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Nitrate Expert Panel
c/o Jeanine Townsend, Clerk to the Board
State Water Resources Control Board
1001 I Street, 24th Floor
Sacramento CA 95814

Subject: Agricultural Expert Panel Comments

Dear Sirs:

Thank you for agreeing to provide technical input to the State Water Resource Control Board (SWRCB) as per Recommendation 14 of the SWRCB's report to the legislature. The dedication of your time and your conscientious efforts are greatly appreciated. Your task is to "assess existing agricultural nitrate control programs and developing recommendations" AND to provide a more thorough analysis and long-term statewide recommendations regarding many of the issues implicated in the State Water board Order WQ 2013-0011. This task is no small undertaking. Please note that your charge, as written above, does not limit your input to technical issues, but allows comment on the regulations and regulatory processes, research and funding issues that pertain to nitrate and groundwater management, as well.

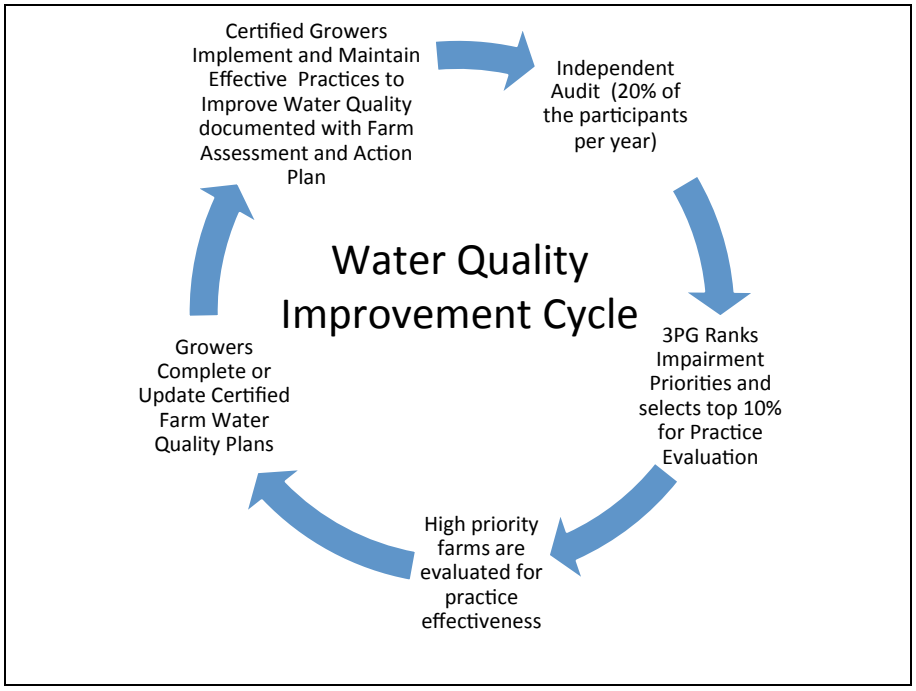
Further, IRTC should be commended on the selection of speakers and how well presentations were tied to the specific questions that are being put to you by the SWRCB. Last week, during the panel meetings, it was refreshing to have educated and thoughtful discussions between qualified experts about what is possible, what is useful, what is known, and what could/should be done to protect groundwater supply quality.

Comments contained in this letter are primarily from a Central Coast perspective. It is unfortunate that the Water Boards did not convene an expert panel of similar caliber prior to adoption of the 2012 Conditional Ag Waiver (Ag Waiver). It is true that there were multiple Central Coast Regional Water Quality Control Board (CCRWQCB) directed meetings, hearings and workshops at which expert testimony was given but those events always occurred within the framework of developing a regulation rather than within the context of what was technically sound. It was frustrating to see expert testimony discounted if it did not support the Water Board's preconceived idea of the next Ag Waiver. It would have been much more meaningful to operate within the context of the science that was/is known and with the goal of best achieving water quality improvement goals. Instead, the 2008 – 2012 Conditional Ag Waiver Adoption process resembled an

insiders club. The following quote is reminiscent of the Central Coast Ag Waiver adoption process: “Outsiders can say whatever they want. But people on the inside don’t listen to them. Insiders, however, get lots of access and a chance to push their ideas. People – powerful people – listen to what they have to say”, Senator Elizabeth Warren.

Currently, it is equally frustrating to hear discussions about the role Coalitions should play and know there is an unasked question as to why the Central Coast does not have a Coalition structure similar to that in the San Joaquin Valley. It should be pointed out that a Coalition structure was put before the Central Coast Water Board in the form of the 2012 Ag Alternative Proposal and that it was not accepted.

