

February 8, 2016

Pamela Creedon
Central Valley Regional Water Quality Control Board
1685 E. Street
Fresno, CA 93706

RE: Response to the Kern River Watershed Coalition Authority (KRWCA) Sediment Discharge and Erosion Assessment Report (SDEAR) Conditional Approval

Dear Ms. Creedon:

In a letter dated October 7, 2015, the Kern River Watershed Coalition Authority (KRWCA, or Coalition) received conditional approval of the Sediment Discharge and Erosion Assessment Report (SDEAR) that was submitted on February 4, 2015. The conditional approval requires the following information to be submitted:

By 8 February 2016 the Coalition must submit a revised SDEAR that expands the assessment to include all surface waters meeting the definition in the Order, and provides justification for any excluded areas (e.g., areas further than 500 meters from a water body). If acceptable justification for exclusions cannot be provided, the assessment area must be expanded.

By 8 February 2016 the Coalition also must provide a work plan and time schedule to address proximity to surface waters as a risk factor that increases the potential for discharge of sediment that may degrade surface water. Appropriate rationale must be provided for all evaluation criteria.

Regional Setting

The Coalition is located in an arid region of California where precipitation is minimal. There is only one perennial stream, the Kern River and ephemeral streams are limited and flow for short durations during storm events. These creeks do not discharge into a surface stream or waterway, and most of the water evaporates or percolates to groundwater. These creeks are not listed as impaired under the Clean Water Act section 303(d) list (updated 2010) nor the Regional Board's 2010 triennial review of the Water Quality Control Plan for the Tulare Lakebed Basin. Crops around these creeks also tend to have high efficiency irrigation methods, such as drip irrigation, resulting in little to no runoff from fields.

The Kern River is the only perennial stream in the subwatershed. The north and south forks of the Kern River are impounded in Lake Isabella near the eastern edge of the subwatershed. From the Isabella Reservoir, the river flows some 30 miles southwest through a steep and rugged canyon, eventually emptying out on the valley floor. The north fork of the Kern River flows perennially into Lake Isabella and is characterized by steep canyon walls with no significant nearby industry. The south fork of the Kern River is an ephemeral stream as it nears Lake Isabella. Generally, flows occur in this stretch of the Kern River during the winter and spring months. It is common for the south fork to dry up completely during the summer and fall.

Poso Creek is the largest of Kern's minor streams and flows from the mountains northeast of Bakersfield to the valley floor (just east of Highway 46 and Highway 99). Poso Creek is monitored by the Cawelo Water District Coalition. Poso Creek is an ephemeral stream that almost never flows the entire year. The U.S. Geologic Survey started maintaining a stream

gauge on Poso during the 1980s. The location of the gauge is in the foothills roughly eight miles east of Highway 65 (which marks roughly the eastern edge of agriculture in the valley) at Coffee Canyon. Hydrographs of this data published by the Kern County Water Agency show that the creek generally runs dry in June-July. The hydrographs are interesting because they reveal that, even in wet years (i.e., Kern River runoff at least 150 percent of normal) Poso Creek does not flow year-round.¹

Other minor streams within the KRWCA are quite small with small peak flows and short flow durations typically during large storm events or extremely wet years. Generally, these minor streams tend to have very low base flows with occasional peaks of short duration (a few hours to days). These minor stream watersheds drain to the north and terminate within the alluvial soils located in the foothills of the San Joaquin Valley.² No useable aquatic habitat is available in any of the minor streams because of the fact that they so seldom have flows of sufficient duration to sustain a fishery.

Surface Waters Included in the Analysis

Waterways that were excluded in the previously submitted SDEAR analysis are designed to convey or hold irrigation water and are constructed to be protected from discharge of sediment laden water from agricultural land, typically by using physical barriers such as raised levee roads required by irrigation district standards. Generally, irrigation district policy prohibits the discharge of tailwater and storm water from adjacent agricultural land to the irrigation conveyance channels.

