San Joaquin County & Delta Water Quality Coalition

June 1, 2016

VIA E-Mail: commentletters@waterboards.ca.gov

Members of the State Water Resources Control Board
c/o Ms. Jeanine Townsend
Clerk to the Board
State Water Resource Control Board
1001 I Street, 24th Floor
Sacramento, CA 95812

Re: Proposed East San Joaquin Order - ILRP

Dear Board Members:

The following comments are submitted on behalf of Petitioner San Joaquin County Resource Conservation District (District), the operating agency for the San Joaquin County and Delta Water Quality Coalition (SJCDWQC). Thank you for the opportunity to comment.

Our comments focus on public policy issues. The District previously submitted a response brief in the pending matter detailing how the current order complies with Porter Cologne, the Anti-degradation Policy and the Non-Point Source Policy. The District does not repeat those arguments here. The District also is not submitting comments on CEQA compliance at this time. All legal arguments, however, are preserved.

The District also participated in the Sacramento workshop in May 2016 and incorporates its presentation into its comments.

Following the workshop, a representative from the District met with representatives of the Environmental Justice (EJ) community. The meeting was very helpful. The District supports on-going dialogue between the Ag coalitions and EJ community, as well as with Regional Board and State Board staff. We urge the Board to facilitate this dialogue through additional workshops before embarking on a proposed change to the existing regulatory program. It appears that there is room for agreement between the stakeholders on at least some of the outstanding issues. Even for those where agreement cannot be reached entirely, continuing dialogue will improve understanding by all parties and lead to a more durable program that all stakeholders can have confidence in.

A. The San Joaquin County and Delta Water Quality Coalition

The SJCDWQC is operated by the District. The District's Board of Directors is made up of volunteers appointed by the San Joaquin County Board of Supervisors. The directors are farmers

Phone (209) 851-4204 info@sjdeltawatershed.org
Street Address 3294 Ad Art Road, Stockton CA 95215
Mailing Address P.O. Box 2357, Lodi CA 95247-2357

and business owners from the County. The SJCDWQC covers over 500,000 acres and includes over 4,000 members. The coalition's annual budget is $2.6 million, with membership dues set at $5.00 per acre.

The District has been able to operate the coalition successfully for the last 12 years and has achieved notable water quality success in its area.

The District's decision to operate the Coalition was not an easy one. On balance, the District agreed to operate the Coalition to (1) provide the most efficient vehicle for area farmers to comply with the law; (2) to encourage all area farmers to participate, and to (3) improve local water quality. As the Irrigated Lands Regulatory Program has ballooned, it has become increasingly difficult to convince area farmers to continue their membership and pay the fees required to operate the program. With the currently proposed ESJ Order, the District has grave concerns that the Coalition will fall apart due to the significant increase in cost and loss of membership.

It is with this background and interest that the District submits these comments. The District wants to continue to improve water quality. To do that, the program must keep members and continue local education and management plan actions. A program that is too heavy-handed will defeat both of these goals, and water quality will suffer.

B. Summary of Primary Concerns

1. **Timing:** The existing order is relatively new and just starting to gather groundwater data and perform analysis. A change now will result in waste and confusion – disregarding what can be learned by working with actual data collected through the Nitrogen Management Plan Reports required under the existing program. The District recommends that the existing program be allowed to work, and be evaluated, before a new program is adopted. Contrary to certain claims, the existing order <u>does not delay</u> progress for 10 years. In fact, the existing order requires all members to participate in educational classes, prepare nitrogen management plans and implement management practices protective of water quality. Also, all surface and groundwater is already subject to representative monitoring programs. In short – no one is able to avoid regulation under the current order – the actions required by the order are simply prioritized or of different magnitude depending on priority.

2. **Making Data Public**: The Proposed ESJ Order would make all information collected from all growers public, with some available in a large Geotracker database on the internet. The District and its program members strongly disagree with this approach. The goals of verification of accuracy and completeness can be achieved without violating private rights or requiring public posting of computations associated with individual member fields that are scientifically uncertain. Again, the current order already allows for public review of membership lists, lists of members who are not in good standing, and detailed reports of monitoring results and data analysis. The Regional Board can also request any document submitted by a member to the Coalition as part of an investigation.

3. **Increased Cost:** The Proposed ESJ Order expands reporting requirements for all members and expands the types of reports submitted to the Regional Board. The cost of these additional requirements has not been analyzed by State Board Staff. The District anticipates the costs will be very high and will likely require the District, if it continues as an approved third party, to double its annual membership dues from $5/acre per year to at least $10/acre per year. This will negatively impact membership at a key time in the program when coalitions are trying to engage growers regarding nitrogen management.