Below is a schematic drawing of the proposed Ag Alternative’s Water Quality Improvement Cycle. This was the implementation, audit, evaluation, and reporting feedback cycle that was proposed:



Notes on the Ag Alternative Proposal:

- The Ag Alternative was based on a third party group (i.e. Coalition)
- It would have been an alternative to Tier 2 and 3 requirements
- It would have been an alternative to edge-of-farm monitoring and reporting that many practitioners find to problematic from a data quality perspective and many attorneys find to be concerning from a legally valid point of view
- Enrolled growers would complete a farm water quality plan
- Enrolled growers would implement management practices to improve water quality

- An independent entity would audit members based upon objective and sound technical information.
- A technical advisory committee would assure that management practice information and audits and practice evaluations were based upon the most up-to-date and scientifically sound data and information.
- Prioritized problem areas would be based upon the audit findings
- High priority farms would be evaluated for management practice effectiveness
- Aggregated information would have been reported to the RWQCB at each step in the water quality improvement cycle.
- A public advisory committee would have been formed to review annual aggregate reports and make recommendations on process improvement.
- Special focus would be put on groundwater assessment, monitoring and reporting.
- The entire process would have included accountability in that the Third Party Group would have been approved by the CCRWQCB. It would have submitted publically available general reports and annual reports to CCRWQCB. It would have terminated growers not acting in good faith, and would have audited ALL participants within the term of the Conditional Ag Waiver.

Please note that this approach provided a method for collecting and comparing progress at an individual level, within a community, within a commodity and between regions.

RISK AND VULNERABILITY: Questions 1-4.

What constitutes groundwater risk and vulnerability? The Water Boards have struggled with this and have selected criteria for a variety of reasons. One selected criteria is farm size. Therefore, two questions consider the impact of size of operation in terms of whether size increases risk of nitrate impacts to surface water and groundwater. From a practitioner's perspective, the use of size as an indication of increased threat to water quality seems puzzling. If Tier 3 is the highest threat to water quality and Tier 1 is the lowest threat, it seems odd that adjacent or proximate farms of different sizes that are managed identically should possess different risk categories. Instead of creating a perception of water quality protection, this delineation appears arbitrary and to be candid, it seems a bit classist: large is bad, small is good.

Interestingly, several surveys conducted throughout the U.S. in the past decade regarding grower management practice implementations inquire as to whether size correlates with increased implementation.

Frisvold (2012) found that in Arizona and New Mexico *"*reliance on low-cost general information was common among all size classes, while larger operations relied more on private, tailored information. Larger operations were more likely to

use directly provided data (e.g. media and Internet reports) than smaller operators, who relied more on information provided by intermediaries. Smaller farms were less likely to investigate irrigation improvements, use management-intensive methods for irrigation scheduling, or participate in cost-share programs to encourage adoption of improved irrigation practices. Adoption of scientific irrigation scheduling methods was low for all groups, but especially low for small-scale irrigators."

The American Farmland Trust (2013) stated "out of 170 variables, only education, farm size, income, rainfall, technical assistance program participation and awareness of environmental threats correlate positively with BMP adoption."

ERS USDA (2001) reported "the effect of farm size …on the adoption of farming practices has long been debated. Many argue that new agricultural technologies often have a scale bias that favors larger farms and that adoption of these technologies will accelerate the decline in the number of small farms. Although theory provides little guidance on the relationship between farm size and investments in new technology, empirical studies often find that larger farms are more likely to adopt new technology than smaller farms.

In terms of determining the risk and vulnerability of groundwater, it is suggested that the Water Boards utilize multi-variable modeling using factors such as available and historical vegetation maps, hydrogeology, soil mapping, and underlying aquifer transport characteristics. Dissecting localized management practice implementation can further refine risk to groundwater or surface water quality. The Expert Panel is encouraged to recommend alternative risk prediction models in lieu of the current practice-based nitrate risk determinations, which are grossly over-simplified, are not reflective of actual practices, and may erroneously place a grower in a high nitrate risk category.

During the May 5 Expert Panel meeting, the point was made that the level of precision and accuracy attached to each management practice, measurement, and report value should be known in order to accurately determine true risk or true water quality improvements. Statistical qualifiers would facilitate calculation of the cumulative impacts of ineffective practices and inaccurate measurements so that reported data would appropriate report *known* risks.

APPLICATION OF MANAGEMENT PRACTICES, Questions 5 – 8.

Management practices that are cost-effective and are easy to implement have the best chance of being adopted and successful. In addition, management practice implementation is influenced by other factors.

The American Farmland Trust (2013) found that practices are adopted at different rates by different farmers; that adopting practices on "critically undertreated" acres is becoming more urgent but that targeting "critically

undertreated acres" is not always easy. Furthermore, they found that barriers to adoption were:

- Lack of grower awareness or understanding,
- Fears about impacts of practices to yield or quality,
- Lack of community support or support infrastructure,
- Barriers between organizations or conflicting messages from different organizations,
- Farm-level economics, and
- Landlord-tenant relationships

A survey by the Fertilizer Institute and the Conservation Technology Information Centre (2008) of 2,000 U.S. farmers demonstrated that having a conservation plan (the equivalent to a Farm Water Quality Management Plan) is a key predictor that farmers will adopt additional Best Management Practices. The survey also found that there were no "silver bullets". Instead, farm profit, peer or advisor leadership, peer pressure, farm resources, and risk aversion or acceptance all impact management practice adoption.

