



California Regional Water Quality Control Board

Central Valley Region

Robert Schneider, Chair



Arnold
Schwarzenegger
Governor

Alan C. Lloyd, Ph.D.
Secretary for
Environmental
Protection

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22 August 2005

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ANNUAL MONITORING REPORT – SOUTHERN SAN JOAQUIN VALLEY WATER QUALITY COALITION- KERN RIVER SUB-WATERSHED

On 1 April 2005, we received the Annual Monitoring Report (AMR) for the Southern San Joaquin Valley Water Quality Coalition's (SSJWQC) Kern River Sub-watershed. This report was submitted by the SSJWQC to meet the conditions of Resolution No. R5-2003-0105, and the associated Conditional Waiver of Waste Discharge Requirements for Discharges from Irrigated Lands (Conditional Waiver).

Water Board staff has reviewed the AMR to evaluate if the document accurately reflects the required reporting conditions detailed in the Conditional Waiver, the conditions set forth in the Kern River Sub-watershed's Monitoring and Reporting Program Plan (MRP Plan), the Quality Assurance Project Plan (QAPP), and to assess the quality of the data generated and the conclusions and recommendations presented. Water Board staff finds that additional data/clarification is necessary to complete the AMR review.

By 21 October 2005, the Coalition needs to address the requested information listed in 1 – 8 below.

1. Provide a detailed map of the entire Sub-watershed that includes the established Sub-watershed boundary (Item 1 of attached staff review).
2. Provide monitoring site locations in Global Positioning System (GPS) coordinates (Item 2)
3. Provide field data sheets from Fruit Growers Laboratories (Items 4 and 11).
4. Original laboratory data sheets from Aquatic Bioassay & Consulting Laboratories need to be provided for all water column and sediment testing (Items 6 and 12).
5. Provide a detailed land use map for the Sub-watershed (Item 8).
6. Provide additional information on pesticide use for inclusion in the AMR Section D (Item 9).
7. Provide gauging station data for Poso Creek and the dates when sampling events were attempted (Item 10).
8. Provide Aquatic Bioassay & Consulting Laboratories rationale for acceptance of fathead minnow, Hyalella, and Ceriodaphnia bioassay results, for those events where statistical problems with the data were encountered (Item 12).

The AMR review identified additional areas of concern that, although not required to make the AMR complete, are necessary for the Conditional Waiver program. **By 21 October 2005**, you need to address the requested information listed in 9 -12 on the following page.

California Environmental Protection Agency

9. Submit a revised sampling program that includes additional monitoring points including a combination of secondary water bodies and return canals; to address the sampling of 20% of additional waterways per year as required by the Waiver program (Item 16).
10. Submit a storm-water sampling program that includes a sampling trigger, and provisions to document the results of said program (Item 10).
11. Provide assurance that Communication Reports and follow-up sampling will be performed whenever statistically significant toxicity is detected, or Basin Plan water quality objectives are exceeded, as required by the Conditional Waiver program (Items 7 and 15).
12. Provide a list of Sub-watershed members so that we can evaluate the extent of coverage within the Sub-watershed in response to detected water-quality impacts. The revised Attachment B of Resolution No. 2003-0105 states, "The Coalition Group shall, by July 22, 2004, maintain a Membership Document with information concerning each Participant who has knowingly elected to be a member of the Coalition Group. The Membership Document shall include, at a minimum, a list of the Participants, information on contacting each Participant, and information sufficient to locate the fields or parcels of each Participant that are within the Coalition Group. The Regional Board may further specify the information to be included. This information shall be provided to the Regional Board upon request, within the time specified by the Regional Board, which time shall not exceed thirty days."

Items that need to be incorporated into the current monitoring program and/or generated for the next AMR submittal include:

- A) Complete chain of custody documentation (Item 5 of attached staff review);
- B) Perform the required TIE analysis, re-sampling, sampling upstream, and preparation of a Communication Report when toxicity exceeds 50% mortality (Item 12);
- C) Collect and analyze toxicity QA/QC samples on the required 5% frequency (Item 17);
- D) Continued work on management practices issues (Item 18).

If you have any questions or comments regarding the review, or need any further information, please contact Alan Cregan at (559) 445-6185.