4. **Prioritization**: To control cost and focus resources on the areas with the most significant problems, prioritization of effort is critical. The current high/low vulnerability designations allow for this. The entire existing program is structured around these designations, which are based on detailed and expensive Groundwater Assessment Reports that have just been completed. We strongly urge the Board to maintain the prioritization approach. Our area includes the Delta, which has groundwater under artesian pressure - meaning it flows upward. There is no possibility of groundwater contamination from farming that would not be detected in the current surface water monitoring program of drainage canals from the islands. Requiring additional reporting, certifications and monitoring to protect groundwater in the Delta would be both wasteful and scientifically unsupportable. Similarly, other parts of our coalition are designated as low vulnerability due soil types, farming activities and the lack of DACs dependent on groundwater. The District does not want to spend limited resources in these areas when it should be focusing on higher priority areas.

5. **Drinking Water Well Testing:** The District is not willing or able to assist members or the Regional Board with drinking water well testing. Any such program should be state-wide to be more comprehensive and should not be part of the ILRP.

6. **A/R Ratios and Performance Targets:** The Proposed ESJ Order is confusing regarding A/R ratios and determining how "outliers" will be identified and treated using statistical methods related to mean and standard deviation. The proposed process is not scientifically supported. The District is also very concerned about asking members to compute A/R. This calculation should be performed by technically skilled staff or consultants at the coalition level and provided to members.

C. Detailed Comments on the Proposed ESJ Order

1. The Proposed ESJ Order Requires Gathering an Enormous Amount of Data, at Considerable Cost, with Minimal Identified Benefits

The Proposed ESJ Order requires ALL Members to submit individual INMP Summary Reports and Data to the Coalitions, who then must process the data and submit the same data, with field identification, to the Regional Board. The Coalitions must also provide for secure, off-site data back-up and storage. The existing order, by contrast, allowed the Coalitions to process and analyze data, and then provide this analysis to the Regional Board, who could then ask for more information for an investigation, which the Coalitions and members must provide. Notably, the Expert Panel did not recommend that the Regional Board collect or attempt to analyze individual

field data. Rather, it emphasized the need and purpose of the local Coalitions to perform this function.

The Proposed ESJ Order acknowledges that "large" farming operations account for 17% of growers, but 80% of irrigated lands in ESJ, while medium and small operations (less than 60 acres) account for the remaining 83% of growers and 20% of lands. (Att. A at 3-4). This means that data gathering requirements that are field and grower specific create enormous amounts of information (and related expense), the bulk of which is attributable to only a small fraction of irrigated lands. This reality appears to have been ignored in structuring the new data gathering components of the Proposed ESJ Order. Rather, the Proposed ESJ Order appears to assume that "more data" = "better water quality."

This has not been the coalition's experience. More data collection means more time spent with individual members frustrated with paperwork and more time spent by coalition staff identifying errors and trying to make contact with members to correct paperwork. All of this time and effort and expense detracts from the work that actually improves water quality - monitoring and management practices education. While it may seem useful to a staff person at the State Board to be able to sort a large database to identify "solutions" to water quality problems - the real work on solutions must be done in the field.

In our experience, detection of problems in representative monitoring sites, followed by aggressive outreach to potential contributing members, implementation of management plans, and follow-up education and outreach have proven very successful in reducing or eliminating water quality problems and improving overall management practices. These efforts are labor and resource intensive, but they work. The SJCDWQC has successfully completed numerous management plans that have included the removal of copper, Chlorpyrifos, Diuron, malathion, and Dieldrin from our waterways.

State Board staff has argued in response that by staggering the deadlines for data submissions by farm size, they have addressed the increased cost/burden of the additional reporting requirements. They are missing the point. Whether all of the data is collected the first year or over the course of three years, the end result under the Proposed ESJ Order is that the coalition must collect significantly more data than it is required to do under the current order, at a higher cost - and this burden will continue <u>year after year</u> as soon as all of the farm size deadlines are reached. It is the higher cost of the excessive data collection that is the problem - not because there is a desire to hide the data, but because the benefits gained from its collection are so small compared to the excessive cost to collect, quality check, assess and maintain it.

Currently the District's budget for Farm Evaluation Plan and Nitrogen Management Plan and Budget efforts is over $450,000. The District has approximately one-third of its members in high-vulnerability areas. Under the Proposed ESJ Order, this designation would be removed and the District would need to **almost double** the above budget. In addition, the District anticipates the fees charged by the State Water Board would also increase from the current $0.75 per acre, to a projected $5per acre. **This would result in a projected increase in the District's acreage fee to members from $5 per acre per year to at least $11 per acre per year taking an extra $3 million dollars out of the local economy <u>each year</u>.** This is money that is no longer available

to implement better management practices that are protective of water quality - such as installation of drip system or performing additional soil and foliar samples throughout the growing season.

Porter-Cologne allows the Board to require reports from potential discharges provided that "[t]he burden, including costs, of these reports shall bear a reasonable relationship to the need for the report and the benefits to be obtained from the reports." (Water Code § 13267(b)(1).) The benefits from adding the increased reporting are not justified by the costs. Staff's argument seems to be that all members, regardless of location or threat area, should be performing this elevated reporting and certification process to ensure better farming. This argument essentially removes the concept of prioritization from the coalition approach. All members are already performing nitrogen planning under the current program and are attending meetings where they will learn about management practices. Also, to the extent that monitoring indicates a problem, the reporting obligations can and will be changed under the current program.