For example, economic concerns and time investment are the primary obstacles to soil testing.

ERS, USDA (2001) found that "…education level and years of experience act as proxies for a farmer's ability to acquire and effectively use information about new management practices. Complex practices focused on managing resources may increase the need for specialized skills (Gladwin, 1979). Securing the appropriate technical skills may increase the costs since it could require educational investments or the hiring of managers or contractors (Welch, 1978). Farmers with higher levels of staffing are expected to be more likely to adopt complex technologies." Adoption can be driven by commodity and related cropping practices. The type of crop can influence water and soil management decisions. For example, "row crops are considered to be more erosive to soil than small grains, and fruit and vegetable crops can require larger quantities of water."

In general, among studies, there was uncertainty about the role that land tenure has on practice adoption. It was thought (but not necessarily supported through surveys or research) that practices that are structural in nature would have a higher level of adoption among landowners.

One of the challenges in any discussion regarding management practice is the difficulty in collecting real-time information on management practice adoption. Often, data used for regulatory justification is grossly out-of-date. For example, contemporary assertions that growers are not managing water are not supported. Statistics from the 2014 California Water Plan indicate a 19.6% decrease in total water use since 1967 corresponds to a 124.2% increase in gross Ag revenue per acre-foot of water applied.

So, what practices are growers implementing? Collectively, this could best be answered by collating information reported to the Coalitions or to the Central Coast RWQCB through the Annual Compliance Form. At the grower level, specific growers are as individual in their selection of practices as they are in size and business models. However, anecdotal experience shows that larger growers will resort to adding staff or using consultants to increase nutrient and water sampling, documentation and related decision making. Smaller growers are more likely to depend on vendors for assistance with sampling and documentation and decision-making. They may also participate in collective projects from which they will extrapolate information to apply on their farms. Overall, they rely on UCCE as a source for objective research.

In Monterey County, the Monterey County Water Resource Agency has a web-site dedicated directly to nitrate management http://www.mcwra.co.monterey.ca.us/Agency_data/Nitrate_Management_Fact_Sheets/nfs1eng.pdf. Here you will find recommendations on fertilizer and water management in cool season vegetables, on-farm handling of fertilizers, using soil and water residual nitrate, and other interesting nutrient related information. Also, Monterey Co UCCE Crop Notes are a very good source of input management for coastal crops.

It should be noted that there is a growing body of research dealing with the lag times between management practice implementation and associated improvement in surface water quality. (Meals, 2010) This lag time is further exaggerated by potentially longer pollution transport times between land surface practices and groundwater. Additionally, it is not always possible to connect groundwater quality with practices on overlying land. Contamination may be associated with up-aquifer practices or lack of practices.

During the panel hearings there was substantial discussion about the role of education in creating grower awareness and practice implementation. Education is not just about content and delivery, but also about making it resonates so that growers incorporate and apply the information.

The USDA NRCS Social Sciences Team analyzed over 2,500 research reports on how farmers adopt BMPs or conservation practices (USDA NRCS 2005). It was proposed that “there are six stages associated with practice adoption: “1) Awareness of the problem; 2) Interest in more information; 3) Evaluation the technology 4) Demonstrating applicability on the farm; 5) Adoption—full use of the technology; and 6) Adaptation—producer customizes the practice or technique to fit his or her needs. Producers get their information from different sources as they progress through each stage. In Stages 1 and 2 (Awareness and Interest), producers turn to mass media, government agencies, friends and neighbors, dealers and salespeople (in that order). In Stages 3 through 5 (Evaluation, Trial and Adoption), farmers rely on friends, neighbors and family, government agencies, mass media, dealers and salespeople. And in Stage 6

(Adaptation), farmers use their own personal experience." In addition, producers are increasingly turning to the Internet and certified crop consultants as sources of information.

In respect to education, everyone needs to be educated: growers, technical consultants, regulators and policy makers. Education should not be limited to Certified Crop Consultants if there is an expectation for substantial and continued improvement in water quality.

VERIFICATION MEASURES, Questions 9-11

There needs to be focused research on sampling techniques that produce reliable data. Otherwise, regulation is based on in garbage in-garbage out approach. Sampling for production practices, sampling for regulatory purposes and sampling to determine the causes of exceedances should not be confused. They are not the same thing. They have different purposes; therefore, sampling procedures should be conducted differently, taken at different times, and measure different constituents.

Quite often, the Nitrate Quick Test (NQT) is suggested as a test growers can use to do a real-time measurement of concentrations of nitrate in the soil prior to fertilizer application. Michael Cahn and Tom Lockhart evaluated 6 commercially available NQTs. "Three were identified as accurately measure nitrate in soil and water. The Merckoquant NO3/No2 and the Hach Aquacheck strips were accurate for measuring concentrations of NO3 as low as 10 ppm, which would roughly correspond to 5 ppm NO3-N in soil. No brand of test strip measured NO3 accurately below 10 ppm. Several brands of strips that measure No3 in addition to other constituents in water were found to underestimate no3 concentrations, especially at high values." The Crop Notes article also estimated the costs of NQT as ranging fro $0.25 – 0.47 per test strip.