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RCE No. 43140

ARC:arc

cc: Mr. Tom Pinkos, Regional Water Quality Control Board, Rancho Cordova
Mr. Bill Croyle, Regional Water Quality Control Board, Rancho Cordova
Mr. Ken Landau, Regional Water Quality Control Board, Rancho Cordova
Mr. Dennis Westcot, Regional Water Quality Control Board, Rancho Cordova



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TO: Russell W. Walls
Senior Engineer

FROM: Alan Cregan
Engineering Geologist

DATE: 22 August 2005

SIGNATURE: Alan Cregan

SUBJECT: RESPONSE TO REVIEW OF ANNUAL MONITORING REPORT – SOUTHERN SAN JOAQUIN VALLEY WATER QUALITY COALITION – KERN RIVER SUB-WATERSHED

Staff Review

On 1 April 2005, we received the Annual Monitoring Report (AMR) for the Southern San Joaquin Valley Water Quality Coalition's (SSJVWQC) Kern River Sub-watershed. This report was submitted by the SSJVWQC to meet the conditions of Resolution No. R5-2003-0105 and the associated Conditional Waiver of Waste Discharge Requirements for Discharges from Irrigated Lands (Conditional Waiver) adopted by the Regional Board on 11 July 2003.

Regional Board staff met with the SSJVWQC on 17 May 2005 to discuss preliminary comments and general deficiencies generated as part of the Annual Report review. Regional Board staff has continued the review of the AMR to evaluate the document for the required reporting conditions detailed in Resolution NO. R5-2003-0105, the conditions set forth in the Kern River Sub-watershed's Monitoring and Reporting Program Plan (MRP Plan), the Quality Assurance Project Plan (QAPP), and to assess the quality of the data generated and the conclusions and recommendations presented. The review has been broken into three major categories: 1) a discussion of administrative aspects; 2) a discussion of analytical aspects; and 3) a discussion of waiver compliance.

Administrative Aspects

The Kern River Sub-watershed AMR was submitted on time, under appropriate cover letter, and included the major components required by Resolution No. R5-2003-0105. Sampling was performed at the two sites set forth in the MRP Plan and the samples collected were analyzed for the required constituents. However, a number of administrative deficiencies were noted.

Item 1: A detailed map of the Sub-watershed needs to be included in the AMR. The existing map provides information on only the major features, and does not include all water-bodies, canals, diversions, etc., at a scale that provides sufficient detail for evaluation purposes. The Conditional Waiver requires that the Coalition submit "Map(s) of watershed area showing irrigated lands (including crop type), drainage and discharge locations. Maps or discussion shall provide details of the watershed showing which fields are served by each drain." Additionally, the MRP Plan requires detailed maps showing the land use and sampling locations (Resolution No. R5-2003-0105 pages 11 and 13).

Item 2: Monitoring site locations need to be provided in Global Positioning System (GPS) coordinates as required on page 10 of Resolution No. R-5-2003-0105.

Item 3: The results of the analytical and toxicity testing programs are not presented in the required table format in the body of the report. The information is however, presented as a untitled table at the beginning of Appendix A and a second untitled table in Appendix B (page 14 of Resolution No. R-5-2003-0105).

Item 4: Kern River Sub-watershed field data sheets are not included in the report. This information is necessary to determine if Fruit Growers Laboratories (FGL) collected the samples according to the Conditional Waiver requirements (page 14 of Resolution No. R-5-2003-0105). Additionally, FGL field sampling procedures need to be presented for review and approval (not included in MRP Plan or QAPP).

Item 5: Chain of custody documentation needs to be preformed in accordance with Attachment A of Resolution No. R5-2003-0826, pages 5 and 6. Chain of custody documents included in the AMR did not specify custody seals, number of bottles, transportation method (ice chest cooled to 4 degrees C), and included missing time and insufficient signatures.

Item 6: Original laboratory data sheets were not included in the report. This is especially significant for the water column and sediment toxicity testing, where a number of questions were noted regarding the statistics preformed for normalizing the data (page 14 of Resolution No. R-5-2003-0105).

Item 7: Communication reports need to be promptly sent to the Regional Board when toxicity is detected or water quality objective exceeded. No communication reports were submitted for the 16 August 2004 or the 10 February 2005 sampling events, where reduced *Hyalella* survival was detected (85% and 75% respectively).

Item 8: The land use map included in the MRP Plan (Plate 2: General Land Use Map) is of insufficient scale and detail to provide necessary information. A detailed land use map needs to be included in the AMR as required on page 13 of Resolution No. R5-2003-0105.