The Regional Board should be given the opportunity to conduct investigations, as is currently provided for in the current order. If, over time, these investigations illuminate a need for individual data to be submitted to the Regional Board, the order can always be amended to allow this. The District also supports a more formal audit process for data submitted to the Coalitions to increase public trust in the work they perform. Another option would be for the Regional Board's current field investigation process to be formalized in the program, with mandatory public reports generated from the process.

2. The Proposed Order Significantly Increases Public Access to Field Level Data without Logical Explanation

The Proposed Order significantly increases the amount of field level data that must be provided to the Regional Board and potentially made available for public review:

Existing ESJ WDR:	**Proposed ESJ WDR NEW Information:**
• Member name and mailing address • All APNs covered by Membership • County where each parcel is located • Section, township, range of each APN • Irrigated acres per APN • Contact name & number of individuals authorized to provide access to the parcel.	• Whether the parcel a small, medium, or large farming operation. • When a Member's drinking water well exceeds standards for nitrates • Crops grown on each parcel • Acreage of each crop • Crop yield • Total nitrogen applied through irrigation water, synthetic fertilizer, and organic amendments; • Nitrogen removed via harvest or sequestered in permanent wood of perennial crops • Nitrogen applied/removed ratio

	• Nitrogen applied/removed difference • If average nitrogen applied/removed ratios were exceeded on the parcel • Pesticide management practices • Irrigation management practices • Nitrogen management practices • Sediment/erosion control practices • Erosion risk on parcel • Drainage areas and receiving waters for parcel • If the parcel is located in a SQMP/GQMP • The location of all in-service and abandoned wells on the property.

Staff's Proposed ESJ Order (page 41) provides two reasons for the additional field-level reporting requirements - neither of which are persuasive.

Staff Reason 1: To support development of acceptable multi-year A/R ratio target values for crops grown in the Eastern San Joaquin Watershed.

Response: Staff's proposal is a step backward in protection of groundwater quality. The Regional Board does not have the tools to develop scientifically supportable A/R ratio target values for different crops in each watershed. Receiving field level data from every member will not facilitate this work. Rather, it would only allow for ratios to be computed that reflect current practices - without any connection to whether these practices are protective of water quality.

By contrast, the existing program requires the coalitions to "collect sufficient data to describe irrigated agricultural impacts on groundwater quality and to determine whether existing or newly implemented management practices comply with the groundwater receiving water limitations of this Order." (Attachment A or Order R5-2012-0116R4 - Information Sheet, at 15). The coalitions are required to reach this goal through the Groundwater Quality Assessment Report, Management Practices Effectiveness Program and Groundwater Quality Trend Monitoring Program. If trend monitoring illustrates a lack of progress, the coalitions' efforts at identifying protective management practices and member implementation of these practices must be changed to achieve improvement. There is an iterative and interactive process between the coalitions and the Regional Board built-in to the current order to ensure management practices are identified, implemented and achieve water quality goals. See Att. A at 15-16).

Finally, staff argues that posting individual field level data to the web will allow other researchers, environmental justice groups, and local agencies to work with the data to advance science. (Proposed ESJ Order page 40) The District agrees that assistance from universities and other public agencies could be valuable as part of the MPEP process. However, this assistance can and should be provided cooperatively with coalitions and the Regional Board - it should not be forced upon members whose personal data is at risk. The current order does not prohibit this type of coordinated research and we are unaware of any instance where a research group has offered cooperative scientific research and been denied by a coalition.

Staff Reason 2: To inform whether implemented nitrogen management practices are achieving the appropriate water quality results, and allow for appropriate oversight when they are not.

Response: All experts agree that water quality information gained from trend groundwater monitoring cannot be directly causally linked to individual, current field level management practices. Rather, it is the broader township level analysis over time, compared to trend monitoring results over time, that is meaningful. <u>This is precisely what is already required in the current order</u>. (See discussion above - Attachment A pages 15-16). There is no scientific justification for a more granular approach to verification of cause and effect when it comes to groundwater, nor did the Expert Panel endorse such an approach.

Further, the current order already requires the coalition to design and implement a Groundwater Quality Management Plan (1) where there are water quality exceedances, or (2) where there is a trend of degradation that threatens a beneficial use, where irrigated lands may cause or contribute to the groundwater quality problem. **The GQMPs are the key mechanism under the current order to ensure discharges from irrigated lands are meeting receiving water limitations. The GQMP must identify management practices to be implemented, the timeline for implementation and milestones to be achieved, monitoring to ensure compliance and results under the plan, and regular reporting to the Regional Board. <u>GQMPs must be approved by the Executive Officer and must be circulated for public review.</u> (**Attachment A at pages 18-20).

The coalitions are already working diligently on their GQMPs because they understand that the plans are the key method for oversight and enforcement under the current program. Many stakeholders and even State Board staff have commented that the current order does not contain milestones or enforceable criteria - yet the significant requirements of the GQMPs appear to be ignored.

