



July 12, 2013

Ms. Janine Townsend
Clerk to the Board
State Water Resources Control Board
1001 I Street, 24th Floor
Sacramento, CA 95814
commentletters@waterboards.ca.gov
VIA ELECTRONIC MAIL ONLY

SUBJECT: Comments to A-2209 (a)-(e) – July 23 Board Workshop

Dear Ms. Townsend:

Costa Farms Inc. (Costa) is an integrated family farming operation in the Salinas Valley that grows cool-season vegetables and wine grapes. The operation supports 17 family members in 5 families and employs 500 employees and utilizes the services of 6 contract employees and service providers.

Costa has and continues to proactively address agricultural water quality improvements. For example, Costa participated in a watershed-working group to improve water quality on Quail Creek in 2008-2009 to address pesticide and sediment management. In the past four years, we have developed a formal soil sampling and nutrient management program. We have retrofitted and improved farm infrastructure such as wellheads, irrigation delivery systems, and fertilizer storage facilities. We are addressing sediment through the building of sediment and containment basins, using “sacrifice” cover crops as spray fields for excess tailwater runoff and developing a unique form of PAM formulation to reduce sediment in tailwater and drainage ditches. We have been improving irrigation efficiencies for over 20 years through conversion from sprinkler to drip irrigation systems and through irrigation efficiency upgrades. We have converted highly erosive farms/ranches from vegetables to wine grapes to reduce stormwater runoff. We have continuously supported local UCCE research efforts and now are implementing our own demonstration program to evaluate products that are touted as improving nitrate efficiencies and soil health. Finally, after realizing that no commercial database was available that truly met our data collection and reporting needs, we began working with a national database software company to design a field-level

data collection system that accommodates the highly complex, intricate, and volatile nature of cool season vegetable production. Please note that 100% of these improvements have been self-financed.

Costa appreciates the opportunity to provide comment to the State Water Resources Control Board (SWRCB) on the SWRCB proposed order in response to various petitions filed with respect to the Central Coast Regional Water Quality Control Board's (CCRWQCB) adoption of the Conditional Waiver of Waste Discharge Requirements Order No. R3-2012-0011 for Discharges from Irrigation lands (Conditional Waiver) and the Monitoring and Reporting Programs Order Nos. R3-2012-0011-01, R3-2012-0011-02, R3-2012-0011-03. Please find our comments below.

A. 2. Notice and Opportunity to be heard:

Costa supports cooperative efforts. We agree with the SWRCB that there are a number of advantages to utilizing a third party approach and welcome the fact that SWRCB has established expectations that the "Central Coast Water board...give fair and due consideration to proposed third party proposals and work with third party groups in good faith to develop viable alternatives". Until recently, RWQCB Staff has not exerted effort to work towards fair, equitable, technically sound or agronomically-sound programs.

Costa supports language changes made to the "Chance of Success and Project Monitoring and Reporting" evaluation elements for Third Party Water Quality Improvement Projects.

The SWRCB draft order states that "proposals for the third party compliance options had been discussed throughout the process of developing the Agricultural Order" and "the issue of third party alternatives had been...central to the proceedings". These statements imply that the third party alternative was given serious consideration. With all due respect to the entire Ag Waiver process, I do not believe that was the case. Growers were given the opportunity to comment and speak, but I do not believe we were "heard" by either Staff or the RWQCB members. Meetings and hearings were very frustrating because Staff and Board members did not seem to understand the testimony and comments provided by the agricultural community in response to either the proposed Ag Waiver or in discussions of the Ag Alternative proposal. It appeared that Staff and the Board either lacked sufficient knowledge of agriculture and non-point source science to understand what they heard or they willfully ignored testimony and comments throughout the entire process.

I am not an attorney. At this point, I cannot argue with SWRCB's final analysis that adoption of the Johnson Proposal was legally acceptable, although, I do believe that the last minute nature of the proposal, the clandestine communications between Staff and the environmental community, and the failure of Staff to disclose the source of the proposal to Mr. Johnson was not ethical and continues to perpetuate

the perception that the entire Ag Waiver hearing process did not provide adequate notice or opportunity to be heard, and was not fair or objective.