Item 9: The pesticide use section of the AMR (Section D.) is inadequate. Information needs to be provided on where, when, and how pesticides are being applied. At a minimum, Township, Range and Section, along with the types and amounts of chemicals applied on these acreages, and when, must be presented (Order No. R5-2003-0826, page 3).

Item 10: There is no documentation presented in the AMR to substantiate, that Poso Creek was dry during the storm-water sampling attempt (no field data sheets, gauging station data, or irrigation district records), nor is any procedure or trigger regarding storm water sampling presented in the MRP Plan. According to the Department of Water Resources, monthly precipitation records for the Glennville region and the City of Bakersfield; the month of January 2005 saw 196% and 241% of normal rainfall, respectively.

CIMIS data for the Belridge area indicates the following precipitation events occurred during the storm-water season:

28 December 2004 precipitation was 0.75 inch with evapotranspiration of 0.06 inch;

31 December 2004 precipitation was 0.18 inch with evapotranspiration of 0.07 inch;

1 January 2005 precipitation was 0.58 inch with evapotranspiration of 0.02 inch;

8 January 2005 precipitation was 0.14 inch with evapotranspiration of 0.05 inch;

9 January 2005 precipitation was 0.34 inch with evapotranspiration of 0.01 inch and;

10 January 2005 precipitation was 0.19 inch with evapotranspiration of 0.06 inch.

The date when the Kern River Sub-watershed attempted to perform storm-water sampling was not included in the AMR.

The Kern River Sub-watershed needs to provide the Board with a reliable program containing guidelines for when storm water sampling will be performed. This program needs to include photographic and written documentation of all sampling sites and events; regardless of whether a sample was collected or not (location dry).

Analytical Aspects

Chemical analysis of samples collected for the AMR were run in accordance with the methods prescribed in Resolution No. R5-2003-0105, with the results presented in the required tabulated format (Untitled tables in Appendix A and B). The review of the analytical results presented in the AMR was broken down into the following categories: physical parameters (including metals and nutrients), toxicity testing, pesticide testing, quality control findings, and follow-up.

Item 11: Physical parameters are within excepted limits as reported. However, because field data sheets were not included in the report, it is unknown if pH, DO, EC and temperature were measured in the field, or in the laboratory. An example of the importance of this data is demonstrated by the analytical results for coliform bacteria (page 6 of Appendix A). The reported sample temperature at time of collection was 83 degrees centigrade (181 degrees Fahrenheit). Additionally, the sample was not analyzed until approximately 11 hours after collection, or approximately six hours after the holding time for bacteria had expired.

Item 12: Toxicity testing results could only be evaluated from the reported findings. No raw data sheets were included with the results. All toxicity testing was conducted as chronic, not the acute survival required by the Conditional Waiver. Problems were encountered with non-normal distribution and/or equality of variance for the statistical tests performed for Hyalella, and it's endpoint survival (17 August 2004 and 11 February 2005), Fathead minnow (17 August 2004 and 11 February 2005), and Ceriodaphnia (11 February 2005). No discussion or explanation was provided for the observed statistical anomalies and; the test results were accepted by the laboratory.

Chronic water column toxicity testing for the irrigation and storm-water sampling events detected no problems with *Selenastrum* growth, fathead minnow survival, or *Ceriodaphnia* survival. Sediment toxicity to *Hyalella* was detected, however, in both the irrigation samples and storm-water samples (survival rates of 85% and 75% respectively). No Toxicity Identification Evaluation (TIE), follow-up sampling, or Communication Reports were performed.

Item 13: Pesticide sampling results did not detect any organochlorine, organophosphorus, herbicides, carbamates, or pyrethroids at or above detection limits. However, the analysis did not include glyphosate, simazine, diuron, paraquat, dichloride or esfenvalerate. A general problem with detection limits was also noted in the analysis conducted for organophosphorus. Detection limits were 2 micrograms per liter (ug/L), well above the fresh water acute toxicity trigger for diazinon (0.16 ug/L) and chlopyrifos (0.05 ug/L), as set forth by Fish and Game. Laboratory practical quantitation limits (PQLs) must be low enough to provide data that will be meaningful with respect to water quality objectives.

