

Central Valley Regional Water Quality Control Board

9 October 2013

Parry Klassen, Executive Director
East San Joaquin Water Quality Coalition
1201 L Street
Modesto, CA 95354

2014 WATER YEAR MONITORING PLAN – EAST SAN JOAQUIN WATER QUALITY COALITION

Thank you for the timely submittal of the Monitoring Plan Update for the 2014 water year within the East San Joaquin Water Quality Coalition (Coalition) region. Staff reviewed the proposed monitoring plan for compliance with the Monitoring and Reporting Program (MRP) R5-2012-0116-R1.

Staff determined that the Coalition's proposed schedule includes monitoring of constituents during application periods or the time when constituents of concern affected water quality in the past, and that the proposed monitoring plan complies with the majority of the requirements. Pesticides will continue to be monitored as described in the Coalition's 2008 approved Monitoring and Reporting Program Plan until Central Valley Water Board staff establish the process for identifying pesticides that require monitoring (MRP, Section III.C.3). The Coalition must ensure that at least two storm runoff events are monitored. As such, monitoring proposed for the 2014 water year will provide sufficient data to describe irrigated agriculture's impacts on surface water quality.

Based on the information in the submitted documents and the attached staff memorandum, I conditionally approve the Coalition's Monitoring Plan for the 2014 water year. Items that need to be addressed in an addendum to the MPU report to be submitted by **10 December 2013** include:

- Copper and lead monitoring at Core sites that have not been adequately characterized should at the minimum include 2 storm and 2 high TSS events (item I.a on p. 5 of staff memorandum).
- Documentation of information considered and rationale for the proposed monitoring at Represented sites based on identified water quality problems at Core sites should be provided, including previous monitoring results, any TIE results, and pesticide use information, if applicable (item III.a on page 5 of staff memorandum).
- Changes in the proposed monitoring schedule and corrections in text, tables, and Attachment A as recommended by staff (items IV and V on page 6 of staff memorandum).

Other items identified in the Staff Recommendations will need to be addressed in future Monitoring Plan Update (MPU) reports; the next MPU report is due by 1 August 2014. If you have any questions or comments regarding this letter, or need any further information, please contact Jelena Hartman at jhartman@waterboards.ca.gov or by phone at 916-464-4628.

Original signed by Kenneth D Landau for

Pamela C. Creedon
Executive Officer

Central Valley Regional Water Quality Control Board

TO: Susan Fregien
Senior Environmental Scientist
Monitoring and Implementation Unit
Irrigated Lands Regulatory Program

FROM: Jelena Hartman
Environmental Scientist
MONITORING AND IMPLEMENTATION UNIT
IRRIGATED LANDS REGULATORY PROGRAM

DATE: 8 October 2013

SUBJECT: EAST SAN JOAQUIN WATER QUALITY COALITION'S
MONITORING PROGRAM UPDATE FOR 2014 WATER YEAR

The California Regional Water Quality Control Board, Central Valley Region (Central Valley Water Board) received a Monitoring Program Update report from the East San Joaquin Water Quality Coalition (Coalition) on 1 August 2013, as required by the Monitoring and Reporting Program (MRP) R5-2012-0116-R1. On 17 September, the Coalition submitted an amended Monitoring Plan Update with additional information and evaluations. Additional clarifications and corrections were received on 24 September. The Monitoring Plan Update report provides the proposed surface water monitoring schedule for the period 1 October 2013 through 30 September 2014 (2014 water year).

The 2014 water year Monitoring Plan Update was reviewed to determine compliance with requirements pursuant to the MRP. Overall, the Coalition approached the very complex assessment of monitoring sites and parameters in a systematic and logical way. An overview of the main elements of the proposed monitoring plan is presented below, followed by staff recommendations.

Monitoring Frequency

Previous monitoring was based on a monthly frequency, and for the 2014 water year, the Coalition proposes to continue with the monthly frequency during the identified monitoring periods at each site as described below.

