From: Thomas Suggs [tsuggs@wrmwsd.com]
Sent: Monday, September 27, 2010 4:37 PM
To: ILRP Comments
Cc: Rob Kunde; Nick Gatti; Lauren Bauer
Subject: ILRP Comments
Attachments: ILRP DEIR Comments by WRMWSD_2010-09-27.pdf

Ms. Smith:

I am pleased to convey our comments to the Draft Program EIR in the attached letter.

Respectfully,

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September 27, 2010

ILRP Comments
Ms. Megan Smith
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Subject: Irrigated Lands Regulatory Program - Draft Program Environmental Impact Report

Dear Ms. Smith:

The Wheeler Ridge-Maricopa Water Storage District (District) is a public agency that supplies agricultural water to approximately 90,000 acres of irrigated farmland in the southern end of the San Joaquin Valley. The District hereby submits the following comments related to the Draft Program Environmental Impact Report (DPEIR) for the Irrigated Lands Regulatory Program (ILRP):

1. In November 2007, the District adopted its "AB3030 Groundwater Management Plan". The Plan contains basin management objectives and recommended actions for groundwater management within the District. These basin management objectives include the monitoring and maintenance of groundwater quality. Therefore, a duly adopted Plan exists for such purposes, making the proposed groundwater component of the Irrigated Lands Regulatory Program redundant and unnecessary within the District.

2. The ILRP Long-Term Program Development Staff Report (Report) describes what has come to be known as the Recommended Program Alternative (RPA). The Report correctly identifies several processes for the attenuation of pesticides in the environment. These include sorption to organic matter and clays, volatilization, and biotic and abiotic degradation (Report, page 47). Where effective barriers and attenuation processes are present, there is no defensible reason to assert that discharge is taking place or potentially will take place.

3. During the first 19 years of operations in the Wheeler Ridge-Maricopa Water Storage District (1971-1990), total crop consumptive use was about 4.1 million acre feet (Bookman Edmonston, 1995). This included a large share for field crops such as cotton. During the same period, irrigation efficiencies were approximately 80%, which suggests that applied water was about 5.1 million acre feet and deep percolation was about 1 million acre feet of

water. Since 1991, 45 different wells within the Maricopa Water Storage District boundaries have been monitored for Title 22 constituents, which include a wide range of inorganic and organic chemicals and all of the program contaminants of concern to groundwater except Demeton. Based on a search of our database, other than one questioned value (2,4-D reported at 1.9 ug/L in one sample with questioned quality control in 1991) there has never been a detection of any pesticide in any well within this district. It is clear that in this locality at least, either the use of pesticides is locally very low, very few compounds are migrating past the root zone, or effective attenuation processes are retaining, isolating, or degrading them.

4. Deep water tables and extensive clay layers, such as exist in many parts of the San Joaquin Valley and especially in this District, provide buffers or barriers to leaching of pollutants to from the surface to groundwater. The Report correctly states that many factors affect the tendency of a pesticide to leach to groundwater, "including pesticide properties, soil characteristics, site conditions, and management practices" (pages 47-48). In broad terms, the assertion is that pesticides with a low tendency to sorb to soil particles and long persistence (i.e, a long half-life) would tend to be more mobile in the subsurface and more likely to migrate to groundwater than others. The Report goes on to state that "when these pesticides are applied to sites with sandy soils, shallow depth to groundwater, and either a wet climate or extensive use of irrigation, the risk to groundwater degradation is high" (page 48). The converse is also true: pesticides with a strong affinity for adsorbing onto soil particles and short half-life tend to be less mobile in the subsurface (Blumhorst and Weber, 1994; Cheng, 1990; Kellogg et al. 1994; Kookana and Hollingsworth, 1996; Wei et al. 2001). And lands with clay soils, large amounts of organic matter in the soil, high populations of pesticide-consuming bacteria, deep depth to groundwater, and efficient irrigation practices tend to have lower vulnerability to pesticides (Barbash and Resek, 1996; Barriuso and Houot, 1996; Clay and Koskinen, 1990; Di and Aylmore, 1997; Robertson and Alexander, 1994; Sparling et al. 1998; Suett et al. 1996).

5. Many thousands of acres in the San Joaquin Valley are underlain by extensive clay layers that impede the downward migration of pollutants, including relatively mobile contaminants like nitrate. The valley floor contains remnants of former flood basins, lakes, and marshes preserved as large, continuous tongues of clay or silty clay (Croft, 1972; Wood and Dale, 1964). One clay unit, known as the E clay, underlies about 3,500 square miles of the valley floor and western slopes of the southern San Joaquin Valley (Croft, 1972). In addition to the E clay, shallower clay units occur locally beneath Buena Vista, Kern, and Tulare Lake beds and parts of Fresno Slough. Although the degree of saturation in these clays varies, it is known that significant clays occur above the water table near the margins of the basin and in the vicinity of Semitropic Ridge.