Excluded Area / Assessment Zone

The SDEAR, as submitted by the Coalition on February 4, 2015, includes a 500 meter assessment zone around designated waterways. The submitted SDEAR analysis recognizes that parcels that are located near the waterway and that possess intrinsic qualities that increase the potential for erosion (i.e. topographic factors and soil erodibility) have a higher likelihood of contributing sediment to waterways.

The Revised Universal Soil Loss Equation (RUSLE) used in the SDEAR analysis provided a method of evaluating intrinsic soil erosion potential. Parcels having significant intrinsic soil erosion potential and that are located adjacent to or near a waterway are more likely to discharge sediment to the waterway. Once soil has been mobilized due to erosion, the quantity of sediment transported to waterways is dependent upon the velocity of the water. In order for sediment to be transported to a waterway, the soil must stay in suspension until it reaches the waterway. If the velocity of the water slows to a velocity less than the soil particles' scour velocity, the soil particles can drop out of suspension and not reach the waterway. Decreases in velocity can be caused by hydraulic factors such as decrease in slope, increase in channel roughness, and increase in cross sectional area of flow, and can cause sediment to settle. In the relatively flat primary area, the likelihood of sediment settlement increases in relation to how far the soil has to travel. The farther away a parcel is located from a waterway, the less likely sediment from the parcel is to be discharged to a waterway. While small soil particles have a slow settling velocity, with enough time (provided by a greater distance of travel), the particles can settle out, particularly with shallow depths of flow.

In the Coalition's primary area, the land surface is generally flat to slightly sloped. The slope length (LS) factor from RUSLE provides an assessment of the relative likelihood of erosion (or

¹ SSJWQC. 2010 Annual Report. Fresno, Cal.: South San Joaquin Valley Water Quality Coalition.

² Tejon Ranch Corp. 2009. Tehachapi upland multiple species habitat conservation plan draft environmental impact report. Lebec, Cal.: Tejon Ranch Corp. Available at <http://www.tejonranch.com/conservation/habitat-conservation-plan>. Accessed on 08 September 2014.

sediment transport) based on the topography of the area. A map of the LS factor for the Coalition is provided in **Attachment A**. The gentle slope results in less energy available to carry sediment a significant distance.

In Kern County, the rainfall that occurs is significantly less than areas to the north. As noted in the submitted SDEAR, much of the KRWCA area is in the rain shadow of the Coastal and San Emigdio Mountains. Less rainfall decreases the amount of erosion that occurs and the distance that sediment is likely to be transported, compared to areas to the north. A high proportion of the total precipitation in Kern is effective precipitation, which infiltrates into the ground and is beneficially used by crops. (An average of 3.4 inches of effective precipitation is expected in a normal year as compared to about 5.8 inches total average annual rainfall.) Not all of the non-effective precipitation runs off. Much of it evaporates, particularly from smaller, short duration rainfall events.

The primary area, located in the Kern County valley floor, receives substantially less rainfall than the state's northern areas. The annual precipitation in this area is less than half of the annual precipitation of Fresno and Modesto and less than a third of Sacramento's annual rainfall. This reduced rainfall and runoff is reflected in the number of samples that have been obtained from the Coalition's surface water sampling points. The Coalition has sampled substantially less frequently than other coalitions within the state. Additionally, the arid climate is also reflected in the amount of wetland designated areas within the primary area of the Coalition. Table 1 provides a comparison of the Kern Coalition primary area and other coalitions for these factors.