Again, we urge the State Board to allow the current program to function as intended. If the coalitions fail to create and implement the GQMPs as required by the current order,

that would be the time to step in and change the process - but not now when we are already working on a viable and defined process for improvement.

3. The Requested Data is the Type of Data Protected from Disclosure in Other Contexts

There are a number of state and federal statutory schemes that protect similar data from public disclosure. For example, data submitted to the United States Department of Agriculture through participation in the Department's programs are protected from disclosure under the Freedom of Information Act. (7 U.S.C. § 8791(b)(2).) Federal courts have repeatedly upheld this provision in denying Freedom of Information Act requests. (*Central Platte Natural Resources Dist. v. U.S. Dept. of Agriculture* (8th Cir. 2011) 643 F.3d 1142, 1148; *Center for Biological Diversity v. U.S. Dept. of Agriculture* (9th Cir. 2010) 626 F.3d 1113, 1116-17.)

On the state-level, the California Public Records Act specifically exempts from disclosure "[g]eological and geophysical data, plant production data . . . or market or crop reports, that are obtained in confidence from any person." (Gov. Code § 6254(e).) Courts have explained that the privacy considerations behind this exemption stem from "the financial confidentiality of growers' enterprises." (*Uribe v. Howie* (1971) 19 Cal. App. 3d 194, 212 (discussing disclosure of information related to pesticide use reports). Because there is standardized pricing in commodity markets, information about crop type, crop acreage, and crop yield can be used to estimate a growers' income - which is private financial information. (*Ibid*.) Also, data on crop type, crop acreage, and crop yield can be used to interfere with futures trading on commodity markets. (*Ibid*.)

4. Members Legitimately Fear "Shake-down" Litigation

Our District and members have serious concerns that submitting field level data to the Regional Board will serve only one purpose - facilitating third party threats of litigation to "shake down" financial settlement payments. This is precisely what has happened in the dairy industry. These third parties use the public data to essentially black-mail landowners into paying off the third party to avoid litigation because the cost to defend even a frivolous lawsuit is typically more than the shake-down payment. The public database essentially acts as a litigation discovery tool for the plaintiffs' bar - allowing them to send out form letters to numerous potential defendants in order to "shake-down" significant settlement payments.

The third party threats DO NOT aid in improving water quality. Rather, they make growers hesitant to participate in the coalition for fear that they will be targeted for black-mail threats when their reported data is viewed out of context. This is especially true at this point, when the crop coefficients have yet to be developed and the "R" portion of the A/R and A-R computations are scientifically unsupported.

5. The State Board does not need to make Field Level Data Public to Comply with the Non-Point Source Policy or the Anti-Degradation Policy

The District agrees that collecting some information about nitrogen management practices in

high vulnerability areas can be helpful in assisting the coalitions and the Regional Board in research, education and outreach to (1) understand which practices are most protective of water quality, and (2) work to ensure all members are implementing those practices to protect and improve water quality. Yet, this can be accomplished without violating the privacy rights of all members.

The existing program requires coalitions to identify the management practices that are protective of water quality and members to implement those practices. The concern appears to be that the current order to too vague as to precisely how and when this will occur. We suggest that instead of retooling the program in its infancy, the State Board establish more concrete benchmarks to evaluate performance to resolve this concern.

The District stands ready and willing to sit down with staff and other interested parties to propose reasonable benchmarks to add certainty to the order.

6. Elimination of the High/Low Vulnerability Designations

The District spent in excess of $300,000 on a Groundwater Assessment Report (GAR) to identify high and low vulnerability areas. The other 14 Central Valley Coalitions spent similar sums. The GAR's posted on the Regional Board's website represent the most current and comprehensive assessment of Central Valley groundwater conditions ever assembled. Yet, neither the Expert Panel, nor the staff who are proposing this new order, reviewed the GARs. This is troubling.

Without taking the time to review the most current and comprehensive analysis available on groundwater in the Central Valley, staff is recommending a wholesale abandonment of the high/low vulnerability designation in the current orders in favor of a new regulatory program that will essentially require the same costly reporting and certification requirements for all members, regardless of risk, size or other practical factors.

For the SJCDWQC, we disagree with the elimination of the two designations. We note, however, that this is an issue that should be decided by the Regional Board on a case by case basis. While it makes sense in our coalition to have the distinction, there may be other areas where it does not. Our GAR identified significant areas of low vulnerability, including the Delta where groundwater is artesian – meaning it flows upward instead of down and cannot be influenced by nitrates that leave the root zone. Rather, these nitrates, if any, are found in surface drainage water. In the SJCDWQC, we have tested for nitrate in surface water for years and have never had an exceedance in the Delta.

Thus, the low vulnerability designation was logical for our Coalition, because it allowed us to focus resources for nitrogen management in the areas that needed it most, and not waste precious resources in areas where nitrogen is not and cannot be a problem for groundwater.

