SAN JOAQUIN COUNTY & DELTA WATER QUALITY COALITION

Watershed News

May 2018

State Water Board adopts new regulations

By Mike Wackman
Executive Director

It has been talked about for over 3 years and now it has finally come to fruition. The State Water Resource Control Board (State Board) ruled on the Eastern San Joaquin River Watershed General Order (ESJ Order), making substantial changes to the Irrigated Lands Regulatory Program (ILRP) for the whole state. Even though the State Board just ruled on the ESJ Order, the State Board made precedential findings for the whole state, meaning most of the changes that occurred in the ESJ Order will be incorporated in the other Orders in the central valley. The Central Valley Regional Quality Control Board (Regional Board) will have the task of incorporating the changes the State Board made into the Orders in the central valley.

Many changes occurred and we can expect the San Joaquin County and Delta Water Quality Coalition Order to be changed by 2019. A major new requirement in the Order is that ALL drinking water wells on parcels enrolled in the ILRP need to be tested once a year for nitrates starting in 2019.

Another major change will be the way growers report their information to the Coalition and what happens to that information. Currently, growers in high vulnerable areas for groundwater contamination have to return Farm Evaluation Plans and Nitrogen Management Plan Summary reports every year to the Coalition and their Nitrogen Management Plans must be certified. Growers in low vulnerable areas have to report their Farm Evaluation Plans every 5 years and do not have to have their Nitrogen Management Plans certified. That will all change with the implementation of the State Board Order. The Nitrogen Management Plans will change to Irrigation and Nitrogen Management Plans (INMP). The plans will "add several required planning elements to facilitate crop irrigation management planning, including consideration of irrigation method, crop evapotranspiration, and anticipated crop irrigation." It also requires ALL growers to complete an INMP and turn in an Irrigation and Nitrogen Summary Report every year.

There is an exception to the nitrogen reporting requirement, those areas where the Coalition has demonstrated that the nitrates cannot physically leach into the groundwater. The Coalition has completed studies in portions of the delta that have an artesian effect on water. The Coalition will need to present this information to the Regional Board again for their re-approval of the exemption those areas had in the reporting of nitrogen applications in the current Order.

The Farm Evaluation plans will change in what is reported and frequency. Farm Evaluation plans still must be completed by every grower; however, they only have to be submitted to the Coalitions every 5 years for all growers. The State Board will require some of the current practices currently reported on the Farm Evaluation Plans to be reported on the INMP instead.

There will be new requirements by the State Board on what data is submitted to the Regional Board and how it is submitted. Currently, the Coalition collects the information from the growers, summarizes the information and presents that to the Regional Board. The new regulations will require that

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Coalition Office Hours and Location

Location:
3294 Ad Art Road, Stockton, CA 95215

Office hours:
Tuesday-Thursday
9am to 2pm

Phone:
209-851-4204

Website:
www.sjdeltawatershed.org

Email:
info@sjdeltawatershed.org

Drinking water well testing coming in 2019

A provision in the new Eastern San Joaquin River Watershed General Order (ESJ Order) adopted by the State Water Board is the requirement to "sample all on-farm drinking water supply wells for nitrate concentrations annually" on parcels enrolled in the Irrigated Lands Regulatory Program (ILRP) starting in 2019. This provision of the Order was precedential, which means all landowners through out the state who are enrolled in an ILRP will be required to implement this regulation.

Landowners and growers will be responsible for arranging testing of their drinking water wells. The test will be required to be carried out by EPA certified laboratories with samples being collected by people with the proper training and expertise to insure the accuracy of the samples and using a standard protocol for sampling of the wells.

Landowners will also be responsible for informing the occupants of the dwelling if nitrates exceed 10 part per liter of nitrogen or above within 10 days of receiving the results. The test results will be

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New Pesticide Monitoring – Water Quality Remains Consistent

By Richard Newens
Michael L Johnson, LLC
Water Quality in Coalition Region
(October 2016 – September 2017)