However, personal investigations found the purchase of commercial NQT test kits to be confusing. It was difficult to find a kit that could measure the range of nitrate concentrations found on most farms. Additionally, other obstacles to the use of NQT exist. First of all, information regarding supplies quickly becomes out-of-date. Vendor and supplier contact information and supplies had been discontinued. Next, many of the commercial test kits require refrigeration and are compromised if they are not stored properly. This is not necessarily revealed when the kits are purchased. If a grower becomes frustrated when trying to purchase commercial kits and tries to create his own, he will find that some of the ingredients are hazardous and require special permits for disposal. No matter what direction he chooses, a grower will need special equipment and a place to keep the NQT samples while they are processing. This brings us to the most important point, the NQT is not "quick". Typical soil sample collection time is about 30 minutes, depending on the size of the field. Sample processing time requires 20 minutes to several hours depending on the soil texture and nitrate

concentration. When one calculates the time associated with the NQT, it becomes quickly apparent that additional staff will likely be required. At that point, labor and transportation costs may make the true costs of using the NQT prohibitive. In summary, there is no doubt that a more real-time, sophisticated, quicker, reliable, user-friendly methods of measuring nitrate in farm soils; surface water and irrigation water are needed.

SWRCB has asked the Expert Panel to address MP effectiveness. Quite honestly, this needs to be defined. At present, it is left up to the grower discretion as to what constitutes practice effectiveness. In my consulting business, I am asking the growers to state the practice and rationale for implementing the practice. The grower is providing qualitative and quantitative results from practice implementation and trying to capture benefits and costs associated with the practice. This exercise has stimulated very productive discussions about water quality and production practices.

Under the CCRWQCB Ag Waiver, production goals and regulatory requirements are not aligned. Therefore, work is partially overlapping, data collection still remains undefined and reporting requirements are not focused.

REPORTING

There are two overarching questions that should impact how data are collected:

1) What is groundwater? Is it the water that is below the root zone? Or is it water that is below the vadose zone? When does a groundwater discharge actually occur?
2) What is the value of edge of field monitoring for the purposes of regulation?

There was substantial testimony about the number of data gaps that exist. And these gaps beg the questions: So what needs to be reported? What is so absolutely necessary to protect water quality that it should be reported even though it is not fully understood or the data accuracy confidence level is extremely low? What can be done to improve the precision and accuracy of practices, sampling and reporting?

Likewise, there was substantial discussion about the use of mass balances or N-balance ratios which seems very much like “putting the cart before the horse” when so many data gaps exist. The following are examples of components of N-balance worksheet for which very little is known:

- What is groundwater? Is it the water that is below the root zone? Or is it water that is below the vadose zone? When does a groundwater discharge actually occur?
- What is the value of edge of field monitoring for the purposes of regulation?
- What are the N needs for many specialty crops?

- What are the N uptake curves for many specialty crops
- How do N uptake curves vary on a seasonal basis, under different weather conditions, and under different growing conditions such as under diverse soil characteristics and water conditions?
- What are the harvested N values for many specialty crops?
- How crops rotation impact N management?
- How to automatically measure and upload soil NO3 concentration data in real time?
- How to manage salts without impairing groundwater?
- What is known about mineralization rates?
- What is known about the amount of bio-available N released from soil organic matter and previous crop residues so growers will be able to model WHEN excess N will be available during the life of the crop?
- How can mineralization be measured?
- What is *true* about soil microfauna and the role soil microfauna play in nitrogen availability? (i.e. how do we separate marketing hype from truly useful data?)
- How to take a meaningful soil nitrate concentration sample for production purposes (think like a plant root?)?
- How to take a meaningful soil nitrate concentration sample for regulatory purposes (think like a regulator?)?
- How to take a meaningful soil nitrate concentration sample for determining when and where nitrate is moving through the soil profile into the groundwater (think like a groundwater aquifer?)?
- When is the best time to take a soil nitrate concentration sample for production purposes?
- When is the best time to take a soil nitrate concentration sample for regulatory purposes?
- How to measure soil moving below the root zone and through the soil profile into groundwater in real time?
- What is the true value of pump and fertilize as a groundwater treatment?
- In the areas where growers are fertilizing from impaired shallow aquifers, how does this re-cycling of N from groundwater to irrigation water to surface water to groundwater impact the nitrogen mass balance on the farm/ranch or at the groundwater basin level?