Storm Runoff Monitoring

Per section III.C.1 in the MRP, sampling events must be scheduled to capture at least two storm runoff events per year; the collection of storm runoff samples is not contingent upon the timing of other sampling events and may result in monitoring more than once per month. The MRP specifies that “[t]he third-party shall identify storm runoff monitoring criteria that are based on precipitation levels and knowledge of soils or other factors affecting when storm runoff is expected to occur at monitoring sites”. Although the Monitoring Plan does not identify storm runoff monitoring criteria, the Coalition has previously defined a storm monitoring event as

sampling within three days of a precipitation event with at least 0.25 inches of rain recorded in the Coalition region within a 24 hour period (e.g. pages 39, 40, and 60 in 2013 ESJWQC Annual Monitoring Report). Future Monitoring Plan Updates should state that at least two storm runoff events per year will be monitored, and include a description of storm monitoring criteria.

Monitoring Sites, Parameters and Schedule

The monitoring design for the 2014 water year includes six Core sites (one Core site in each of the six Zones in the Coalition's region), 25 Represented sites, and three sites established for the diazinon and chlorpyrifos TMDL compliance on the San Joaquin River. The Coalition is required to identify a specific set of monitoring parameters for each site that is scheduled to be monitored, and include a discussion of the rationale to support the proposed schedule.

1. Core Site Monitoring

Monitoring will be conducted at one Core site in each of the six Coalition zones in the 2014 water year (MPU p. 6-41). Table 2 in the MPU lists parameters to be monitored at Core sites in the 2014 water year: the monitoring will include field measurements, drinking water and general physical parameters, nutrients, pesticides, metals and water column and sediment toxicity, meeting the requirements in the MRP. With the exception of metals, all constituents will be monitored once per month at all core sites.

In the future, a process for selecting pesticides to be monitored and determining time and location where monitoring is required will be identified with input from scientists and in coordination with the Department of Pesticide Regulation. Until the process for pesticide selection and monitoring design is developed, the Coalition proposes to monitor pesticides based on the previously approved monitoring program. Monthly monitoring is proposed for the following:

- **Carbamates:** Aldicarb, Carbaryl, Carbofuran, Methiocarb, Methomyl, Oxamyl
- **Herbicides:** Atrazine, Cyanazine, Diuron, Linuron, Simazine, Trifluralin
- **Organo-phosphates:** Azinphos-methyl, Chlorpyrifos, Diazinon, Dichlorvos, Dimethoate, Demeton-s, Disulfoton (Disyton), Malathion, Methamidophos, Methidathion, Parathion-methyl, Phorate, Phosmet

Monitoring during one storm and one irrigation event per year, as approved on 6 May 2011, is proposed for pesticides listed below:

- **Group A:** Aldrin, Chlordane, Heptachlor, Heptachlor Epoxide, gamma-HCH, alpha-HCH, beta-HCH, delta-HCH, Endosulfan I, Endosulfan II, Toxaphene
- **Herbicides:** Glyphosate, Paraquat
- **Organochlorines:** DDD, DDE, DDT, Dicofol, Dieldrin, Endrin, Methoxychlor

Under the MRP, monitoring for the total fraction of cadmium, copper, lead, nickel, and zinc has been replaced by monitoring of the dissolved fraction, which is considered to be bioavailable. To identify which metals need monitoring and during what period, the Coalition followed an evaluation process shown in Figure 2 of the MPU, which takes into account previous monitoring results and pesticide use information. The Coalition proposes to characterize core sites with respect to metals by monitoring two storm events, and two high total suspended solids (TSS) irrigation events during the 2014 water year. Monitoring two storm and two high TSS events ("2+2") for arsenic, cadmium, lead and molybdenum was approved on 6 May 2011. The Coalition proposes to apply the same

monitoring design to other metals at Core sites. The “2+2” monitoring approach for metals not applied by agriculture is reasonable given the previous multi-year monitoring results with no observed problems. The exception are metals that exceeded water quality objectives more than once in a three-year-period (shaded cells in Table A).

Table A. Proposed monitoring schedule for metals at Core sites: “2+2” denotes two storm and two high TSS irrigation events. Shaded cells denote sites where two or more exceedances were observed in a three-year period, monitoring design is based on previous monitoring results and use information.