Table 1. Coalition Climate Comparison

Coalition Climate Comparison			
Location	Annual Precipitation (inches)	Percentage of Dry Samples during Surface Water Monitoring ⁵	Percentage of Wetland Areas
Kern Primary Area	5.80 ¹	94%	2%
Kings Coalition	10.89 ²	60%	8%
East San Joaquin Coalition	12.21 ³	19%	4%
Sacramento Valley Water Coalition	18.15 ⁴	46%	16%
Notes: ¹ CIMIS Data for Arvin-Edison Station 125, ² Western Regional Climate Center, Fresno Yosemite Intl AP (043257) Station, 1948-2015, ³ WRCC, Modesto City Co AP (045738) Station, 1906-2015, ⁴ WRCC, Sacramento 5 ESE (047633) Station, 1877-2015, ⁵ Based on CEDEN sampling data from 3/26/03 to 9/16/14 (excluding Buena Vista sampling point), ⁶ Based on representative areas of the valley floors for each coalition.			

Proximity as a Risk Factor

We believe that we have adequately incorporated proximity as a risk factor in our analysis. Soils must first have the intrinsic potential to erode, and then must be close enough such that the potential for sediment transport to the waterway exists. Particularly in Kern, if field erosion potential is not above the threshold, we do not believe that proximity in and of itself (with erosion potential below the threshold) is a sufficient risk factor that should trigger the preparation of a SECP. We have adopted the Natural Resource Conservation Service (NRCS) sediment risk potential threshold and, as noted in the SDEAR, we believe that our methodology results in a conservative estimate of potential sediment discharge (higher than what is likely to be observed), as we are not accounting for cropping, a major mitigating factor. Further, many of our surface streams are leveed, dramatically reducing or eliminating potential hazard due to proximity.

Identification of Additional Parcels

RUSLE provides a method of identifying parcels with the intrinsic qualities that increase erosion and sediment discharge. The member grower responses to the sediment question on the Farm Evaluation will also be used to determine if they will be required to prepare a SECP. If the grower notes that the parcel has the potential to discharge sediment during a typical year, then a SECP will need to be developed.

The inclusion of parcels that have been identified by growers provides a method of addressing RWQCB concerns about proximity and excluded areas. Our grower members know their land the best and generally have observed sediment discharge potential over many years and under varying conditions.

Erosion from Irrigation

Staff's response to the SDEAR identifies that erosion from irrigation was not included in the analysis. Due to the arid climate and limited availability of water in the area, growers generally conserve water on-farm and try to utilize all of the available water for crop production. Crops that are drip, micro-irrigation or sprinkler irrigated (approximately 70% of the total acres per Figure 4-1 in the KRWCA Groundwater Quality Assessment Report) have water applied at rates that are less than soil infiltration rates and thereby prevent erosion. Surface irrigated crops commonly utilize tailwater return systems so that water is conserved and reused.

Conclusion

The concerns outlined in the Conditional Approval of the Coalition's SDEAR regarding the exclusion of parcels with greater than 5 tons per acre per year discharge rates that are outside of the 500 meter assessment zone, and parcels located near waterways with less than 5 tons per acre per year calculated discharge potential have been noted. Parcels falling under the above scenarios that have not been indicated for an SECP by the SDEAR analysis, but have the potential to discharge under typical conditions according to member grower responses on the Farm Evaluation, will be subject to SECPs.

As discussed at the ILRP Stakeholder Meeting on January 13, we look forward to discussing ILRP sediment and erosion control requirements with staff and appreciate Sue McConnell's invitation to meet on February 29, 2016. We are committed to working with staff to achieve compliance in a consistent and reasonable manner, across all of the coalition areas.