The timing of reports is critical. If a report is done mid-crop-year, it will be much more difficult to obtain meaningful data. Please bear in mind that cool season vegetable growers work off of two schedules, a planting year and a harvest year. Which one should be reported? On May 6, CCRWQCB staff testified that the reporting deadline for the current Ag Waiver will be October 1. While it is recognized that the Central Coast is a year-round growing area, it would seem that a time would be picked that is more useful. October 1 coincides with grape harvest and most cool season vegetables are still harvesting their last crop of the year. A different date in the early winter would be more useful for growers to

process and report information. In Monterey County, water use reports are due to the Monterey County Water Resource Agency in the winter and it would be ideal for growers to coordinate these two set of data since they overlap.

Likewise, there needs to be sufficient time to gather and process information. CCRWQCB indicate that growers will be given 30 days during a very busy time of year to organize data for reporting purposes. At least initially, this data processing deadline will likely present logistical problems for many growers.

The Expert Panel may want to consider phasing in reports requirements, depending on how much information and at what scale data are required to be reported. Phasing may mean that information is additive over time. For example, this year, a grower might be required to report his total N use and next year, he might report total N use plus total water use. Phasing may also mean that a segment of the industry or parts of an operation would report information at different times. This would allow insufficient technical resources to be spread out and utilized to maximum capacity.

No matter what is reported, it must be done in a way that collects information so that regulators may focus on problem areas and track improvement.

If is it determined that cool season vegetable growers must report all N and water application to the smallest management unit, the planting level, then, there should be some consideration as to the logistics as to how this should happen. Can growers be broken into groups so there is phased reporting? Can larger growing operations be broken up for reporting purposes? This will spread out the workload.

Additionally, collection and reporting tools should not only accomplish regulatory goals but should also act as educational tools for production improvements and environmental protection. Growers need to be given simple and useful templates that guide their data collection. What should these tools look like?

- Initially, they would be very simple and only require solid fundamental information necessary for regulation and production (e.g. total N used, total water used)
- The tools would become progressively more sophisticated as data become known and as the commercial database industry catches up with grower needs. (Please note: currently, there are no commercially available databases that facilitate multi-objective reporting. However, the database industry is on the verge of significant breakthroughs in this area)
- Reporting templates should be flexible enough to be used for multiple objectives: production management, sustainability reporting and regulatory reporting. Templates must be flexible enough to accommodate individual operational constraints.
- These templates could further education. If there was coordination between UCCE, the regulators and the database vendors, hyperlinks to

> educational tools could be embedded in the reporting tools. As growers are working with these tools, they would be alerted to valuable information such as updates on sampling practices, new information on nitrogen management, new information on irrigation equipment, etc. Growers would have access to up-to-date information via U-tube presentations or links to web-sites and this information would be directly related to information being collected and reported.

For growers, “seeing is believing”. Verification reporting to a regulatory agency can, in some instances, be a hindrance to water quality improvement. For example, in the past couple of years, an anonymous group of growers have been working with a specific vendor to measure water and nitrate moving through the soil profile. The vendor installed fixed data collection devices in individual grower fields over a given region. Additionally, a variety of analytical techniques such as NQT, cardimeters, and laboratory samples compared information about water and nitrate moving through the soil profile. These data were tied to definitive information about management practices. The data were blinded and presented to the group of growers. There was frank discussion about what worked and what didn’t work. This educational activity never would have happened if those results were required to be reported to a regulatory agency.

How and what data are reported and to whom data are reported determines the amount of liability and vulnerability generated for an individual growing operation and increases the amount of effort necessary to protect their proprietary information from public disclosure.

In California, the Porter Cologne Water Quality Control Act (Ca. Water code, division 7) Effective January 1, 2014 § 13267 addresses proprietary information that is obtained during investigations or inspections:

> (a) A regional board…may investigate the quality of any waters of the state within its region.
>
> (b) (1) In conducting an investigation specified in subdivision (a), the regional board may require that any [discharger] to furnish… technical or monitoring program reports which the regional board requires. The 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. In requiring those reports, the regional board shall provide the person with a written explanation with regard to the need for the reports, and shall identify the evidence that supports requiring that person to provide the reports.
>
> b. (2) When requested by the [discharger]…portions of a report that might disclose trade secrets or secret processes [i.e. IP] may not be made available for inspection by the public but shall be made available to governmental agencies for use in making studies… or any state agency in judicial review or enforcement proceedings involving the person furnishing

the report.

It is probably worth repeating the analogy that proprietary information is comprised of a unique combination of factors that provides economic value to the person possessing the information. Therefore, a grower's proprietary information is much like the batter recipe used by Colonel Sanders. Everyone has access to the ingredients: flour and spices and grease for cooking. However, it is the quantity, combination, timing and temperatures used that create IP. In the case of a fresh fruit and vegetable production, it is the unique combination of soil, climate, altitude, length of growing season, tillage practices, variety, amount and timing of water and nutrients, timing and selection of other inputs, and harvest information that creates a unique and marketable product.

In the Lexology (2013) article "Guidelines for protecting company trade secrets". General pointers are given on how to identify and sufficiently protect potential trade secret information.

