in the Characterization Report. The technical memoranda were intended to provide progress updates.</p>	<p>Staff respectfully disagrees. The CCGC Technical Memorandums are not progress updates. See the first comment above. Technical Memorandums are to transmit the data and information relative to the specific CCGC program area; They have specific elements (final data upload to GeoTracker, discussion of sampling results including contour map and shapefile of nitrate concentrations) and a clear due date.</p> <p>The information and presentations provided during the quarterly CCGC/Water Board coordination meetings served the purpose to provide progress updates.</p>

In conclusion, staff finds that the criteria to evaluate the CCGC contour maps is appropriate and recommends that the Board maintain the process described in the CCGC Workplan Approval letter. Staff also finds that the Salinas Valley contour maps submitted by the CCGC do not meet Conditions 10 through 13 of the Workplan Approval letter; the maps are not acceptable for providing reliable information to the public in absence of the actual data, especially in the context of protecting public health. Contour maps are by definition interpretations of real data, and the certainty or reliability of any one interpretation is dependent on the factors that make up the criteria in Conditions 10-13. Different interpretations (i.e. different contour maps) can be developed from the same data. The CCGC Tech Memos for the Salinas Valley submitted in April and December 2014 and the associated contour maps are examples of varying interpretations of similar data. While, the CCGC contour maps may provide a useful interpretation of the specific data points to certain members of the public, other groups or individuals may interpret the data differently. In any case, the public needs access to the actual data to evaluate a given interpretation or to develop interpretations on their own - especially given the potential uncertainty and potential impacts to safe drinking water and public health.

ATTACHMENTS

1. Concerned Member of the Public, Comment Letter dated January 26, 2015
http://www.waterboards.ca.gov/centralcoast/board_info/agendas/2015/january/item16/item16_public%20comments%201.pdf
2. Central Coast Groundwater Coalition (CCGC), Comment Letter dated January 26, 2015
http://www.waterboards.ca.gov/centralcoast/board_info/agendas/2015/january/item16/item16_public%20comment%202%20CCGC.pdf