6. The table below shows the total thickness of clays located above the water table in nine wells that were selected from our files of Water Well Drillers Reports. Each record represents one well; each well is located on the valley floor and is surrounded by irrigated fields. Clay materials include all cuttings that were described by the well driller as clay, rock and clay, clay and sand, clay and gravel, blue clay, or sandy clay. Only those clay units located above the water table were counted. The depth to water is the static water

level that was observed in the subject well or within a half mile of the subject well during the latest (2009 or 2010) round of district water level surveys.

Well Location (Township/Range, S.B.B.M.)	Depth to Water (feet)	Thickness of Clay Materials Above the Water Table (feet)
11N/18W	495	313
11N/19W	420	187
11N/19W	643	168
11N/20W	265	142
11N/20W	265	115
11N/20W	250	250
11N/21W	207	187
11N/21W	375	170
11N/22W	302	69

7. Most of the peer-reviewed field studies of the fate and transport of contaminants that could be applicable to agriculture have focused on shallow soil profiles with shallow water tables. Few have studied soil horizons deeper than two meters (Close 1993; Close 1996; Close et al., 2005; Hancock, et al., 2008; Kookana and Hollingsworth 1996; Sparling et. al., 1998).

8. Ma et. al. (1999) found that increasing water amount and decreasing N application increased simulated pesticide leaching, concluding that policies calculated to protect groundwater quality by regulating the application of nutrients may have limited benefit and may be counterproductive if plant growth is reduced causing increased deep percolation.

9. Most, if not all, of the pesticides currently registered for use in California are formulated to break down in the environment. Many pesticides break down upon contact with water in a process known as hydrolysis. Many organic compounds, including many of the program contaminants of concern, are consumed by indigenous bacteria in the soil profile (Barriuso and Houot 1996). Nutrients also undergo mineralization and volatilization in the soil profile and degradation in the subsurface.

10. Today, many hundreds of thousands of acres in the San Joaquin Valley utilize efficient irrigations practices such as drip and micro irrigation. Within the Wheeler Ridge-Maricopa Water Storage District, approximately 71% of irrigated lands currently use drip or micro irrigation and 23% use sprinklers. Drip and micro irrigation methods commonly achieve efficiencies of more than 90%. In this portion of the San Joaquin Valley, evaporation rates are very high, averaging 63 inches per year over a 30-year period from 1977-2007, and rainfall is low, averaging 7.49 inches per year from 1979-2009. Effective

precipitation is essentially zero on the valley floor. High efficiency irrigation coupled with high evapotransportation rates effectively minimize the nutrient flux past the root zone.

11. The Staff Report acknowledges that many of the constituents of concern (COCs) do not pertain to groundwater, although they may be relevant to surface water. The Draft Technical Memorandum Concerning the Economic Analysis (EA) of the Irrigated Lands Regulatory Program (ICF Jones and Stokes, 2010) identifies specific COCs and associates them with the crop types upon which they are used, or at least were once used (EA Table 2-6). The EA also provides tables that associate COCs with the program management practices that presumably would be used to help mitigate their risk to surface water and groundwater (EA Table 2-7). Many of the pesticides listed are organochlorine compounds (e.g., aldrin, chlordane, endrin, heptachlor, toxaphene, DDD, DDE, DDT), which tend to attach themselves strongly onto suspended sediments, especially organic matter, in irrigation water. Once attached, they tend to be transported with the sediment load of irrigation runoff, potentially migrating to surface water bodies and presenting a source of surface water pollution. The fact that they sorb strongly, however, also makes them relatively immobile in the vadose zone, and in fact the EA shows them to have "high" sediment attachment and "low" movement to groundwater (EA Table 2-5).

12. Many of the COCs listed are so called legacy pesticides, which are no longer registered for use, although they still may persist in the environment in some locations. Thus it appears that the Staff Preferred Alternative would mandate management practices (such as sediment traps and cover crops) to help contain at the surface pesticides that can no longer be applied.

Given the above information, the District believes that the proposed groundwater component of the Irrigated Lands Regulatory Program, including the Recommended Program Alternative, is unnecessary to protect groundwater quality within the District. The Regional Water Quality Control Board is attempting to implement a costly and massive new regulatory program with a "two tiers fit all" policy to the varied and complex groundwater conditions in the San Joaquin Valley. Such an attempt should be suspended or scaled back to those areas with demonstrated and ongoing groundwater contamination problems. The Program's uniform broad-brush imposition of fees and regulations to the entire irrigated acreage of the San Joaquin Valley is not justified by the actual benefit of such program in many areas of the Valley.

Respectfully,

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Staff Engineer

Attachments: References Cited

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