The District agrees with the Expert Panel that nitrogen management is important for all farmers in all areas in order to ensure good farming practices. However, the question for purposes of this regulatory program is different. The question is not whether it is important to understand

nitrogen for farming, but whether and to what extent it should be regulated as part of comprehensive program that must be implemented with limited resources and in a manner that will achieve meaningful results. The development of the high and low vulnerability areas within each coalition region was the result of a significant amount of sophisticated analyses on factors that could result in contamination of groundwater. The Expert Panel's criticism of vulnerability designations was made without reviewing the ESJWQC Groundwater Assessment Report, or the SJCDWQC Groundwater Assessment Report.

The designation of high vulnerability/low vulnerability areas included more than is captured in the characterization on page 22 of the Review of the ESJWQC General Order. The statement that vulnerability is based on areas with current exceedances of water quality objectives or applicable trigger limits is not entirely correct. The designation of high vulnerability also includes several conditions such as soil infiltration rates and depth to groundwater as additional components of a sophisticated statistical analysis. These factors were included to anticipate where within the Coalition region, degradation of groundwater quality could occur. The SJCDWQC used the DRASTIC model developed by US EPA as a method of evaluating the potential for future degradation of groundwater quality. The DRASTIC model has been used as the basis for analyses presented in peer reviewed publications and is seen as a technically sound and scientifically defensible tool for evaluating conditions leading to the potential for groundwater degradation.

Because the ESJWQC and SJCDWQC GARs were being developed during the Expert Panel process, they were not reviewed by the Expert Panel. Consequently, the finding that these studies were "vague, ambiguous, circular, and not supported by sound technical rationale" was premature. In fact, the designation of high vulnerability areas by both Coalitions was supported by a sound technical rationale, and was not vague, ambiguous, or circular. Unless the Expert Panel reviews the scientific basis for the vulnerability designations for all GARS, its challenge of the vulnerability designations has no scientific basis and their opinion and conclusions should be disregarded.

The District strongly recommends that the State Board retain the High and Low Vulnerability designations so that coalition resources can be focused – at least in the early years of the groundwater portion of this regulatory program. The order requires trend monitoring of groundwater - which will identify whether problems areas are changing and will allow for adjustment as the program continues.

7. Global Certification of Irrigation and Nitrogen Management Plans

The Proposed ESJ Order would require that all members have a certified INMP. There is a large cost associated with certification, both to the member and to the Coalition who must train members to self-certify.

The District questions the need for global certification or the need for all members to have certified plans, a least initially. We recommend that certification only be required for plans in high vulnerability area and for large growers. Alternatively, the certification requirement should be delayed several years for low vulnerability area or medium and small growers. This will

Phone (209) 851-4204 info@sjdeltawatershed.org
Street Address 3294 Ad Art Road, Stockton CA 95215
Mailing Address P.O. Box 2357, Lodi CA 95247-2357

provide additional time for members and coalitions to complete required training. There are simply insufficient local resources to properly train and certify all plans as currently set forth in the Proposed ESJ Order.

Further, the State Board has not evaluated the costs associated with global certification of all plans.

8. Coalition Provision of Crop-Specific Nitrogen Coefficients

The Proposed ESJ Order requires the Coalitions to develop crop-specific nitrogen coefficients for all crops in the coalition area for use in determining if growers are applying too much nitrogen. The costs associated with developing crop-specific nitrogen coefficients for all crops have not been evaluated.

The District understands that the research required to perform this task will be significant, and has not been evaluated by the State Board or the Regional Board. The District believes it will take many years to develop these coefficients. The details of how this work should be scheduled and prioritized is truly a matter that should be left to the Regional Board, working with the coalitions, with adequate transparency and accountability to the public, of course.

9. Nitrogen Plan Template Changes

The NMP template is meant to be a planning tool for growers as they address their fertilizer needs in the upcoming growing season. After the season, they complete the actual fertilizer additions and report the results to the Coalition through the Nitrogen Summary Report. Irrigation management planning is not well integrated into the plan and it is not clear how the information is supposed to improve irrigation management. Providing the amount of water that is expected to be applied during the growing season would result in either a guess or a standard value. Unfortunately, applied water can't be planned like nitrogen applications because irrigation is based on factors such as soil moisture and/or daily ET. Extremely hot irrigation seasons can result in a greater water demand which can't be captured by boxes 12 – 15 in the INMP. Consequently, the request for irrigation information is not useful for planning purposes.

Staff's Proposed ESJ Order also contemplates that members will perform the calculation of A/R and A-R. The District strongly disagrees that this calculation should be performed by members because of the risk of inaccurate computation. Although it may appear that this is a relatively simple task, for a large number of growers the conversions/calculations required to generate the N removed value (R) from Yield, are formidable. A large number of growers in coalitions are older, non-english speaking or lack advanced mathematics education. A preliminary review of nitrogen summary report data provided to the SJCDWQC by growers under the current order indicates that even the calculation of A/Y presents sufficient challenges and that significant follow-up and correction will be required.