Monitoring Site Name	Arsenic (Total)	Boron (Total)	Cadmium (Dissolved)	Copper (Dissolved)	Lead (Dissolved)	Molybdenum (Total)	Nickel (Dissolved)	Selenium (Total)	Zinc (Dissolved)
Dry Creek @ Wellsford Rd	2+2	2+2	2+2	Jan-Aug	2+2	2+2	2+2	2+2	2+2
Prairie Flower Drain @ Crows	2+2	2+2	2+2	2+2	2+2	Monthly	2+2	2+2	2+2
Highline Canal @ Hwy 99	2+2	2+2	2+2	Dec-Apr	Feb, Apr-Aug	2+2	2+2	2+2	2+2
Merced River @ Santa Fe	2+2	2+2	2+2	2+2	Jan-Feb	2+2	2+2	2+2	2+2
Duck Slough @ Gurr Rd	2+2	2+2	2+2	Dec-Feb Apr-Sep	Jan-Feb, Apr-Sep	2+2	2+2	2+2	2+2
Cottonwood Creek @ Rd 20	2+2	2+2	2+2	Monthly	Jan, Feb, Jun	2+2	2+2	2+2	2+2

2. Represented Site Monitoring

If an exceedance of a water quality trigger limit is observed at a Core site, the Coalition will evaluate the potential for threats to water quality associated with that parameter at each of the Represented sites in that zone, and if needed start monitoring the following water year.

As the 2014 water year is the first year under the new monitoring design, the proposed monitoring at Represented sites (Table B) is based on the management plans already in place at each site (also referred to as Special Project Monitoring, MPU p. 53-98), and on the evaluation of high-priority constituents (pesticides, metals, and toxicity) under an existing management plan at the core site in the respective Zone (referred to as Represented Monitoring, MPU p. 42-53). If the constituent is already under a management plan in a subwatershed, then a management plan monitoring design supersedes the schedule based on the Core site results.

- I. The evaluation of management plan monitoring took into account previous monitoring results and pesticide use reports for the high-priority constituents in Represented subwatersheds. The evidence considered in the evaluations of management plan monitoring is documented for pesticides and applied metals, and the MPU contains a justification for the proposed monitoring schedule.
- II. Monitoring in represented subwatersheds in a Zone is proposed for high-priority constituents under a management plan at the Core site in that Zone. A justification for no monitoring is provided for subwatersheds where previous monitoring results show that the constituent is not causing water quality problems in a represented subwatershed. Monitoring represented subwatersheds in the Zone is proposed for months when exceedances occurred at the Core site. However, the approach that relies only on months of previous exceedances at the Core site may not be appropriate for determining the needed monitoring at represented sites. A staff recommendation is provided in the following sections of this memorandum.

Table B. Summary of the proposed monitoring at Represented sites: monitoring for constituents under a management plan at Represented sites is shown in open cells, and Represented monitoring based on water quality at Core sites is shown in blue cells. Field measurements will be taken each time samples are collected. Note: the table does not indicate monitoring at Core sites – only management plan constituents are shown in gray rows to illustrate Represented site evaluations conducted based on the water quality at Core sites.