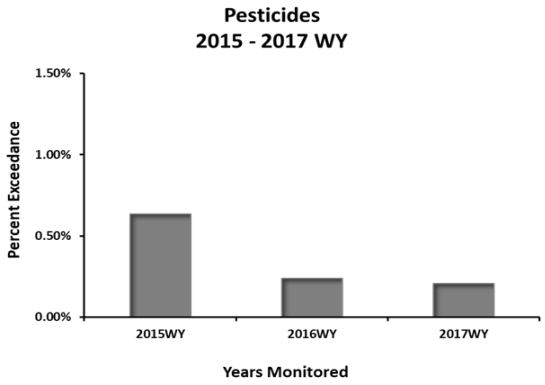
Monitoring results in the 2017 Water Year (WY; October 2016 through September 2017) indicate continued improved water quality in the Coalition region. There were only four exceedances of the trigger limits for pesticides (herbicides: atrazine and diuron). Figure 1 indicates the decline of pesticide exceedances in the Coalition region. However, algae toxicity (reduction of algae growth compared to a control sample) continues to be an issue, especially at monitoring locations within the Delta, and are generally a result of herbicides or fungicides in the water. Farmers within the Coalition region should continue to manage herbicide applications to reduce both tailwater runoff and spray.

Storm runoff is another pathway that applied herbicides may end up in downstream waterbodies. Agriculture is not the only source of herbicide applications and the Coalition has highlighted in communications with Regional Water Board staff that CA Division of Boating and Waterways also sprays for water hyacinth control in the Delta Waterways. These applications may have an effect on the samples that indicate toxicity to algae and the Coalition continues to track member practices to demonstrate growers are managing their herbicide applications responsibly.

In order to demonstrate that grower practices are effective in keeping pesticides and nutrients on farm, the Coalition conducts focused outreach. Focused outreach includes working closely with members in subwatersheds where there are continued water quality problems to discuss additional practices that can be implemented to reduce/eliminate water quality problems. The Coalition initiated focused outreach at three sites in the Delta to address algae toxicity: East Orwood Tract, Empire Tract, and Staten Island. The goal is to have no algae toxicity at these locations in the next three years.

New Pesticide Monitoring - Pesticide Evaluation Protocol

In October 2017 (start of 2018 WY), the Coalition began monitoring for a new list of pesticides based on the Pesticide Evaluation Protocol (PEP) that was developed through a stakeholder process with the Regional Water Board. The PEP identifies which pesticides should be monitored by the Coalition based on use within the last three years, chemical properties (likelihood of finding the pesticide in the water) and toxicity (how toxic the pesticide is to organisms that may be in the water or to humans). The PEP starts with 376 pesticides and metals that the Coalition must consider for monitoring.



For the 2018 WY, the Coalition will monitor for 35 pesticides at the six Core sites in the Coalition region in the 2018 WY; 25 of these pesticides are new and have not been monitored for previously including some neonicotinoids and fungicides. The PEP process will be conducted annually and included as part of the monitoring plan developed for the next water year.

Current Year Monitoring Results

The 35 pesticides selected for monitoring in the 2018 WY include herbicides, fungicides, soil fumigants, and several types of insecticides. Figure 2 indicates the amount (pounds) applied in the Coalition region in the past three years for each pesticide group. Herbicides (including copper) accounted for the greatest use in the region. Of the insecticides applied, organophosphates (e.g. Lorsban) had the greatest amount applied in pounds, followed by pyrethroids (e.g. permethrin) and neonicotinoids (e.g. Assail). Through February 2018, the Coalition has conducted 80 analyses for pesticides. Of the 80 analyses, there were six detections and all six detections were herbicides.

Drinking water well testing *(Continued from page 1)*

public for anyone to access. "Results of the drinking water supply well monitoring must be submitted by the laboratory directly to GeoTracker." GeoTracker is the Water Board's data management system for water quality in California, with emphasis on groundwater.

The Regional Board is still working on the specifics of how the regulation will be implemented. Landowners and Coalition members will receive notice from the Central Valley Regional Water Quality Control Board (Regional Board) later this year informing them of this new requirement and how to comply with the new regulations.

Nitrogen application and water quality

By Sarah Lucchetti
Crop Advisor and Sediment and Erosion Control Specialist

With Nitrogen Management Plans solidifying themselves in the requirements of the Irrigated Lands Program it becomes easy to fill out boxes every year with mind numbing repetition. However, these plans do give the opportunity to further discuss nitrogen management and the importance of finding a balance between crop yields and environmental concerns.

