San Joaquin County & Delta Water Quality Coalition

Watershed News

May 2014

New "Waste Discharge Requirements" for agriculture

By Mike Wackman
SJC & DWQC

In March of 2014 the Central Valley Regional Water Quality Control Board (Regional Board) adopted new regulations covering discharges of water from irrigated agriculture. These new regulations are called a "General Order" establishing Waste Discharge Requirements for all owners or operators of irrigated lands with the potential to discharge to surface or groundwater.

The General Order replaces the prior "Waiver" program and will increase the amount of reporting and record keeping for growers and require management practices to be implemented to improve both surface and ground water quality. The Coalition will continue to serve as the local third party to help growers implement the General Order.

Here are some of the new requirements and dates reports must be submitted to the Coalition.

1. Notice of Confirmation - due June 15, 2014

All growers will receive a Notice of Confirmation with their invoice for Coalition fees. This must be turned into the Coalition along with any fees by June 15, 2014 . The Notice of Confirmation will confirm that the grower wants to continue in the Coalition and operate under the new General Order.

2. Farm Evaluation Plans – due June 2015

All growers must complete a Farm Evaluation Plan and submit it to the Coalition by June 15, 2015. Growers that are within high vulnerability areas will have to re-submit the plan every year. Growers in low vulnerability areas will have to re-submit the plan every 5 years. The plans must also remain on site for possible inspection by Regional Board staff. The high and low vulnerability areas will be determined in Spring of 2015 and communicated to growers.

3. Nitrogen Management Plans – due June 2015 for High Vulnerability areas

All growers must prepare a Nitrogen Management Plan. Growers in areas with High Vulnerability for nitrates, must prepare their first plan by June 15, 2015, and update it each year. Growers in areas with Low Vulnerability for nitrates must prepare their first plan by June 15, 2017 and update it annually.

Growers in High Vulnerability area must have their plan certified by a licensed professional or be prepared by a grower who has obtained self-certification. Certification of plans is not required in low vulnerability areas. Nitrogen Management Plans must be kept on farm and available in case of inspection. They are not submitted to the Coalition.

4. Nitrogen Management Plan Summary Reports – due June 2016 for High Vulnerability areas

Growers in High Vulnerability area

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Reporting Dates & Requirements

Notice of Membership Confirmation
June 15, 2014

Farm Evaluation Plans
June 15, 2015

Nitrogen Management Plans
June 15. 2015

Attend an grower education class
Annually

Financial update - fees to increase to $5.50/acre

By John Brodie
Financial Director, RCD

Coalition fees are going up significantly. In fact, they have doubled. Why? First and foremost because we are now operating under a new General Order, adopted March 12, 2014, that adds significantly to the work load of the Coalition as well as the things you, the grower or landowner, must do to meet the requirements.

With the new compliance program in effect, the San Joaquin County Resource Conservation District (RCD) which operates the Coalition approved a tentative budget of more than $2.47 million dollars. The approved budget calls for member dues at $5.50/acre, which will bring in anticipated revenue about equal to expenses. The costs increase are primarily a function of increased fees that must be paid to the state and increased compliance activities that must take place, most of that due to groundwater being included in the new General Order and increased paperwork and monitoring.

The new regulation applies not only to surface water but to groundwater. Additional monitoring, education and outreach, data gathering, and reporting is being required of the Coalition under the new regulations.

Also, the state continues to raise the fees it charges the various Coalition groups for the privilege of being regulat-

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Chlorpyrifos and herbicide detections keep watersheds in management plans

By Melissa Turner, MLJ-LLC

The San Joaquin County & Delta Water Quality Coalition has been conducting water quality monitoring since 2004 and has found various pesticides in waterways receiving agricultural runoff. Many times, detections of pesticides occurred in samples that were also toxic to aquatic organisms tested in a laboratory. In 2008, the Coalition detected pesticides above water quality standards in a greater number of samples than any of the previous years of monitoring; detections occurred for more than 10 different pesticides. Since 2008, the Coalition has developed and implemented a comprehensive Surface Water Management Plan that addresses these water quality issues. The Coalition has demonstrated with its Management Plan strategy improvements in water quality due to additional management practices implemented by members.