Zone	Site Name	Copper	Lead	Molybdenum	Chlorpyrifos	Diazinon	Dimethoate	Diuron	C. dubia	P. promelas	S. capricornutum	H. azteca
1	Dry Creek @ Wellsford Rd				Jul-Sep							Mar, Sep
1	Mootz Drain dwnstrm of Langworth				Jul-Sep							Mar, Sep
1	Rodden Creek @ Rodden Rd				*							*
2	Prairie Flower Drain @ Crows Ld Rd			Oct-Sep			Jul-Sep		Mar, Aug-Sep	Apr, Jul	Oct, Dec-Feb, Apr-May	Mar, Sep
2	Hatch Drain @ Tuolumne Rd						Jul-Sep		*	*	Jan-Feb, Apr-May, Jul-Aug	Mar, Sep
2	Hilmar Drain @ Central Ave	Jan-Mar, Jul					Jul-Sep	Dec-Jan Apr, Jun	*	*	Apr, Jul, Sep	Mar, Sep
2	Lateral 5 1/2 @ Slough Blaker Rd						Jul-Sep		Mar, Aug-Sep	Apr, Jul	Oct, Dec-Feb, Apr-May	Mar, Sep
2	Lateral 2 1/2 near Keyes Rd				Apr-Aug		*		*	*	Oct, Dec-Feb, Apr-May	Mar, Sep
2	Lateral 6 and 7 @ Central Ave						Jul-Sep		Mar, Aug-Sep	Apr, Jul	Oct, Dec-Feb, Apr-May	Mar, Sep
2	Levee Drain @ Carpenter Rd						Jul-Sep		Mar, Aug-Sep	Apr, Jul	Oct, Dec-Feb, Apr-May	Mar, Sep
2	Lower Stevinson @ Faith Home Rd						Jul-Sep		Mar, Aug-Sep	Apr, Jul	Oct, Dec-Feb, Apr-May	Mar, Sep
2	Unnamed Drain @ Hognin Rd						Jul-Sep		Mar, Aug-Sep	Apr, Jul	Oct, Dec-Feb, Apr-May	Mar, Sep
2	Westport Drain @ Vivian Rd				Mar, Jul-Sep		*		*	*	Feb, Apr-May	Mar, Sep
3	Highline Canal @ Hwy 99	Dec-Apr	Feb, Apr-Aug						Mar, May, Sep		Feb-May	Mar, Sep
3	Highline Canal @ Lombardy Rd	Jan-Mar, May, Aug	Feb, May-Jun, Aug-Sep		Jan, Mar, Jul-Aug				Jan-Mar, Jun, Sep		Feb-May, Aug-Sep	Mar, Sep
3	Mustang Creek @ East Ave	Oct-Apr	Feb, Apr-Aug						Mar, May, Sep		Feb-May	Mar, Sep
4	Merced River @ Santa Fe		Jan-Feb		Nov, Jan, Jul				Jan, Mar, Jul-Aug			
4	Livingston Drain @ Robin Ave	Dec-Feb, May-Jul, Sep	Jan-Feb		Jan, Apr-Aug				*		Feb, Apr-May	
4	Bear Creek @ Kibby Rd	Jan-Apr, Aug			*				*			
4	Black Rascal Creek @ Yosemite Rd		Apr, Sep		May, Jul-Sep				May, Jul-Aug			
4	Canal Creek @ West Bellevue Rd				Nov, Jan, Jul				Jan, Mar, Jul-Aug			
4	Howard Lateral @ Hwy 140				Nov, Jan, Jul				*			
4	McCoy Lateral @ Hwy 140				*				*			
4	Unnamed Drain @ Hw 140				Nov, Jan, Jul				Jan, Mar, Jul-Aug			
5	Duck Slough @ Gurr Rd	Dec-Feb, Apr-Sep	Jan-Feb, Apr-Sep						Feb-Mar			Sep
5	Deadman Creek @ Gurr Rd	*			Mar-Apr, Aug-Sep				Nov, Feb-Mar	Nov-Mar, May-Jun	Feb, Jul	
5	Deadman Creek @ Hwy 59	*			Mar-Apr, Aug-Sep				*		Jan, Apr	
5	Miles Creek @ Reilly Rd	Jan-Aug	Jan-Feb, Jun-Aug		Mar, Jun-Sep	Feb			Jan, Sep		Feb, Apr, Jun	Sep
6	Cottonwood Creek @ Rd 20	Oct-Sep	Jan-Feb, Jun		Jan-Feb							
6	Ash Slough @ Ave 21	Jan-Feb, Apr-Sep			*							
6	Berenda Slough along Ave 18 1/2	Oct-Sep			Apr-Sep						May, Jul	
6	Dry Creek @ Rd 18	Oct-Feb, Apr-Sep	May-Jun, Aug-Sep		Oct-Dec, Feb, Apr, Jul-Aug	Jan-Feb		Jan-Mar			Jan-Feb, May	Mar, Sep

* Rationale for no monitoring at Represented sites included in the MPU was reviewed by staff.

3. TMDL Monitoring

To ensure compliance with the Diazinon and Chlorpyrifos Total Maximum Daily Load (TMDL) requirements, the Coalition will monitor three of the six compliance locations within the San Joaquin River (the other three sites are monitored by the Westside San Joaquin River Watershed Coalition). Samples will be collected once during winter storm season (January/February), and monthly from May through September. To assess compliance with load allocations, in addition to monthly monitoring at six Core sites, diazinon will be monitored at two and chlorpyrifos at 14 Represented sites (Table B).

