
Central Valley Regional Water Quality Control Board

14 October 2016

Mr. Michael Wackman
San Joaquin & Delta Water Quality Coalition
3294 Ad Art Road
Stockton CA 95215

APPROVAL OF THE 2017 WATER YEAR MONITORING PLAN UPDATE – SAN JOAQUIN COUNTY AND DELTA WATER QUALITY COALITION

Thank you for the timely submittal of the 1 August 2016 San Joaquin County and Delta Water Quality Coalition's (Coalition) Monitoring Plan Update (MPU), as required by the Monitoring and Reporting Program (MRP) of Waste Discharge Requirements General Order R5-2014-0029-R1. The MPU includes a monitoring frequency and schedule for Core, Represented, TMDLs, and management plan monitoring for each specific constituent.

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 MRP requirements (see attachment). Pesticides will continue to be monitored as described in the Coalition's 2008 approved Monitoring and Reporting Program Plan until the process for identifying pesticides that require monitoring (MRP, Section III.C.3) has been completed. Overall, the proposed monitoring schedule is consistent with the requirements of the Order, and I approve the 2017 water year Monitoring Plan Update. However, the proposed field sampling protocols for shallow and non-contiguous waterbodies will be evaluated in a separate process.

Based on the attached staff memorandum, I approve the Coalition's Monitoring Plan for the 2017 water year. Please review the attached staff memo including the Staff Recommendations. Any proposed changes to the MPU must be approved by the Executive Officer prior to implementation.

If you have questions regarding this letter, please contact Chris Jimmerson at (916) 464-4859 or by email at Chris.Jimmerson@waterboards.ca.gov.

Sincerely,

Original signed by Sue McConnell for:

Pamela C. Creedon
Executive Officer

Enclosure: Staff Review of MPU

Central Valley Regional Water Quality Control Board

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

FROM: Chris Jimmerson
Environmental Scientist
Monitoring and Implementation Unit
Irrigated Lands Regulatory Program

DATE: 14 October 2016

SUBJECT: MONITORING PLAN UPDATE FOR 2017 WATER YEAR – SAN JOAQUIN COUNTY AND DELTA WATER QUALITY COALITION

As required by Order R5-2014-0029-R1 Monitoring and Reporting Program (MRP), the Central Valley Regional Water Quality Control Board (Central Valley Water Board) received a Monitoring Plan Update from the San Joaquin County and Delta Water Quality Coalition (Coalition) on 1 August 2016. The Monitoring Plan Update (MPU) report provides the proposed surface water monitoring schedule for the period 1 October 2016 through 30 September 2017; the 2017 water year. The Coalition also submitted an updated monitoring schedule on 13 October, including ammonia and nitrate monitoring at Represented sites that have not been previously characterized.

Based on the Order requirements, the Monitoring Plan Update shall identify the appropriate monitoring periods and frequency for all parameters that require testing at each site that is scheduled to be monitored. This includes a discussion of the rationale to support the proposed schedule. Staff reviewed the MPU to determine compliance with requirements pursuant to the Monitoring and Reporting Program.

The Coalition approached the very complex assessment of monitoring sites and parameters in a systematic and logical way by providing flow charts and discussion facilitating the decision making process. An overview of the main elements of the proposed monitoring plan is presented below, followed by staff recommendations.

Monitoring Addendum

The Coalition evaluated monitoring results through June 2016 along with other applicable criteria to determine the 2017 water year monitoring schedule. The Coalition said it will include an addendum in the May 2017 Annual Monitoring Report, potentially revising the MPU. The addendum will be based on results from July through September 2016 that were not available at the time the MPU was prepared. Staff agrees that an addendum presented in the May Annual Monitoring Report will be appropriate.