Despite getting Regional Board approval to remove specific pesticides from seven different waterways, samples collected by the Coalition continue to have detections of pesticides such as Chlorpyrifos (Lorsban). In 2013 there were three detections of chlorpyrifos above the standard and in 2014 there have been a detections of two herbicides above water quality standards (diuron and simazine).

The chlorpyrifos detections in 2013 occurred in three subwatersheds that are already in a management plan for chlorpyrifos. These subwatersheds include Temple Creek, Lone Tree Creek and French Camp Slough. Temple Creek has had at least one detection of chlorpyrifos every year for the past 7 years

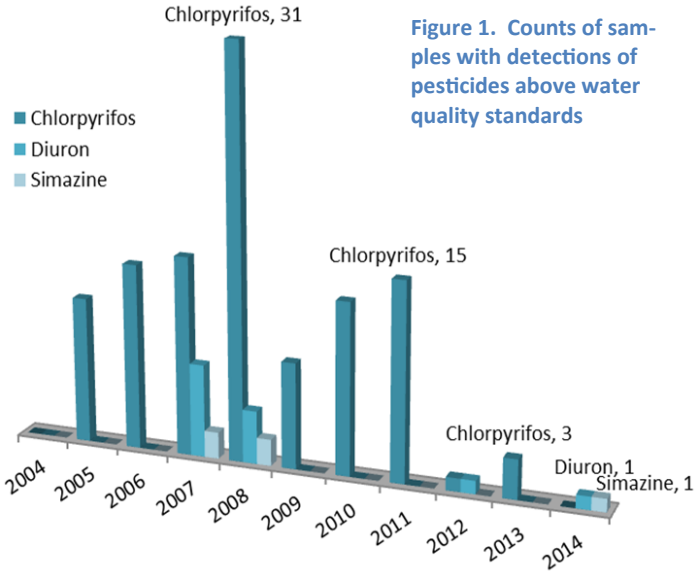

Figure 1. Counts of samples with detections of pesticides above water quality standards

(since 2006). Both Temple Creek and Lone Tree Creek drain into French Camp Slough and may have contributed to the detection of chlorpyrifos in this downstream location. A review of pesticide applications indicates applications to walnuts and almonds by both members and non members may have contributed to the detections downstream. The Coalition has conducted multiple years of outreach within all three subwatersheds and members within these subwatersheds have documented various management practices such as retention ponds/holding basins, center grass rows, reducing the amount of irrigation runoff and reducing use of the pesticide of concern.

From January through March, 2014, samples from French Camp Slough have had detections of diuron and simazine above water quality standards. The diuron detection was over 15 times the standard. In addition, the same samples with herbicides were toxic to algae. The herbicides detected in French Camp Slough may have been due to pre-emergent sprays. The Coalition received approval from the Regional Water Board to remove both diuron and algae toxicity from the French Camp Slough management plan due to improved water quality since 2009. Due to the detections in 2014, the management plan for both diuron and algae toxicity will be reinstated for French Camp Slough.

Discharge requirements

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must also prepare a "Nitrogen Management Plan Summary Report" annually beginning June 15, 2016. The Summary Report must include the amount of nitrogen applied to the previous year's crop, the crop uptake of nitrogen, any residual nitrogen and a ratio to determine the effectiveness of the application. The Summary Reports must be submitted to the Coalition.

5. Sediment and Erosion Plans - due Fall 2015

The Coalition must determine which areas are vulnerable to erosion or discharging sediment. Those areas will have to implement Sediment and Erosion control plans in 2015. The exact due date will be determined after the areas are identified. These plans must be designed and certified by individuals with the proper credentials and kept on the property for inspection by the Regional Board.

The Coalition will send out more information about each of these required reports and hold workshops to assist growers with each step in the process. The Regional Board has developed templates that growers can use to complete the required reports.