1) Information broadly includes: "all forms and types of financial, business, scientific, technical, economic, and engineering information; patterns, plans, compilations, program devices, formulas, designs, prototypes, methods, techniques, processes, procedures, or codes; information related to single or multiple events, negative data points that have commercial value such as the results of lengthy and expensive research which prove that a certain process with not work; and information that can be held or stored in any medium." Further, courts have similarly interpreted virtually any knowledge, data or process used to conduct business to be protected from public disclosure. Some examples of items that have been found by the courts to constitute trade secrets are:

- Pricing techniques,
- Marketing techniques,
- Identity and requirements of customers,
- Financial information,
- Customer information,
- Maintenance of data on customer lists and needs,
- Sources of supplies,
- Pricing data and figures,
- Manufacturing processes,
- Product compositions,
- Expiration lists,
- Buy books,
- Cost books,
- Customer books or lists,
- Confidential costs.

2) Information must also retain "economic value" that is readily ascertainable by others. This is typically considered on a case-by-case basis by the courts:

- Have reasonable protective measures been established to protect the secrecy of the information?
- Is the information known by a limited number of employees or other parties in confidential relationships on a need-to-know basis
- Does the information have actual or potential commercial value or provides a company with a competitive advantage
- Has the company devoted significant time, money and other resources to develop the information
- Would the information be useful to competitors and require significant investment to duplicate or acquire
- Is the information generally not known to parties who could obtain economic value from it?

CropLife International (2013) believes that in order meet food demands over the next 40 years; the agriculture industry will need to expand food production substantially and new technologies will be required. Strong intellectual property protection will enable growers and the plant science industry to invest in the R&D without concern of losing investments.

In 2012, there was a very good example of improper handling of data reported to an agency. The U.S. Environmental Protection Agency (EPA) inadvertently handed over private information about farmers and ranchers in 29 states to environmental groups in response to freedom of information requests. The data had detailed information on GPS coordinates, agricultural workers and their medical histories. The EPA later acknowledged that the information should never have been divulged and asked for the information to be returned. However concerns remain about how the information will be used in the future. Agricultural advocates have expressed specific concern about eco-terrorism.

As testified on May 7, there has already been a public records act request (PRAR) on the Central Coast. The following news release was published by the Grower Shipper Association of Central California last month

> "In early March, the Central Coast Regional Water Quality Control Board (CCRWQB) received a request from California Rural Legal Assistance, Inc. requesting information pursuant to the Public Records Act (PRA).
>
> The following was requested:
> • Groundwater Nitrate Loading Risk Determination reporting submitted by all Tier 2 and Tier 3 farm and ranches to this date, March 3, 2014, pursuant to State Water Resources Control Board Order WQ 2013-0101;
> • Drinking Water Notification letters issued by Regional Board to growers and landowners through the Irrigated Lands Regulatory Program who have one or more domestic drinking water wells which have exceeded the drinking water standard through February 28;
> • Applicable written confirmations from above growers who have received

exceedance notifications, that these growers have notified domestic well users of the nitrate exceedance, posted an appropriate public health notification, and identified any treatment method or alternative drinking water supplies provided to ensure safe drinking water; and
- Staff inspection reports of nine farms/ranches conducted in December 2013 pursuant to the Irrigated Lands Regulatory Program.

On April 10, the Central Coast Water Board provided documents responsive to this request. The Board has some records that Water Board Counsel had determined are exempt from disclosure under CPRA under the balancing test in Government Code 6255. These are draft documents related to the staff inspections and water well location data."

So, what does this mean to growers? There was testimony given during the Expert Panel meetings that Porter Cologne prohibits citizen lawsuits against specific dischargers. This is correct. Nonetheless, growers may still be vulnerable to other potential damages by persons requesting proprietary information.

1) Recipients of PRAR information may file a claim asking the agency for enforcement. The agency will then decide whether to enforce.
2) Recipients of PRAR information may resort to "creative lawyering" and file a claim using a federal statute outside the Clean Water Act and Porter Cologne
3) Recipients of PRAR may find a plaintiff to claim damages and file a tort action such as a nuisance suit against a specific grower

And finally, information obtained through a PRAR may be used to demonize an individual in the media so that he loses standing in the community, his reputation is compromised with enforcement agencies and his relationships are damaged with his colleagues and clients.

So, who or what is a grower? CCRWQCB Staff compared growers to dry cleaners or filling station owners as they crafted the 2012 Ag Waiver. Yes, growers are independent businessmen. But, unlike a drycleaner or gas station owner, the act of growing food is a lifestyle. It is more than making a profit. However, without profit, the farm cannot exist. A grower's personal identity and his organizational structure may be so interconnected that they are inseparable. Attacks on the farm are attacks on the farmer, himself, with the exception of large corporate farms. And while there are many vertically integrated farms on the Central Coast, it should be noted, there are not many "corporate" farms.

OTHER ISSUES:

During the Expert Panel meetings, there was testimony that the SWRCB and RWQCBs are simply "discharging their mandate" as created by state law, polices and regulations. However, Water Board staffs are often perceived to be actively

involved with crafting their mission and mandates rather than being subject to them:

Two examples are provided below.