Respectfully,



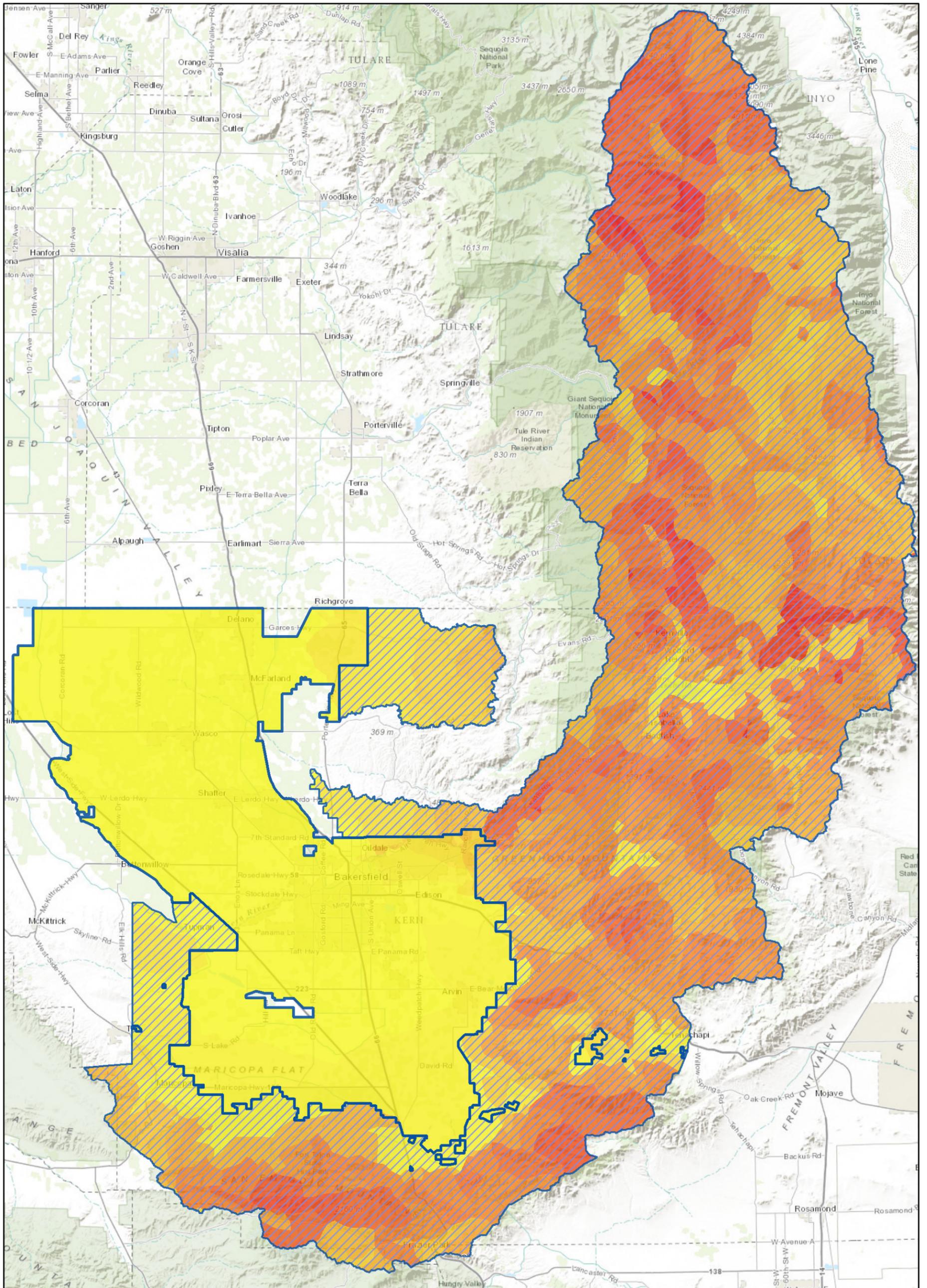
Hilary Armstrong Reinhard, PE
Senior Engineer



John Schaap, PE
Principal Engineer

Enclosures: Attachment A, KRWCA LS Factor Map

cc: Clay Rodgers
Adam Laputz
Sue McConnell
David Sholes



Legend

- Kern River Watershed Coalition Authority (Primary)
- Kern River Watershed Coalition Authority (Supplemental)

LS Factor
Weighted Average For Soils
 High : 26.88
 Low : 0.09

ATTACHMENT A

LS Factor