Nitrogen management plans & reports

By Terry Prichard
C.E. Water Management Specialist
Hydrology, LAWR, UC Davis,
Emeritus

California Water Quality Law requires the Central Valley Regional Water Quality Control Board to protect surface and ground water from pollution. In doing so the Regional Board has initiated an Irrigated Lands Regulatory Program (ILRP) to regulate surface water return flows, storm water runoff, and tile drainage. You will probably recognize these activities as duties of the Water Quality Coalition over the past few years. With approval of the new "General Order" (March 2014) the Coalition is now required to monitor groundwater discharges. The impetus for this was the high number of wells testing above the nitrate drinking water standard. Additionally, a recent study of the Tulare Lake Basin and the Salinas Valley concluded agricultural cropland as the primary source of nitrate in groundwater. Preliminary studies have shown that high levels of nitrates in drinking water may potentially cause health risks and are suspected of causing cancer.

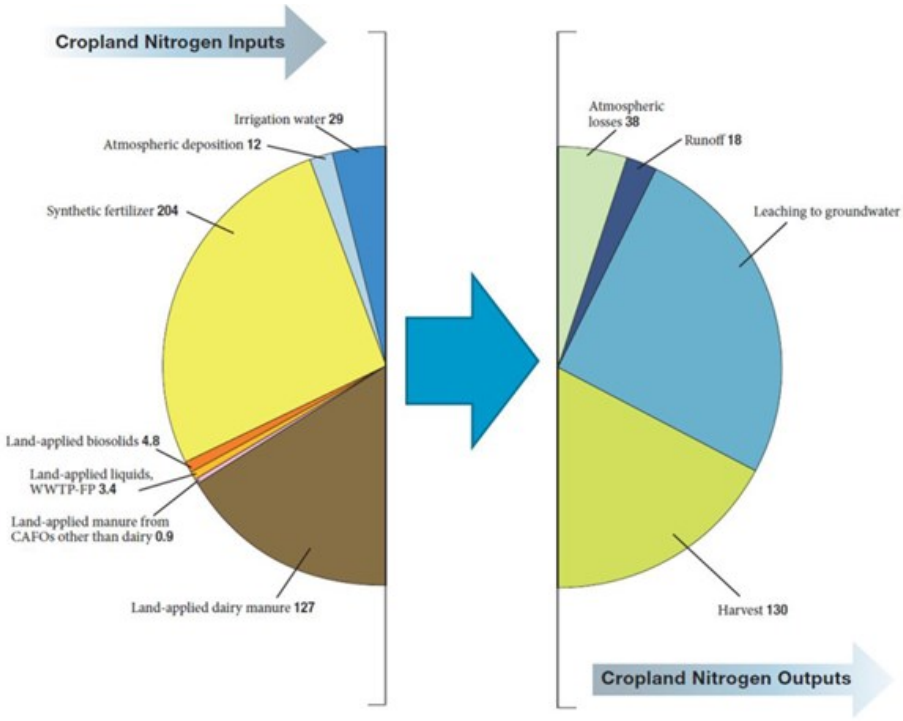

Figure 1. Cropland Nitrogen Inputs and Outputs in Salinas Valley and Tulare Lake Basin (3.12 million acres) in 1000 ton units

How does nitrate get into groundwater?

The primary path to groundwater for soluble fertilizers and pesticides is water percolating down through the soil profile. Other methods include unprotected wellheads and lack of backflow devices on wells. Nitrogen, in its various forms, is the fertilizer most applied in California. Regardless of the form applied (nitrate, ammonium, urea, or organic) nitrogen is eventually converted in the soil to nitrate. Nitrate is negatively charged and moves freely with water through the root zone. When water in excess of crop demand is applied as irrigation or rainfall the nitrate remaining in the soil that has not been taken up by the crop is leached towards the groundwater. Figure 1 shows nitrogen inputs and nitrogen outputs in cropland. If one compares the total input to the harvest nitrogen the uptake efficiency is about 30-40 % as an average of all crops. The largest output is lost to groundwater.

Nitrogen Management Plans

The Coalition contracted with an engineering firm to make a groundwater assessment and determine areas of high and low vulnerability to movement of soluble wastes to groundwater. This determination is underway and will be available next year. Some indication as to how much of the Coalition area might be in the "high" classification can be inferred from the draft of the East San Joaquin Coalition groundwater assessment. It found 62 percent of irrigated acres were determined to be high vulnerability. The designation of "High" means a Nitrogen Management plan must be prepared and submitted by growers farming these lands.