The District strongly recommends that the Coalitions to calculate A/R and A-R from the A and A/Y information that is provided and then return those calculations to the grower, as is provided in the current order. This practice allows the grower to see their A/R and A-R values in the

Phone (209) 851-4204 info@sjdeltawatershed.org
Street Address 3294 Ad Art Road, Stockton CA 95215
Mailing Address P.O. Box 2357, Lodi CA 95247-2357

context of other members who are growing the same crop in their region. The ratio and difference statistics are calculated to help the grower in planning. Given that there are no A/R or A-R values that have been established as reasonable targets (despite the insistence by some - who are unfamiliar with the science of what actually happens to nitrogen in a field - that A/R should be 1.0 and A-R should be 0), the grower would be performing an exercise that does not provide any positive input into the management of their operation.

10. Method for Determination of A/R and A-R "Outliers"

Staff's recommendation is to identify A/R and A-R outliers as those who fall "1 standard deviation from the mean." There is mathematical fallacy in using this method if the goal is to identify those whose management practices are truly problematic.

First, there will be growers who are more than one standard deviation above and below the mean. We assume there is not a desire to call a member in the "below" category an "outlier".

Second, there is no relation between the arbitrary cut-off of one standard deviation from the mean and management practices that are protective of water quality - this is a purely arbitrary cut-off. The problem with any fixed metric (e.g., 1 standard deviation above the mean, 90th percentile) is that it forces a certain number of growers into the "outlier" category regardless of whether or not their management practices are good or bad. It also forces the remainder of the growers in the dataset into a non-outlier category regardless of the merits of their performance. For example, an academic institution reports that it is possible to achieve an A/R of 1.5 taking into account losses to denitrification and volatilization. Growers implement practices that improve their performance and are able to bring their A/R to below 1.5. Using 1 standard deviation as the sole determinant of being out of compliance dictates that a fixed portion of the grower population will always be considered out of compliance even if their A/R ratios are well below the 1.5 target established with scientific study. This is illogical.

The following numeric examples illustrate this point. In the first example, out of the 11 growers, the mean is about 1.45, the standard deviation is .24, and two growers are above 1 standard deviation. The second table is after improvements in performance. The mean is 1.09, the standard deviation is .04, but there are still two growers above the standard deviation even though their performance is extremely good.

Bigger sample sizes mean more growers outside of the standard deviation. If you had 100 growers, about 16 of them would be outliers. Although you can't have 1.6 of a grower, for every 10 growers included in the calculations, you guarantee that 1.6 of them are outliers, regardless of their performance.

A	R	A/R	Outside
200	180	1.111111	N
250	200	1.25	N
225	196	1.147959	N
195	145	1.344828	N
400	220	1.818182	Y
360	215	1.674419	N
280	200	1.4	N
350	225	1.555556	N
225	145	1.551724	N
310	175	1.771429	Y
270	210	1.285714	N
	Mean	1.446447	
	Stdev	0.24438	
	Mean+SD	1.690827	

A	R	A/R	Outside
200	190	1.052632	N
250	240	1.041667	N
225	200	1.125	N
195	175	1.114286	N
240	220	1.090909	N
240	215	1.116279	N
225	200	1.125	N
250	225	1.111111	N
225	195	1.153846	Y
200	175	1.142857	Y
225	220	1.022727	N
	Mean	1.099665	
	Stdev	0.042752	
	Mean+SD	1.142417	

This problem is exacerbated by our lack of understanding of what an appropriate A/R is for essentially all of the crops grown in the Central Valley. Growers will be responsible for improving performance to reach a target that is currently not known.

The District recommends allowing the Coalition to develop its own program of outreach where growers are evaluated based on their performance and their improvement in performance. The Coalition will work with the Regional Water Board to develop the appropriate metrics for evaluating improvement in performance taking into consideration the recommended amount of fertilizer provided in guidance from CDFA or UCCE. This program, and its success or failure, will be subject to public review and scrutiny just as it currently is under the existing order.

It is only after this data is collected and analyzed, that a proper measure of performance can logically be identified. Staff's current effort to identify performance measures before there is a meaningful dataset or any results from the Management Practices Effectiveness Program

(MPEP) is simply premature.

Finally, staff recommend that the Regional Board develop the A/R performance targets. We strongly disagree with this approach. The Regional Board does not have the expertise or field experience with agriculture to develop scientifically supportable A/R ratio performance targets. Rather, as a regulatory agency, it can and should critically assess the work and proposals of the coalitions and engage its own experts as necessary as part of this process – which is already provided for in the current order.

11. GQMP Triggers - Reliance on DPR GPAs and State Board HVAs would be a less rigorous and scientifically inferior method of determining groundwater vulnerability.

Page 38 of the Proposed ESJ Order states that the Executive Officer must consider State Water Board Hydrogeologically Vulnerable Areas (HVAs) and the Department of Pesticide Regulation Groundwater Protection Areas (GPAs) when determining if a GQMP should be developed by the Coalition. The District strongly disagrees with this approach as being scientifically inferior and less rigorous than the approach already being used by the coalitions

The trigger for a groundwater quality management plan (GQMP) includes any location designated as high vulnerability by the Coalition. Consequently, the question is whether the DPR GPAs or the State Board's HVAs capture the scientific rationale for designating high and low vulnerability, i.e., would they capture all areas that should be designated as high vulnerability without adding area that does not truly qualify as being high vulnerability.