STAFF RECOMMENDATIONS

- I. Metals at Core sites:
 - a. Monitoring at Core sites that have not yet been fully characterized for a metal under a management plan should include at a minimum two storm and two high TSS irrigation (“2+2”) events. Therefore, the proposed schedule for copper and lead should be modified to ensure that at each site at least two storm and two high TSS irrigation events are monitored (this may include months in addition to months when management plan monitoring is scheduled).
 - b. Monitoring of metals removed from a management plan can follow the “2+2” schedule.
 - c. Figure 1 in the MPU should be edited to indicate that no evaluation of the Represented sites is required if there are no exceedances at the Core site.
- II. Management plan monitoring at represented sites:
 - a. **Toxicity evaluations** - For management plans for toxicity and other constituents not applied by agriculture, documentation of information considered for evaluations to determine appropriate monitoring design should be included in future MPU reports. For example, a summary of past monitoring results with results of any Toxicity Identification Evaluations should be added. If applicable, PUR information should be considered in cases when toxicity was associated with a class of chemicals.
 - b. **Prioritization of constituents** - The waste discharge requirements allow for utilizing the surface water quality prioritization process described in the Coalition’s approved management plan strategy. Under the previously approved strategy, only high-priority compounds are monitored as a part of the management plan monitoring. While this approach focuses efforts on issues that can be remedied, the management plan prioritization may have to be updated to allow sufficient monitoring to assess water quality and effectiveness of management practices with respect to all constituents under a management plan and, when warranted, for the completion of management plans for any constituents under a management plan. Discussions with the Coalition have been initiated at the quarterly management plan status update meetings to address the issue.
- III. Monitoring subwatersheds in a Zone due to water quality problems at the Core site:
 - a. **Represented site evaluations** - No documentation and justification for the proposed monitoring has been provided for the Represented monitoring based on the identified water quality problems at the Core sites. There are multiple Represented sites that have never been monitored, and for which a monitoring schedule has been based on the management plans at the Core site in the corresponding Zone; evaluations of the potential for similar risks or threats to water quality associated with a Core site management plan parameter should have taken into account other evidence, such as pesticide use information, cropping pattern

or other factors. In order to allow determination of whether the proposed represented monitoring in the 2014 water year is adequate, the Coalition should provide additional information on the evidence considered and rationale for the proposed schedule.

- b. **Prioritization of constituents** - Evaluations for represented monitoring based on the water quality problems identified at the Core sites include only high-priority constituents. In future MPU reports, when evaluating constituents under a management plan at Core sites to determine if monitoring may be required at a Represented site in the same Zone, all constituents should be considered and not limited to high priority management plan constituents. Discussions with the Coalition have been initiated at the quarterly management plan status update meetings to address the issue.
- IV. Recommended changes to the proposed monitoring schedule for the 2014 water year based on the time when exceedances were observed in the past, or PUR information:
 - a. Toxicity to water flea at Levee Drain @ Carpenter Rd should include monitoring in February and July based on exceedances in 2013.
 - b. Toxicity to fathead minnow at Levee Drain @ Carpenter Rd should include monitoring in February based on an exceedance in 2013.
 - c. January should be added to the schedule for monitoring diazinon at Miles Creek @ Reilly Rd to monitor water quality following applications in December which comprise almost two thirds of all applications in the last three years.
 - V. Staff noted minor discrepancies in the MPU text, tables, and Attachment A. The issues below have been communicated informally, and the Coalition is aware of the needed corrections (Tables A and B include corrections):
 - a. Results of the flow chart analysis (question 3 on p. 14 and 37) should be reconciled with the monitoring results in the corresponding tables (p. 16-17 and 40-41, respectively).
 - b. The text of the MPU discusses the removal of monitoring copper at Highline Canal @ Hwy 99 from June through August, tables and attachment A should be reconciled with the schedule proposed in the narrative.
 - c. Monitoring at Duck Slough @ Gurr Rd includes months of lead exceedances at a discontinued monitoring site Duck Slough @ Hwy 99 (p. 33). The text of the report does not include all required months, the correct months are included in Attachment A, and in Table A of this memorandum.
 - d. Toxicity to algae at Hatch Drain @ Tuolumne Rd should include August instead of June (MPU Table 17).
 - e. Monitoring proposed for lead at McCoy Lateral (MPU p. 52), while no monitoring is indicated in MPU tables and Attachment A.
 - f. Monitoring for toxicity to algae at Berenda Slough @ Avenue 18 ½ incorrectly lists May and June. The correct months for management plan monitoring should be May and July (MPU Table 17).
 - g. Monitoring for lead at Black Rascal Creek @ Yosemite Rd incorrectly lists May and September. The correct months for management plan monitoring are April and September (MPU Table 17).