Growers will be required to document the amount of nitrogen-based fertilizer and other nitrogen containing material applied to a particular crop. Farmers must then contrast the nitrogen available to the crop to the amount taken up by the crop. The plan must be certified by a Certified Crop Advisor (or a self-certification with training requirement yet to be defined). Growers in high vulnerability areas must provide this information to the Coalition. Growers in low vulnerability areas will keep the document on file. The Coalition will report aggregate information by crop and township to the Regional Board without disclosing anything about specific farms.

Nitrogen Supply:

- Synthetic N Fertilizers

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Financial update – expense of compliance

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ed. When the program first began, the State Water Resources Control Board's (State Board) cost to operate the program was included in the state budget at $.12/acre. Three years ago it jumped to $.56/acre, and this year it went up again to $.88/acre. These fees may increase again in the Governor's 2014-2015 budget.

The Coalition is also switching from Calendar year to a fiscal year bookkeeping system to reflect both the new regulation going into effect and to match the fiscal year of the RCD. The new Coalition fiscal year will begin July 1 and end June 30.

You, the member, will notice no difference in timing of the billing. Bills always went out in May and were due sometime in June. Under fiscal year bookkeeping, membership billing will effectively take place before the budget begins rather than in arrears as in the past.

2013 Annual compliance and operating expenses totaled $1,047,373.43, which is $306,627.33 below budgeted expenses. Most of the cost savings were realized in the Coalition's technical and sampling categories. Coalition revenue was $1,272,488.26. That is $10,238.26 over expectations. The higher amount was due to new members joining and paying late fees as well as more income than expected from earned interest.

The RCD is proud to once again note the low overhead cost of operating the program. One reason is that office expenses including rent, utilities, phone, and internet costs are provided in-kind by USDA NRCS. Overhead for 2013 was $52,770.78, or five per cent of total expenses.

The 95% of compliance expenses includes $192,930.00 paid to the State Water Board to cover the state's expenses for operating the program, or about $.56/acre. Not reflected in these numbers, the RCD recently paid $.88/acre to the state water board or more than $260,000 to cover current state expenses.

Separate from the operating budget, the Coalition has a Contingency fund that RCD Directors have targeted to pay legal fees and negotiations on the structure of new General Order. Those expenses totaled $177,531.30 in 2013, compared to $42,608.18 during 2012. The contingency fund will also cover any outstanding operating expenses for the Coalition until the new program takes effect July 1, 2014. Any remaining funds will be moved into the new program to help in future legal fees or defray future compliance costs.

Nitrogen management plans

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- Manure
- Compost
- Irrigation water nitrate
- Soil Credits
    - Residues from previous crop
    - Residues from previous manure applications
    - Organic matter mineralization

Nitrogen Crop Demand

- Crop type
- Expected yield
- Pounds of nitrogen removed per 1000 pounds crop

N Ratio

- Total N available to crop / Crop Demand

Implementing Management Practices to Increase Nitrogen Use Efficiency

Keeping a nitrogen budget does not increase nitrogen use efficiency, but the implementation of management practices does. Essentially, the goal is to improve the ratio and reduce the nitrogen leaching to the groundwater while still maintaining production. Management practices that increase nitrogen efficiency are listed below.

Apply the Right Rate

Match supply with crop demand (all inputs- fertilizer, organic N, water, soil).

Apply at the Right Time

- Apply coincident with crop demand and root uptake.

Apply In the Right Place

- Ensure delivery to the active roots.
- Minimize movement below root zone
- Do not over irrigate causing excessive deep percolation
- End the season with little N in the root zone
- Use the Right Sampling and Monitoring Procedures

Example of a Nitrogen report: mature almond orchard with a yield of 3000 lbs per acre @ 68lbs of N/1000 pounds of crop

N Need for 3000 lbs. yield	204 lbs
Nitrogen Supply:	
Synthetic Fertilizer	250
Manure	0
Compost	0
Irrigation Water (6.4 ppm NO_3 x .052 x 36 inches)	12
Soil Credits:	
Residue from previous crop	0
Residue from manure	0
Organic Matter (Soil Test)	0
Total Inputs	268
Ratio of nitrogen supply to use in crop (268/204)	1.3