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KRCD
Kings River Conservation District

Water. Power. Environment. Reliable resources for the Valley.

IRRIGATION NEWS

Ag Discharge Waiver Information

"The regulations that control irrigation runoff- surface discharges, subsurface drainage and storm water runoff- have gone through an extraordinary revision over the last several months. The scope and magnitude of the regulations are much broader than most individuals realize and as a farmer in the Kings River watershed your operations may be subject to new regulations under the California Water Code.

The Porter-Cologne Water Quality Act of 1969 (California Water Code) and the Federal Water Pollution Control Act (the Clean Water Act) require agriculture to apply for Waste Discharge Requirements (WDR) for its discharges. The targeted substances for control include sediments (dirt and rocks), inorganic materials (metals and salts e.g.), and organic materials (pesticides). In 1982, the Central Valley Regional Water Quality Control Board (Regional Board) adopted a resolution granting agriculture a conditional waiver exempting it from these requirements.

SB 390, passed by the California Legislature in 1999, required all such waivers in place on January 1, 2000 to sunset January 1, 2003, and set the maximum life for future waivers at five years. Because of this legislation, agriculture would be obligated to apply for a WDR unless the Regional Board adopted another waiver.

On December 5, 2002, the Regional Board did adopt a resolution conditionally waiving WDR for agricultural discharge and storm water runoff. However, due to strong protests from the environmental community (supported by a legal opinion from the Attorney General's office) the Regional Board on July 11, 2003 rescinded the December 5, 2002 Waiver and adopted a replacement Waiver of WDR (Waiver). The new Waiver is much more stringent and includes many troubling components. These include, in part, the following:

- Identification of all individuals participating in water quality coalitions-owner and operator names, addresses, phone numbers, parcel numbers, and distance to closest downstream surface water body.

- Affirmative sign-up by all landowners within the watershed whereby they commit to participate in the watershed coalition.

- Comprehensive monitoring that includes sampling for all major pesticide classes, herbicides and nutrients as well as standard minerals, heavy metals, and pathogens.

Currently the agricultural and environmental community have several appeals pending before the State Water Resources Control Board seeking changes to the July 11, 2003 Waiver. Final rulings on the appeal process should occur by December 1, 2003. The current Waiver is available at *www.swrcb.ca.gov/rwqcb5*.

The Waiver established a November 1 deadline for submitting a Notice of Intent (NOI) and a General Report by organized Water Quality Coalitions. The Southern Valley Coalition, of which KRCD is a part, has filed a NOI and General Report with the Regional Board and will continue to work with the Board to affect conditions that best represent the constituents within the Coalition's service area. The requirement that growers within a Coalition's area affirmatively enroll with the Coalition received a temporary stay on August 28, 2003, pending further review of the appeal's merits.

The November 1 deadline also required that individual growers who do not choose to participate within a coalition to file a Notice of Intent (NOI) that declares the grower's intent to abide by the conditions of the discharge waiver and a general report that includes farm location, type of discharge, type of crops grown, water source, plus a map of the farm. As an individual filer, the grower would need to secure the necessary lab testing services required for the monitoring requirements of the waiver. Ideally, individual growers will elect to participate with the Coalition in solving these issues on a regional basis.

It is the position of the KRCD that a coalition can best represent those individuals in the District's service area and will continue to pursue this approach. However, you can be at risk if you are discharging pollutants directly into the waters of the State, and it may be appropriate to seek professional advice regarding this issue and how to best address it with the Regional Board.

AG DISCHARGE WAIVER WORKSHOPS
November 19, 2003

KRCD has scheduled informational public workshops regarding the changes in the agricultural discharge waiver. Two sessions will be held on November 19, 2003. The morning session will be held at the Independence Room of the Rex Phebus Veterans Memorial Building, 453 Hughes Ave, Clovis, CA at 9 am. Go east on 5th Street off of Clovis Ave 1 block and turn left on Hughes.

The afternoon session will be at the Kings County Agricultural Center, 680 N. Campus Drive, Suite F, in Hanford at 2 pm. Take the 12th Ave exit off Hwy 198 and go north to Lacey Blvd. Turn East on Lacey to Campus, and turn left. The Agricultural Center is on your left, about 2 blocks (same building as the Ag Commissioner's office and UCCE). Directions are available at (559) 582-3211 ext 2830.

Keeping Tabs on Well Performance

Well performance is something that should be monitored closely during the season. While some decline in performance is expected as the season progresses (especially if the well is used continuously), excessive declines and a failure to recover during the winter months is a cause for concern. To understand how this happens, it is necessary to review the components of a properly designed well.

The well casing is the permanent wall of the well. It controls where the water enters the well so that areas with poor water quality can be excluded. At predetermined intervals, the solid pipe is replaced with perforated pipe, which allows water to fill the casing.

Between the borehole and the well casing, a layer of rock known as the gravel pack is placed. This rock layer stabilizes the aquifer and controls the conduction of water to the well screens. This layer is frequently larger than the zone of perforated casing.

Within the casing is the pump itself. The size of the pump (flow rate, total lift) required by the irrigation system must be balanced with the capability of the aquifer to supply the needed water.

So, why does pumping performance decline? Local and basin wide changes in groundwater depths, migrations of sand into the gravel pack and the plugging of well screens by chemical corrosion, sand migration or biological factors are primary factors in performance declines. The pump itself is impacted by impeller and bearing wear, corrosion of the pump column and problems with the power source.
Groundwater depths are influenced by the amount of water being extracted from each aquifer. As water is extracted, the aquifer drops locally in response. A partial recovery can occur during winter months, but the levels rarely return to their previous values.

Each pump has a maximum distance it can lift water. When the depth to water increases, the total lift increases, and the flow rate decreases in response. The increased lift requires more horsepower from the driver, increasing operational costs. If total lift reaches the designed maximum, then a condition called shut-off head is reached and no water is pumped. This is the reason why simply lowering the pump setting does not yield more water if additional bowls and more power are not included in the process.

Sand is a well killer. Sand not only fills the voids within the gravel pack, reducing its ability to conduct water, it clogs the well screens and causes wear to the impellers and bowls. Once the impellers are worn, their ability to pump water decreases. Semi-open impellers can be adjusted to correct for wear. Closed impellers require replacement to return to peak performance.

Another cause of decreased pump performance is water chemistry related. Water high in dissolved salts or abnormal pH (acid/alkalinity) values can form deposits on the steel well screens. Such waters can also promote corrosion within the pipe column, leading to holes that allow the pumped water to escape back down the well.

The biological factor that affects well performance centers on iron bacteria. These organisms are introduced during the drilling process and are difficult to remove. The thick slime they produce clogs well screens, reducing water movement. Strong acids plus heavy doses of chlorine are required to adequately treat contaminated wells.

Deep turbine wells are subject to problems related to bearing wear. Insufficient lubrication or defective parts are the primary causes of bearing failure. Symptoms of bearing wear are unusual noises within the well and increased power consumption by the motor.

In order for a grower to get the most out of an irrigation well, they should be aware of the original performance characteristics, then have a pump test performed periodically to track the condition of the well. The Kings River Conservation District provides such tests at no charge to growers within the district; the Center for Irrigation Technology at CSU, Fresno administers a grant program that covers the costs of pump tests throughout the state. Either way, a grower can get the information necessary to evaluate the condition of their well, so that problems can be corrected quickly. Call 237-5567 extension 117 to schedule a pump test, irrigation system evaluation, or to ask any other irrigation related question.

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