1) In the 2007 timeframe, CCRWQCB adopted a Visioning Process through which it "formed four vision teams whose purposes [were] to implement the Water Board's vision for healthy watersheds". One of those teams, The Clean Groundwater Team, had a Project Charter that had the following goals: By 2025, 80% of groundwater will be clean, and the remaining 20% will exhibit positive trends in key parameters.

   The Clean Groundwater Team outlined a number of obstacles to meeting these goals. In particular, "Water Board Staff may not have direct regulatory authority to implement actions or require others to implement them. Water board Staff may seek direct regulatory authority or rely on influence/authority from other agencies or organizations to assist in implementation."

   Other listed constraints were that the Water Boards did not, at the time, have the authorities to: 1) specifically identify and protect groundwater recharge areas or vulnerable aquifers, 2) address the interconnectedness of groundwater and surface water, 3) address various threats to water quality on a watershed/groundwater basin scale such as nutrients and salts loading, agricultural chemical use, slat water intrusion, overdraft and sustainable yield, reduction in recharge, adverse land use management practice, infiltration of polluted runoff, and use of chemicals that could have long-term or synergistic impacts or human health or the environment (i.e. emergent chemicals), and 4) to evaluate the cumulative impacts and sustainable loads of individual discharges on groundwater at the a groundwater basins scale. It should be noted that within the timeframe that has lapsed since writing this charter, the Water Boards have assumed many of these authorities.

2) Below is a summary of the Total Maximum Daily Load Programs. It is not written in legalese. TMDL programs are federal programs administered by states. If data are collected that indicate water quality impairments, waterbodies are placed on the 303(d) list. Once waterbodies are listed, states are required to calculate a TMDL and require pollutant-contributing stakeholders to implement actions and practices to achieve the TMDLs. Numeric targets are established and usually are based on state or federal numeric or narrative Water Quality Objectives. Timeframes for achieving objectives can vary from a couple of years to decades.

   Authorities for the TMDL programs come from existing permits. In the case of pollutants that may be related to agricultural activities, the Conditional Ag Waiver or General WDRs usually provide that authority.

Nutrient TMDLs have been approved by the CCRWQCB and the SWRCB for the Lower Salinas River and Santa Maria River watersheds. Office of Administrative Law and EPA approvals are pending. The implementation plan for agriculture is to comply with the Ag Waiver. These TMDLs contain non-enforceable numeric targets that are NOT based on either EPA- or State-approved numeric endpoints. Please see the table below. As testified by CCRWCB at the May 6 Expert Panel meeting, these numeric targets are for protection of aquatic life and not for drinking water protection.

Generally, TMDL programs are surface water programs. At present, the state does not have a nutrient surface water protection policy. CCRWQCB incorporated groundwater into these TMDLs for a variety of reasons; one of which is the interconnectedness of surface water and groundwater. TMDL literature indicates that TMDLs are often reflective of future regulation. The concern in the agricultural community is that these numeric targets indicate future regulatory objectives and the belief is that CCRWQCB is not only ahead of their regulatory mandate on this issue but are actively forging their future mandate in conjunction with other resource agencies. If the nitrate panel is struggling with how to meet a drinking water MCL of 10 ppm, imagine the difficulty of achieving these numeric targets.

Table 4-1. Numeric targets for biostimulatory substances (geomorphic classifications and soil properties data from NRCS-SSURGO – canopy cover from NLCD and field observation).