Field quality control samples were collected and analyzed at the appropriate frequency for physical parameters. No toxicity quality assurance/quality control (QA/QC) samples were collected or analyzed. As the number of sampling events increases in the coming season, toxicity QA/QC samples will need to be collected and analyzed on the required 5% basis.

Item 14: Laboratory QA/QC data was appropriate with a sufficient number of spikes, method blanks, laboratory control samples (LCS), surrogates, continuing calibration verification (CCV), and calculated relative percent difference (RPD). However, a QA/QC problem was observed in the pesticide analysis data submitted by FGL. Surrogate percent recoveries were not within the acceptance range; CCV were above the acceptance range; and blank spike duplicates were above the acceptance range for a handful of constituents. A variety of methods were used by FGL to validate the test results.

Item 15: Follow-up studies to toxic events were not performed. The Monitoring and Reporting Program, Order No. R5-2003-0105 (page 5), states when toxicity is detected, a TIE and chemical monitoring shall be conducted to determine the cause of toxicity. At a minimum, a Phase 1 TIE should be conducted to determine the general class of chemical causing the toxicity. The results of the minimum TIE will determine the type of chemical monitoring necessary to identify the specific agents causing toxicity. In addition to TIEs, sites identified as toxic in the initial screen, shall be re-sampled to estimate the duration of the toxic event. Samples should also be collected upstream of the initial sampling point to help determine the source of the toxicity. Additionally, information must be collected from dischargers on the type of management practices that are being used, the degree to which they are being implemented within the watershed, and how effective they are in protecting waters of the State through all phases of monitoring. Communication Reports are the method by which the Regional Board is notified of a water quality exceedance. Notification needs to be prompt. At a minimum, the Communication Report shall include: a description of the management practice(s) being evaluated; methodology for evaluating the effectiveness of the practice (including sampling and QA/QC plans); and the involvement by stakeholders and agencies in developing, implementing, and evaluating the project (Monitoring and Reporting Program, Order No. R5-2003-0105, pages 12 and 13).

Conditional Waiver Compliance

Certain aspects of the Conditional Waiver program may not have been completely addressed in the Watershed Evaluation, QAPP, and MRP Plan, and subsequently, were not included in the AMR. Additional information and/or actions should be undertaken at this time in order to fully comply with the Waiver program. These actions include: increasing the number of sampling points; the frequency of sampling; and actions taken to address water quality impacts.

Item 16: Monitoring and Reporting Program, Order No. R5-2003-0105 (pages 8 and 10) states that the number of monitoring sites shall be based on acreages and watershed characteristics sufficient to allow for the calculation of load discharged for every waste parameter. Additionally, all major drainages must be part of baseline monitoring. At least 20% of the intermediate drainages must be monitored during the first year and the second 20% the second year, etc.

The review of the AMR found no mention of additional sampling proposed for either the major drainages or on the required 20% of the intermediate drainages. This is inconsistent with the terms of the waiver and needs to be addressed.

A study of aerial photographs and topographic maps of the region indicate that Caliente Creek, San Emigdio Creek, Pleito Creek, Goose Lake Slough, Connecting Slough, and Jerry Slough are all secondary water bodies, and coupled with the Kern River north of Bella Vista (above Lake Isabella), and the Friant Kern Canal exiting Lake Wollomes, should be considered for inclusion into the 20% of water bodies to be monitored this year.

Item 17: The frequency of sampling set forth in the Conditional Waiver program is once a month during the irrigation season and twice during the storm season. Additionally, when toxicity is discovered, re-sampling is to be performed and samples are to be collected upstream to aid in determining the limits of toxicity. The Kern River Sub-watershed AMR does not contain any information regarding resampling, or sampling upstream in response to the detected toxic events (Hyalella survival rates of 85% and 75%).

Item 18: The Conditional Waiver requires that when monitoring results indicate that water quality objectives are exceeded in the surface waters of the Coalition Group area, the Coalition Group shall submit a Communication Report describing how it will evaluate the effectiveness of one or more management practice(s) at preventing discharge of constituents of concern to surface waters. The selection of management practice evaluation projects shall include consideration of the contribution of target constituents of concern to known water quality impairments, potential application of the management practices over a broad geographic area and large spectrum of crops, and ease and immediacy of possible implementation. While the Waiver Program requires compliance, its staff's understanding that the management practices issue is currently evolving. Compliance will be an ongoing process and this item is meant only as an informational issue to stimulate the Sub-watershed in gathering the information necessary for the program to advance.