Nitrogen is a primary nutrient along with phosphorous and potassium. It is used to synthesize amino acids, is a primary component of proteins and is required for compounds such as chlorophyll. Plants deficient in nitrogen are chlorotic (yellow in color) and stunted. Since nitrogen is mobile within the plant, moving from older tissue to younger, deficiency symptoms will show first in older tissue as the plant relocates nitrogen to younger, growing tissue. Yields are already affected by the time deficiency symptoms show in the field making it important that nitrogen plans allow for adequate amounts at the proper time. Over application of nitrogen has many drawbacks; fruit maturity can be delayed, increase in hull rot, disease and pest pressure, environmental impacts and wasted money. Nitrogen not consumed by the plant runs the risk of leaching; there is no "piggy bank" in the soil and plants only consume a small amount of "luxury" nutrients (nutrients in addition to what is required by the plant).

Finding a balance between too little and too much is essential. Creating a nitrogen budget can be a useful tool in nitrogen management and increasing crop yields. To establish an estimated nitrogen fertilizer requirement the amount of nitrogen removed with the harvested portion is needed. This can be obtained by evaluating and averaging previous yields, these yields can then be converted to nitrogen removed and multiplied by a Nitrogen Use Efficiency (NUE) generally 70% . There are multiple online nitrogen tools that can offer information on nitrogen budgets, fertilizer guidelines

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CV Salts - New approach to salt and nitrate management

CV Salts is a stakeholder process with agriculture, public water treatment facilities, cities, industry, regulatory agencies and environmental representatives to develop alternative regulatory approaches to salt and nitrates contamination in surface and groundwater. The following is from the CV Salinity Coalition informational brochures.

Most of the nitrates accumulating in the groundwater come from sources such as manure, fertilizer, and failing septic systems. In the Valley, 90% of residents rely on groundwater wells for drinking water, and some of this supply is now unsafe. Currently, dischargers (growers, ranchers, municipalities, food processors, etc.) are regulated for nitrate discharge, but in many cases the regulations are difficult or even impossible to achieve. The Salt & Nitrate Management Plan (SNMP) is recommending new regulations that encourage dischargers to participate in projects that provide safe drinking water. Those providing safe drinking water may be given an option of having more time to achieve nitrate compliance.

To streamline resources while addressing nitrate management issues, the Valley has been separated into three areas of priority for nitrate management. The highest priority areas have the greatest number of affected drinking water supplies and will be addressed first.

Protecting Water Quality is Critical

Ensuring a safe, reliable drinking water supply is the highest priority for managing nitrates and salts throughout the Central Valley. Depending on local conditions, discharges from irrigated farmlands can contain salts, nitrates, sediments, pesticides, heavy metals and pathogens. These pollutants can impact water quality via irrigation drainage or storm season runoff or by leaching into groundwater. At high enough concentrations, they can harm aquatic life in surface water or make groundwater unusable for drinking water or agricultural uses.

Current Regulations Limit Options

For the high-priority areas in the Central Valley with known groundwater contaminations from nitrates, the existing Irrigated Lands Regulatory Program regulatory options do not address the urgent need for safe drinking water. The ILRP does not offer an extensive enough range of options for a farmer to be able to meet water quality standards for nitrates and salts.

Irrigated agriculture is faced with implementing expensive treatment requirements at the source of the pollution that result in limited benefit for drinking water users. Without the new regulatory options needed for the Water Board to allow local flexibility for compliance, the prohibition of discharges would be required.

New regulations provide more flexible solutions to comply

The importance of protecting surface water and groundwater quality, whether for aquatic life, drinking water, or agricultural supply, has become a significant public policy issue. Because the Water Board has few options to best regulate the protection of water quality additional tools are needed. When implemented, starting in late 2018, the "toolbox" of new regulatory options in the CV-Salts Salt and Nitrate Management Plan will offer greater local flexibility for compliance by all dischargers, while ensuring safe drinking water. The new options will first be implemented in areas identified as high-priority in the Kaweah, Turlock, Chowchilla, Tule, Modesto, and Kings sub-basins and basins.

Local Collaboration is Key

Under the new regulatory options, all dischargers, including agriculture, will be asked to collaborate locally to implement necessary solutions to meet water quality standards. Similarly, the 2014 Sustainable Groundwater Management Act (SGMA) provides a framework for water quantity, through sustainable, local groundwater management. While

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the information the Coalition collects must be submitted to the Regional Board. One concession the Coalitions were able to obtain from the State Board is that the information will be submitted using anonymous identification numbers. So the Coalition will submit the data, but will not include the names of the growers or the location of the fields.