My current concerns regarding third party groups is that RWQCB- and SWRCB- approved third party programs will impose requirements that far exceed individual compliance requirements so that incentives or economies of scale are nullified. Additionally, I am concerned that agency-approved third party programs will be written so that third party member requirements continuously escalate and it will not be possible to contain costs. For example, SWRCB cites the NPS Policy in this section: "If the [third party] project is not effective in achieving water quality standards, additional management practices by individual Dischargers or the third party group will be necessary." My questions regarding this statement are: 1) who decides what the additional management practices should be? 2) What are the minimum qualifications for people who are making recommendations or suggestions for supplemental practices? 3) What assurances does the agricultural community have that proposed supplemental practices are effective and not simply some politically acceptable practice "du jour"? 4) What happens if it is determined that no additional management practices are available to address water quality impairments? 5) Who decides when "enough is enough"?

C. Reasonableness of Tiering Criteria, Provisions 13-21

The tier criteria addressing chlorpyrifos and diazinon should have been based on the *DISCHARGE* rather than the *USE* of those products. As a result of this tier criterion, Costa has ceased the use of chlorpyrifos and diazinon. Such action may improve water quality (that remains to be seen), but it has resulted in substantial cole crop losses for Costa's second crop of 2011-12 and first crop of 2012-13.

At the time of the Ag Waiver adoption in March 15, 2012, these Organo phosphate products were the only effective control for soil borne insects such as Cabbage maggot, Symphylans and Springtails on cabbage, broccoli and cauliflower. While we understand that RWQCB and SWRCB have a narrowly focused mandate to protect water quality and beneficial uses, Costa believes that the loss of these products, coupled with the lack of replacement products, epitomizes the systematic failure of the government to work in concert to simultaneously protect the environment and agriculture. There were many opportunities to avoid this situation:

- Growers used these products according to the labels. Specimen labels for chlorpyrifos and diazinon could have been restricted and/or amended.
- Growers were encouraged to adopt management practices, but no entity was able to properly describe the fate and transport of these products so that the proper management practices could be selected and implemented.
- One management practice, Landguard, was found to be highly effective at hydrolyzing these products; however, agencies chose to address the USE of the products rather than control DISCHARGES. Consequently, the manufacturer of Landguard had no choice but to withdraw from the market

- for lack of opportunity.
- It is my understanding that for several years, the structure of the USEPA and CALEPA registration process discouraged registration of products on specialty crops (e.g. soil insecticides on cole crops).
 - Both USEPA and CalEPA were aware of (and promulgated?) potential restrictions on Organo phosphate pesticides but did not take action to register alternative products that were equally effective prior to product restriction.

I *estimate* that I have lost over 40 acres of cauliflower, cabbage and broccoli this year alone as a result of poor soil insect control. If the current losses continue into the future, the result will be several unintended consequences of the Central Coast Ag Waiver that will affect production of cole crops on the Central Coast.

Likewise, I have concerns about tiering criterion based on farm size. I found the SWRCB explanation that this was an appropriate criterion to be circular. Rather than product use or farm size, other factors such as soil type, grower knowledge about fertilizer and irrigation use, legacy impairments, and effective practice implementation would have been more useful at determining threat to water quality. For example, how protective of water quality will growers be if they do not know what “N,P,K” means on a fertilizer bag? Or if they do not understand differential farming requirements in various soil types? Or if their predicted tenure as a grower is only three years? Or if their land lease is only 3-6 months?

D. Containment Structures

Costa supports the SWRCB draft order’s revision to the containment basins provisions.

However, we encourage the SWRCB to expand on this section and for the SWRCB to acknowledge that under specific circumstances, dictated by soil porosity, the size of sediment fines, the amount of sediment accumulation, weather, and residence time, etc., a sediment or containment basin can actually treat nitrate in contained irrigation and stormwater. Treatment occurs when anoxic layers, that are conducive to denitrification, develop at the bottom of containment basins.

E. Farm Plan /Practice Effectiveness and Compliance, Provision 44

Costa supports changes made to this section.