Waterbody Type	Geomorphology & Stream Characteristics	Project Area Stream Reaches	Allowable Nitrate-N (mg/L)	Allowable Orthophosphate-P (mg/L)	Methodology for Developing Numeric Target	Notes Pertaining to Development of Targets
Alluvial Valley River – flood plain	Alluvial valley river. Alluvial flood plain. Low ambient turbidity 13% average canopy cover; sandy substrate	Lower Salinas River – Spreckels to Salinas River Lagoon	**1.4** Dry Season Samples (May 1-Oct 31) **8.0** Wet Season Samples (Nov. 1-Apr. 30)	**0.07** Dry Season Samples (May 1-Oct. 31) **0.3** Wet Season Samples (Nov. 1-Apr. 30)	Statistical Analysis (USEPA percentile-based approaches) Supplemented by Calif. NNE approach (NNE benthic biomass model tool) Wet-season targets based on Central Coast Basin Plan nitrate objectives and State of Nevada phosphate criteria for streams	Generally low ambient turbidity (5 NTU-25th percentile), sandy substrate, good sunlight penetration, low to moderate canopy cover indicates risk of biostimulation at relatively low concentrations of nutrients.
Lower Alluvial Valley streams and sloughs	Alluvial basin floor and alluvial floodplains; Moderate ambient turbidity; Muddy to earthen substrates and fine-grained soil conditions; almost no canopy cover	Tembladero Slough all reaches Merritt Ditch dwnstrm of Merritt Lake Reclamation Canal downstream of Hartnell Rd. to confluence w/Tembladero Slough Alisal Slough all reaches Espinosa Slough from Espinosa lake to confluence with Reclamation Canal Santa Rita Creek all reaches	**6.4** Dry Season Samples (May 1-Oct 31) **8.0** Wet Season Samples (Nov. 1-Apr. 30)	**0.13** Dry Season Samples (May 1-Oct. 31) **0.3** Wet Season Samples (Nov. 1-Apr. 30)	Statistical Analysis (USEPA percentile-based approaches) Supplemented by Calif. NNE approach (NNE benthic biomass model tool) Wet-season targets based on Central Coast Basin Plan nitrate objectives and State of Nevada phosphate criteria for streams	muddy and fine-grained substrates and local soil conditions result in relatively high ambient turbidity (30 NTU – 25th percentile) which precludes good sunlight penetration of water column; risk of biostimulation occurs at relatively higher nutrient concentrations.
Upper alluvial Valley tributaries	Alluvial fans, alluvial plains and alluvial terraces, low to moderate ambient turbidity; generally silty or sandy substrates and soil conditions, canopy cover generally 20% or lower.	Gabilan Creek all reaches Natividad Creek all reaches Alisal Creek upstream of Hartnell Rd.	**2.0** Dry Season Samples (May 1-Oct. 31) **8.0** Wet Season Samples (Nov. 1-Apr. 30)	**0.07** Dry Season Samples (May 1-Oct. 31) **0.3** Wet Season Samples (Nov. 1-Apr. 30)	Statistical Analysis (USEPA percentile-based approaches) Supplemented by Calif. NNE approach (NNE benthic biomass model tool) Wet-season targets based on Central Coast Basin Plan nitrate objectives and State of Nevada phosphate criteria for streams	Relatively low ambient turbidity (<1 NTU-25th percentile), silty or sandy substrates and local soil conditions. Canopy cover generally 40% or less Sunlight penetration likely moderate. These stream reaches are currently not expressing a full range of biostimulatory indicators. They are however, discharging elevated nutrient loads to impaired downstream waterbodies. Nutrient targets protect against downstream impacts and against the risk of biostimulation in these stream reaches.

Old Salinas River	Coastal flood plain and tidal flats Moderately high ambient turbidity, minimal canopy cover.	Old Salinas River from slide gate infow @ Salinas River Lagoon to Old Salinas River at Potrero Rd.	**3.1** **Dry Season Samples (May 1-Oct. 31)** **8.0** **Wet Season Samples (Nov. 1-Apr. 30)**	**0.07** **Dry Season Samples (May 1-Oct. 31)** **0.3** **Wet Season Samples (Nov. 1-Apr. 30)**	Statistical Analysis (USEPA percentile-based approaches) Supplemented by Calif. NNE approach (NNE benthic biomass model tool) Wet-season targets based on Central Coast Basin Plan nitrate objectives and State of Nevada phosphate criteria for streams	muddy and fine-grained substrates and local soil conditions result in relatively high ambient turbidity (30 NTU – 25th percentile) which precludes good sunlight penetration of water column; risk of biostimulation occurs at relatively higher nutrient concentrations.
Moro Cojo Slough	Tidal Flats. Low ambient turbidity, minimal canopy cover	Moro Cojo Slough, all reaches	**Allowable Total Nitrogen-N (mg/L)** **1.7** **(TOTAL NITROGEN) Dry Season Samples (May 1-Oct. 31)** **8.0** **(TOTAL NITROGEN) Wet Season Samples (Nov. 1-Apr. 30)**	**0.13** **Dry Season (May 1-Oct. 31)** **0.3** **Wet Season Samples (Nov. 1-Apr. 30)**	Statistical Analysis (USEPA percentile-based approaches) Supplemented by Calif. NNE approach (NNE benthic biomass model tool) Wet-season targets based on Central Coast Basin Plan nitrate objectives and State of Nevada phosphate criteria for streams	Generally low ambient turbidity (4 NTU), good sunlight penetration, low canopy cover indicates risk of biostimulation at low concentrations of nutrients. Note that **Nitrate-N is likely only a small fraction of total N** in the water column at site 306MOR, likely due to elevated biological uptake of NO3 in tidal flat-estuarine environment and sequestration of N in biomass and other phases

Having said this, the Agricultural community recognized the difficulty and complexity of these issues. We commend the Water Boards on continued efforts to improve stakeholder involvement and participation. We appreciate the opportunity to make comment in the hope that, despite great opposition, the Water Boards will be able to improve upon existing Agricultural Water Quality regulations to craft a regulation that is reasonable and achieves true water quality improvement. It is hoped that the regulations may be become more than an overwhelming paperwork exercise that generates data to make individual growers vulnerable to legal action but limited water quality improvements.

Once again, thank you for your dedication and time. And thank you for considering these comments

Most Sincerely,

Kay Mercer
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