The Coalition will also be required to determine Nitrogen loading to the aquifer by township. These calculations will inform the growers, Coalition and Regional Board if certain townships are experiencing excess nitrates being transported to groundwater. If there is excess nitrates moving into groundwater in a township, growers will be required to implement more extensive management practices to protect groundwater quality.

This is just a few of the changes occurring in the next year. The Coalition will continue to inform growers of changes in regulations and help growers remain in compliance with the law. The Coalition will also continue to represent growers at the Regional Board on the future changes in the implementation of the Irrigated Lands Regulatory Program.

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and crop nutrient calculators: IPNI (www.ipni.net), CDFA FREP and the NRCS Crop Nutrient Tool. The rates that are calculated can then be tailored through soil samples, tissue samples and previous experience to create a nitrogen budget. An overly conservative nitrogen budget can lead to poor crop development, an over estimate of crop demand can lead to over application early in the season with possible leaching.

All nitrogen contributions need to be added into the budget to reduce the risk of over application. Soil tests at pre-plant provide a starting point for the nitrogen budget and possible reduction of early season application if soil rates are high. Irrigation water is also a form of nitrogen in many cases. A water test for nitrogen (either Nitrate-N or Nitrate) can be calculated in pounds applied of nitrogen per acre. Evapotranspiration rates should be used to calculate the amount of water consumed by the plant and therefore the nitrogen provided as well.

Aside from the amount applied, the source of nitrogen should be considered. Plants primarily take up nitrogen as nitrate or ammonium, with most being nitrate. Nitrate is mobile in the soil while positively charged ammonium binds to the negatively charged soil particles. All nitrogen sources (manure, compost, and ammonium) eventually convert to nitrate, making them readily available for crop uptake, but also mobile in the soil. Applications must be timed so conversion to plant available sources occurs when the crop needs it.

Most crops follow a similar growth curve; slow start followed by a period of rapid growth and stabilizing at crop maturity. Nitrogen applied when the crop is not actively growing may be leached below the root zone and be unavailable when the crop requires it.

Efficiently applying nitrogen has multiple benefits from saved money in both labor and fertilizer cost, reducing the environmental impact of leaching, and optimizing crop development.

Sarah Lucchetti is a CCA and works with the Coalition helping growers complete their plans.

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SGMA focuses on water quantity and the SNMP is focused on water quality, there will be close coordination between the two.

Key Benefits of New Regulatory Options
The "toolbox" of new regulatory options will be available to all dischargers whether they choose to comply under a traditional permit or participate in a local management zone.

Local Management Zone. The formation of local or regional management zones will save time, money, and resources. Farmers or landowners who decide to join a management zone can work collectively as part of a regulatory compliance unit. Members pool resources to implement water quality protection measures that ensure safe drinking water supplies. While working to provide safe drinking water, members may be authorized for nitrate and salt discharges and given more time to comply with current Waste Discharge Requirements.
Exceptions Policy. When prohibiting a discharge does more harm than good, and allowing the discharge to continue is determined to better for the public good, an "Exception" can be authorized that provides farmers or landowners more time to implement a workable and effective regulatory solution that is site-specific to a local management zone.

Assimilative Capacity. Assimilative capacity is the ability of a natural body of water (e.g., lake, river, or groundwater aquifer) to receive discharged waste without harmful effects. Within a management zone or groundwater basin/subbasin, using assimilative capacity along with localized management measures will be considered as a factor towards compliance.

Protection of Agricultural Beneficial Use. The current salinity requirements that protect agricultural beneficial water uses vary widely. With the new regulations, protecting the agricultural beneficial use of water will be tailored to reflect local and regional differences in water use by agriculture.

Coordinating New Regulations and ILRP. It is too soon to know how the CV-SALT SNMP-based regulations and the ILRP will be coordinated. With a common goal of controlling and protecting surface and ground waters from impairment by nitrates and salts, there will certainly be collaboration in meeting water quality objectives.

Compliance Cost. The costs associated with implementing the new regulatory options have yet to be determined. The approach of local management flexibility and collaborative action to address the highest priority needs first is expected to increase compliance efficiency. Growers are encouraged to be at the table now to help shape the future of the drinking water projects and alternative compliance projects in their area.

The San Joaquin County and Delta Water Quality Coalition is a member of the Central Valley Salinity Coalition. For more information visit the CV Salts Coalition website at www.cvsalinity.org.