Please clarify the term change from “the typical volume of discharges and when the discharge is typically present” to the “magnitude and frequency of the discharges from locations identified”. Costa is not sure what the “magnitude and frequency” mean, or how Costa would comply with this requirement.

We would like to comment on the complexity and overwhelming nature of what is being required of growers. While SWRCB says that it is sufficient for a grower to establish a schedule and show progress during this term, there has been no attempt by agencies to prioritize requirements. Hence, growers must work on all issues: nutrient, irrigation, sediment/pesticides, riparian habitat and groundwater, simultaneously. The cumulative effect of seemingly simple and inexpensive practices combined with more complicated and sophisticated requirements is overwhelming and exhausting. A lack of consideration for efficiency and expediency is leading to needless rework and expense.

F. Groundwater

The issue of legacy loading in the Salinas Valley from dairies to shallow drinking was not/has not been adequately addressed.

As stated previously, Costa supports third party groups. However, there is concern that the recently adopted Cooperative Groundwater Monitoring Program (CCCGP) is much more comprehensive than Individual Groundwater Monitoring Requirements, and alludes to additional future requirements, such as monitoring wells. The approved scope may negate third-party economies of scale. Managing risk will be the motivating factor for participation in the CCCGP, as approved.

G. Photomonitoring

Costa appreciates SWRCB efforts to provide further clarification related to alternative protocols for meeting the photo monitoring requirements.

Unfortunately, these clarifications came too late. Costa complied with the RWQCB photodocumentation protocols and took 177 photos on 8 out of 40 farm/ranches. I estimate that I had \$4,450.00 out-of-pocket expenses for photodocumentation. This does not include my time investment. Further, there was an additional \$2000.00 in rework because of difficulties in establishing GPS coordinates.

Because of these expenses, it would be difficult for Costa to justify making additional expenditures in 2013 to create a baseline using alternative aerial or high-vantage technologies as recommended by the SWRCB draft order.

Please clarify in the SWRCB final order whether growers must submit photodocumentation directly to the Executive Officer as stated in the SWRCB draft order. The RWQCB adopted Ag Waiver requires the following "Tier 2 [and Tier 3] Dischargers must maintain photos in the Farm Plan and submit upon request of the Executive Officer". The SWRCB draft order has amended this requirement, but does not address the reason for that amendment. The usefulness of growers submitting thousands of photos to RWQCB Staff is questionable.

H. Individual Surface Water Discharge Monitoring: Provision 72-73 and Part 5 of Tier 3 MRP

Costa appreciates modifications to the individual surface water monitoring. We agree that edge-of-field monitoring is too variable to be useful. We agree with many of the comments SWRCB expressed regarding the program as adopted.

Nevertheless, we have the following concerns:

- 1) There is still too much ambiguity in the use of the term "outfall". Is it the intent of this program to treat agriculture like point source?
- 2) The "Own Motion Review" will delay decisions so that Costa will not be able to comply with the September, 2013 deadline to initiate on-farm sampling nor will we be able to meet the October 1, 2013 reporting deadline. In essence, delays created by the "Own Motion Review" will lead to non-compliance with the currently effective Ag Order.
- 3) Costa is concerned about imposition of an interim program pending Expert Panel decisions. This could potentially lead to needless expenses and the production of information that will be disassociated (i.e. useless) from future data collection required by the Expert Panel.

I. Provisions addressing N application

Please consider the following as you finalize the SWRCB Order:

- 1) Definitions of the terms: "Nitrate hazard unit, Field, Field-level units and Crop" in the SWRCB draft order are unclear. It would be helpful if these were more clearly defined in the SWRCB final order. At present, Costa would not know how to comply with the draft order, as written.
- 2) The adopted RWQCB Ag Order was confusing and contradictory about what units were to be measured and reported for total N applied. Thank you for clarifying and standardizing the units. Every effort to define, clarify and standardize terms and calculations is appreciated and reduces expenses associated with uncertainty and ambiguity.
- 3) It should be noted that nutrient budgets being produced for some perennial crops are too simplistic and incomplete and would not be very applicable for cool season vegetables.
- 4) Currently, much information is not available that would be necessary to calculate a nutrient budget for the diverse number of cool season crops. For example, the following information is not known: the rate and amount of N uptake, the rate and amount of mineralization from soil organic matter and crop residue, the amount of aerial deposition, and the effects of weather, microbial life and other soil conditions on the above factors. This lack of knowledge is affecting, and will continue to affect, our ability to use NO₃-N testing tools in the field with any precision.
- 5) Today's nitrate sampling techniques are crude and unsophisticated. They are not simple, easy, or inexpensive. Nitrate sampling supplies are not easy to obtain and must be purchased piecemeal. The sampling process is time consuming, imprecise, and requires additional staff. There is a shortage of

- trained persons to do sampling. There is little guidance as to which technical approach is best. Nitrate sampling presents unique challenges for each farming operation. Please see a general nitrate-sampling summary attached. Please note that this is not an exhaustive summary, but is representative of nitrate sampling costs, features, benefits, alternatives and constraints.
- 6) It should be noted that we are anxious to trial the UCCE “Crop Manage” on-line, nitrate/irrigation model. However, it currently does NOT convert irrigation-water nitrate concentrations into fertilizer equivalents because existing conversion data are not reliable or conclusive enough for UCCE to use with accuracy. We will likely not utilize this technology until it is able to incorporate all nitrate inputs into the model.
 - 7) In spite of the above deficiencies in knowledge about nitrate budgeting and sampling, Costa’s evolving nutrient management program has resulted in fertilizer reductions from 2009 - 2012. We encourage the State of California, USDA and private industry to continue to work together to bring improved tools and refined information to the vegetable growing industry in order to continue to address water quality issues.
 - 6) Changes to the INMP are welcome.
 - 7) Costa is concerned about SWRCB comments related to the potential requirement for regional networks of monitoring wells or mandated soil profile monitoring requirements. We encourage SWRCB to thoroughly investigate the level of sophistication, effectiveness and costs of these practices before mandating them on a widespread basis. Please investigate whether there is sufficient infrastructure to support these practices, whether there is technical capacity or enough trained people to assist with implementation, how samples will be taken, collated, and reported, and how data will be meaningfully used to improve water quality rather than simply paraded to the media to demonize Agriculture.

I. Water Quality Buffer Plan

- 1) Costa is concerned about the cumulative impact of converting productive cropland to non-cropped areas for the purposes of buffering water bodies. Currently, we have taken land out of production for the following purposes: sediment/containment basins, and cover crops (which are used as spray fields for recycled tailwater). For example, in the past six years, we have converted 6-7% of the Closter Ranch to non-crop areas and we are in the process of converting a similar amount of land on 4 other ranches.
- 2) There are concerns that riparian and vegetated buffers could necessitate food safety buffers (i.e. we will be required to place buffers on buffers) and this exponentially increases the number of acres taken out of production.
- 3) There is concern that imposition of uniform riparian buffer widths without consideration of site characteristics may impose buffers inappropriately.
- 4) Please note that food safety requirements prevent the use of tailwater on most fresh fruits and vegetables. Therefore, a grower must discharge, contain, or spray tailwater on “sacrifice” cover crops.

- 5) It seems there is an attitude among state and federal resource agencies and the environmental community that whatever it takes to improve water quality must be done. Nevertheless, I can assure you that the Costa's ability to endlessly absorb production losses while simultaneously increasing input costs is not endlessly elastic or sustainable. Resilience has its limits.

K. Effective Control of Pollutant Discharges, Provisions 82 and 84-87

In all due respect, Costa takes exception to the statement made by SWRCB: "... that little progress was made under the 2004 Ag Order". Please note that most of the improvements listed in the second paragraph of this letter either occurred before or were initiated prior to adoption of the onerous 2012 Ag Waiver. Yet, SWRCB and RWQCB maintain that little progress was made? I contend that the agencies failed to appropriate account for progress.