The DPR GPAs are sections in which wells contaminated with pesticides have been found. The location of GPAs (http://www.cdpr.ca.gov/docs/emon/grndwtr/gwp_id_gwpa.htm) includes sections that are at risk for runoff, leaching, or both, based on either pesticide detections or on certain soil types and a depth to groundwater shallower than 70ft. The designations are a result of contamination by pesticides, not nitrate. Also, for those sections of the DPR GPAs that are the result of runoff, the runoff is defined as pesticide residues that are carried to more direct routes to groundwater such as dry wells or drainage wells, poorly sealed production wells, or soil cracks, or to areas where leaching can occur. Soil conditions on sections identified as having the potential for runoff problems does not mean that infiltration to groundwater would be a problem, and in fact, language on the DPR site indicates that there may be a hardpan layer and/or low infiltration rate on these sections. Consequently, the runoff groundwater protection areas are not measuring the same type of "risk" of contamination as the high vulnerability areas identified in the GARs developed by the Coalitions. And, the high vulnerability areas designated within the GAR do not restrict the depth to groundwater at 70 ft. making the processes in the GARs more inclusive rather than less inclusive.

The State Board HVAs are the result of an analysis that is not particularly sophisticated, and clearly not of the level of analysis performed by the Coalition. The maps of these areas were created by the State Board due to groundwater concerns over the release of MTBE from leaking underground storage tanks (http://www.waterboards.ca.gov/gama/docs/hva_map_table.pdf) and indicate where published information indicates soil or rock conditions may be more vulnerable

(susceptible) to groundwater contamination. (The State Board underlines the term "may" in their description.) The State Board indicates that although the areas were designated over concerns about MTBE, these areas may also be vulnerable to other contaminants released at the surface.

After the Coalition's high vulnerability areas were developed, they were compared to both the DPR GPAs and the State Board's HVAs. While there was great deal of overlap, the Coalition's HVAs encompass more area than the two state agency's high vulnerability areas, and are more inclusive of conditions that could lead to contamination. Where the Coalition's high vulnerability areas do not include some GPAs or HVAs, the analyses performed by the Coalitions is significantly more rigorous than either of the designations by the state. Requiring adherence to one or more less rigorously derived categorizations makes little sense.

The District recommends leaving the method for designation of high and low vulnerability as it is in the current order and not requiring that high vulnerability areas include the DPR GPAs or the State Board's HVAs.

12. Private Water Supply Well Testing

The District understands the concern about nitrates in drinking water and agrees that testing of drinking water wells is a good practice. However, the District disagrees that requiring members to test drinking water wells should be a part of the irrigated lands regulatory program because:

1. In many cases, the Coalition member will be a tenant who has no authority to access a drinking water well located on an area of the property that he is not leasing for irrigated agriculture, let alone any legal obligation to provide drinking water to the tenant who may be living in a home on that property.

2. Many drinking water wells will go untested because they are not located on irrigated lands enrolled in this program. A comprehensive public health well testing program is the only way to address all drinking water wells.

3. The District will not take on responsibility for drinking water wells in any way. If there is any requirement in the order related to drinking water, it will have to be handled directly between members and the Regional Board.

4. There are costs associated with testing and reporting and provision of alternative supplies that the State Board has not analyzed. These costs must be carefully analyzed before imposing entirely new components to a regulatory program.

13. Proposed Changes to Surface Water Monitoring Program

Staff's Proposed ESJ Order directs the Regional Water Board to review and modify the surface water monitoring program because '"we cannot find that it is, in fact, of sufficient density (spatially or temporally) to identify locations of possible pollution."' Under the current order, the coalition relies on core monitoring sites to generate data which are representative of other sites within a specific zone. Staff's concern is that even if zones have several watersheds with

similar soils, similar crops, management practices and other conditions, a grower in one portion of the zone could cause a problem that would go undetected because insufficient monitoring is occurring.

Staff does not believe that the current monitoring program has a sufficient density of sites both spatially and temporally. Their directive is for the Regional Board to change the surface water monitoring program to be of sufficient spatial and temporal density. The objective of such a design is "to pursue exceedances with increasingly focused monitoring in upstream channels designed to narrow down and identify the approximate area and sources of exceedances." Implicit in this objective is also the requirement to have a sufficient spatial and temporal monitoring density to detect exceedances in the first place.