It should be noted that Ag did not design the 2004 adopted Cooperative Surface Water Monitoring Program. It was designed by RWQCB. In fact, it is my understanding that Staff ignored suggestions that the sampling design did not support the program objectives. RWQCB claims that the 2004 Ag Waiver was a failure because they could not discern improvements in the receiving water quality. Yet, there no was no attempt to redesign the program to better support program objectives. Furthermore, RWQCB Staff discounted analyses provided by Central Coast Water Quality Preservation, Inc. that demonstrated receiving water improvements.

It was stated in the 2004 Order that the monitoring program would be used to create a baseline during the first term and that the Order was a long-term program that would measure progress over time. Instead, from a grower's perspective, it seemed the Cooperative Monitoring data were used by RWQCB Staff to foster a belief that Ag was long-aware of water quality impairment, was unconcerned, and would not make improvements without regulation.

In 2004, it was conveyed to Ag that growers needed to implement management practices and that a practice baseline would be used against which management practice implementation would be measured. In 2008, RWQCB abandoned the approach of using management practice implementation as a surrogate for water quality improvement. Irritatingly, while RWQCB Staff continued to imply that growers were not implementing practices, growers were testifying and commenting to the actual practices that were being implemented. Such testimony, I believe, was ignored.

In summary, Costa appreciates the seriousness with which SWRCB is considering the petitions placed before it. There is disappointment that the State is supporting the process by which the Ag Waiver was adopted. There is concern that the interim nature of many of the provisions in the final order will result in uncertainty, ambiguity, rework, needless expense, and the production of useless data. However,

as it has in the past, Costa will continue to work towards improving our farming practices in order to improve water quality.

Thank you for your consideration of these comments.

Most Sincerely,

David Costa

David Costa,
Partner

Nitrate Sampling Summary

Nitrate Quick Test (NQT) Supply Costs:

- 1 plastic bucket (as per Lowe's) = \$2.00-\$5.00
- 1 soil probe (as per Gempler's) = \$35-\$150.00
- Flat bottomed centrifuge tubes (as per VWR) = \$215.87 - \$251.83/500 tubes (\$0.43 - \$0.50/sample)
- Test Tube Centrifuge Rack (as per Fisher Scientific) = \$35.00 - \$50.00/each
- Calcium Chloride Dehydrate (VWR or Fisher Scientific) = \$29.85 - \$284.21/500 grams = \$0.06-0.56/gram
Note: price differential based on the amount of impurity in product.
- Distilled water (Orchard Supply) = \$1.89/gal
- Nitrate test strips
 - Ben Meadows = \$19.20 for 50 test strips (0-50 ppm) = \$0.38/test strip
 - EM Quandt = \$63.25 for 100 test strips (0-500 ppm) = \$.63/test strip

Note: centrifuge test tubes are reusable.

Note: 5.6 - 6 g of calcium chloride in 1 gal of distilled water will test 75-100 samples.

Note: Does not include transportation costs

Note: Does not include costs for a scale to measure Calcium Chloride

Total cost for first sample (Includes costs for all supplies) = \$30.76 - \$158.58/first sample

Total cost for subsequent 75-100 samples (does not include cost of bucket, soil probe, test tube rack, calcium chloride or Distilled water) = \$ 0.81 - \$1.13/subsequent 75-100 samples.

NQT process:

- 1) Collect 8-12 random samples from field (.5 - 1 hour/field)
- 2) Make extracting solution of Calcium chloride + DI water
- 3) Fill centrifuge tube to 30 ml with calcium chloride
- 4) Add soil to the tube until the level rises to 40 ml. Cap tube and shake vigorously. Let sit until particles settle out.

Note: Time will vary depending on clay content; a few minutes for sandy soils and as much as 1-2 hours for clay soils. When the solution is clear, dip a test strip into the clear zone of the solution. Shake off excess solution and wait 60 seconds and compare the results to the color chart.

Note: Steps 2-5 will take between .25 - 2 hours, depending on soil texture.

Total sample collection and prep time investment is 0.75 – 3 hours/sample

Note: Does not include time to run a verification sample.

Nitrate Quick Test Time Costs per sample:

- Grower \$125.00/hour
- Consultant \$100.00/hr
- Contract sampler \$75.00/hr
- Low-Mid Level employee \$35-50.00/hr

Range of total time costs/sample = \$26.26 - \$375.00/sample

Note: Does not include time to run a verification sample.

Total NQT costs for first sample = \$57.02– \$533.58/first sample

Total NQT costs/sample = \$27.07 – 376.13/subsequent 75-100 samples

Note: The cost of verification samples would not include collection times and therefore would be much lower.

Note: Does not include transportation costs.

Note: The price/sample increases if fewer (less than 75-100) samples are taken in a season.

Alternatives:

- 1) A grower can buy pre-measured test kits. Costs vary from \$35.00 to \$100.00/kit
- 2) A grower can buy test strips and calcium chloride directly from Wilbur Ellis, which simplifies product ordering. Grower must provide the rest of the equipment. Wilbur Ellis can advise clients on where to buy equipment.
- 3) A grower could spend more money up front and purchase a Horiba Ion Meter, Hanna photometer or Cardimeter. Up front costs run \$200 – 500.00. There are additional costs to replace reagents and parts. Soil sample collection time would be similar. Calibrations can be tricky. This would probably require a higher education level for calibrations.
- 4) A grower could hire a contractor to take the samples and use the Solum No-Wait Nitrate test. NH₃ and Morgan Consulting provide this service. Prices vary. Laboratory results are available within 24-48 hours.
- 5) A grower could use a laboratory (i.e. Precision-Ag) to run standard NO₃-N samples. The results are very reliable; however, the data are not real-time so that a grower can quickly adjust fertilizer rates. Expect results in 5-7 business days. Probably best for trend and discharge monitoring.
- 6) A grower could install a lysimeter with a nitrate sensor. This might be cost prohibitive to use in every farm/ranch/block/planting.

Product constraints are complicated and make it difficult for growers to decide how to sample:

- Hanna Photometer has a NO₃-N concentration range of 0-30 ppm. Gempler's Soil NQT Kit and Ben Meadows NQTest Strips have a NO₃-N concentration range of 0-50 ppm. These can be used to adjust a fertilizer decision. Maximum NO₃-N concentrations are not high enough for tracking trends or sampling discharges.
- EM Quandt NQTest Strips have a NO₃-N concentration range of 0-500 ppm. There is some question about sensitivity at higher concentrations. These test strips have broader application.
- Because a grower is making a fertilizer decision based on such a small volume of soil used for NQT, he needs to take, at least, one verification sample per field (i.e. 2 samples per field). This will increase the sampling costs per field.
- It is hard to obtain a representative sample in wet soil. The grower should pinch off bits of soil from different parts of the sample when adding soil to the NQT centrifuge tube.
- All NQT sample results must be corrected for soil texture. This may be difficult for some less educated or inexperienced growers.
- Some NQT kits or NQtest strips must be refrigerated or stored in a cool, dry place. This varies by product.
- Impurities can cause Calcium Chloride Dehydrate to be classified as a restricted use material, which would require hazardous material reports to the appropriate regulatory agency.
- Horiba Ion Meter 742 has a NO₃-N concentration range of 30-600 ppm. The minimum NO₃-N concentration range may be too high to use to make fertilizer adjustments.
- There is a hierarchy of geographical field units going from large to small: Operation/ranch/block/planting. While plantings can be aggregated; this is the exception, not the rule. Most likely, growers will take samples at the planting level because of soil diversity, specific irrigation needs per crop stage/weather, and influences of crop residues from previous crops.
- The cost/sample increases for small growers as they may not have enough samples to cost average the equipment and supply costs.
- Sampling is so time consuming that large growers cannot do it themselves, nor can they divert their foremen to this task. Also, they are having difficulty finding qualified and trained samplers.

Benefits of NQT or real-time Nitrate sampling

- Increases real-time knowledge about fertility needs.

- Increases communication between grower, farm managers, irrigation employees and vendors.
- Saves dollars by reducing fertilizer applications.
- Avoids water quality problems.
- Can be set up to test nitrate movement at different depths in the soil and can be used to refine irrigation practices.