The District strongly disagrees with staff's conclusions. To develop a "bigger" monitoring program, the primary question becomes what is sufficient spatial and temporal density of monitoring locations/timing? To absolutely guarantee that no chemical exceedances or toxicity goes undetected, it would be necessary to monitor all water, at all locations, continuously essentially removing all water from the Coalition region. Because this is not possible legally, logistically, or financially, any monitoring program necessarily involves sampling in space and time. Sampling is defined as the process of selecting individual items from among a larger population of those items. If the process of sampling is done correctly, the condition (e.g. water quality) of the items in the sample is representative of the condition in the entire population. Any monitoring program that involves "sampling" necessarily involves some risk that exceedances of the WQTLs for chemicals or toxicity may not be detected. Eliminating all risk of undetected exceedances is not possible but the goal of a representative sampling program is to reduce the risk of missing an exceedance to an acceptable level.

Staff's assumption in the proposal to increase the density and frequency of monitoring is that the water quality in each waterbody is independent of the water quality in every other waterbody. With this assumption, the logical conclusion is that the only way to understand water quality across the entire coalition region is to sample everywhere, all the time. The fallacy of this logic can be seen using an analogy to sampling marbles in a closed box. Suppose there is a closed box containing black marbles and white marbles drawn from two different jars in some unknown proportion, one jar containing all black marbles, the other jar containing only white marbles. The question becomes how many marbles must be removed from the closed box to determine the color of every marble in the box. With only two colors, the probability of removing a black marble is 50% meaning that I can only be "half" certain of the color of each of the marbles in the box. If the color of each marble is independent of the color of the other marbles in the box, and I want to know the color of every marble with absolute certainty, the answer is that every marble must be removed and its color determined.

However, if we know that all of the marbles in the box are the same because we pulled them from the same jar (e.g., the jar of black marbles), we only need to pull a single marble out of the box to know the color of all the remaining marbles in the box.

The Coalition developed zones in which crops, soils, pesticide applications, weather, and other factors are similar, all leading to similar applications with a similar potential for exceedances. In

other words, each zone is like a source jar of marbles. The analogy is that we sample a single waterbody in a zone and determine that there is an exceedance of a WQTL. We know that there could be the same exceedances at other waterbodies in the zone and therefore we sample to confirm. The only difference between the marble analogy and the Core-Represented Site-Zone approach is that we are not absolutely certain that water quality is identical across the entire zone.

Knowing that similar farming practices and environmental conditions in a zone are extremely likely to generate similar water quality gives us confidence that when water quality is good in the Core site, it is good everywhere in the zone and conversely, when water quality is impaired at the Core site, it is likely to be impaired everywhere in the zone. However, to increase our confidence that this is in fact the case, the Coalition rotates the Core Sites every two years, and the Coalition does sample all Represented Sites when an exceedance occurs at the Core site.

Additional upstream sampling does not improve the ability to identify sources of exceedances. For two years, the Coalition monitored upstream and downstream sites during the same sampling event in every waterbody in which an accessible upstream site was available. This effort did not result in any significant improvement in the ability of the Coalition to identify growers that were discharging to surface water. After reviewing the data during numerous discussions with Regional Water Board staff, it was the recommendation of the Regional Water Board that the Coalition discontinue the upstream and downstream monitoring and focus on using alternative means to identify potential dischargers.

The Coalition uses Pesticide Use Reports to identify all members who had the potential to discharge and cause exceedances of chemical WQTLs or toxicity. Rather than spending time to isolate one or a few members, the Coalition determined that treating all upstream members equally was the most effective method of reducing exceedances. Over the last several years, this approach has led to identification of numerous potential dischargers, increased outreach to those growers, and significant improvements in water quality. The SJCDWQC's record of success is seen in the completion of 64 management plans across both core and represented sites since 2012.

14. Off-Site Data Storage is Expensive and Unnecessary

Staff's proposed order would require duplicative off-site data storage at an additional expense. There appears to be a concern that valuable data could be lost if it is all stored on a single computer that could suffers a malfunction.

The District agrees that data storage back-up is essential, but disagrees that off-site storage serves any meaningful purpose. There are numerous options for storage that meet the intent of the requirement but reduce the cost of the backup/storage effort. The SJCDWQC (and the ESJWQC) data are backed up nightly whenever changes to the databases occur (e.g. the addition of new Nitrogen Summary Report data). If no changes occur, total system backup occurs every 7 days. The backup is made to tape and the tape is stored offsite negating any possible loss of data due to a catastrophe such as a fire.

Phone (209) 851-4204 info@sjdeltawatershed.org
Street Address 3294 Ad Art Road, Stockton CA 95215
Mailing Address P.O. Box 2357, Lodi CA 95247-2357

Offsite storage (the location is often referred to as a data farm) may appear to be more secure, but this is not necessarily the case. Recently, the State Board decided to store their water quality data kept in the California Environmental Data Exchange Network (CEDEN) in a data farm. After a short period of time, the safety and security of the data were questioned and the State Board removed its data back into its own system. Offsite storage does not guarantee the safety and integrity of a coalition's data.

Each Coalition is already required to provide an explanation of their data management in the QAPP. The review and modification of the data management should be performed on a case by case basis rather than require all coalitions spend additional resources on an unnecessary effort.

Thank you,

Michael Wackman
Executive Director
San Joaquin County and Delta Water Quality Coalition