Sample Collection Protocol (Appendix I)

Appendix I of the MPU presents a strategy for sample collection under conditions when there are low volumes of water. In prior years the Coalition collected water from low water conditions such as non-contiguous water bodies or shallow water (>6 inches). These conditions were generally duly noted on the field sheet and the AMR. During the 2017 water year, the Coalition now proposes to collect samples in non-contiguous water bodies or in shallow water redefined as <12 inches. Staff and the Coalition held a meeting on 14 September to discuss the field sampling. Staff informed the Coalition that the proposed sampling protocol will be addressed separately from the MPU. The Coalition agreed to submit a QAPP amendment form updating the field sampling protocol.

Monitoring Sites, Parameters, Schedule and Frequency

The monitoring design for the 2017 water year includes six Core sites for seven zones in the Coalition region (one Core site represents zones 5 and 6), 19 Represented sites, and four sites established for diazinon and chlorpyrifos Total Maximum Daily Load compliance in the Delta. As required by the MRP, the Coalition identified a specific set of monitoring parameters for each site that is scheduled to be monitored, selected appropriate monitoring periods, and included a discussion of the rationale to support the proposed schedule.

The MPU's Attachment A, monitoring schedule is an Excel workbook providing the Zone, site, analyte, and monitoring month. Each worksheet in the workbook gave important information and would serve better if one of the worksheets held the Zone|SiteName|SiteType|Month|Analyte|MonitoringType, comprehensively for each. For example, the Coalition could prepare a table similar to this:

Zone	Site Name	Site Type	Month	Analyte	Monitoring Type
Zone 1	Bear Creek @ North Alpine Rd	Core	Jan	pH	C
Zone 1	Bear Creek @ North Alpine Rd	Core	Sep	Chlorpyrifos	C
continued...	↓	↓	↓	↓	↓
↓	↓	↓	↓	↓	↓

A format like this facilitates comparability with the sampling schedule requirements and is filterable. Last year's MPU provided an Appendix I Excel spreadsheet very similar to the one staff proposed above. Staff requests the Coalition to provide this type of worksheet in the next MPU.

1. Core Site Monitoring

Surface water assessment monitoring will be conducted at Core sites for two consecutive years, per Attachment B, section III.A.1 of the Order. The MPU's Appendix 1 lists the analytes that will be monitored monthly in the water year, minus approved Delta Regional Monitoring Program (RMP) monitoring exchanges to support the RMP. The monitoring will include field measurements, nutrients, field and general physical parameters, metals, pesticides, and water column and sediment toxicity, meeting the requirements in the Order. Monitoring schedules are based on pesticide use patterns and previous monitoring results.

Per the Order, surface water monitoring shall be conducted at one of the Core sites for two consecutive years, followed by two years of monitoring at the second Core site. During this water year, three of the core sites changed to its alternate core site. The remaining four Core sites remain unchanged because suitable sites could not be located. The Executive Officer approved the Core sites in July 2016.

Pesticides: Pesticides that require monitoring will be identified as part of an evaluation process being developed by staff with input from scientists and in coordination with the Department of Pesticide Regulation. Until the process for pesticide selection is developed, the Coalition will continue to monitor pesticides based on the 2008 Monitoring and Reporting Program pesticide list. Paraquat and glyphosate will be monitored twice per year during a storm and an irrigation event to coincide with high total suspended solids (TSS) runoff events.

Metals: To identify the metals monitoring frequency and schedule, the Coalition followed an evaluation process shown in Figure 3 of the MPU, which takes into account previous monitoring results, pesticide use information, geologic conditions, and Basin Plan requirements satisfying the Order's requirements. Staff reviewed the Coalition's decision process and concurs with their metals monitoring plan.

Aquatic and Sediment Toxicity: The Coalition surface water monitoring includes monthly water column toxicity monitoring on three test species (*Ceriodaphnia dubia*, *Pimephales promelas* and *Selenastrum capricornutum*). According to the MRP, the Coalition will conduct toxicity identification evaluations to identify the potential sources of toxicity when percent survival or growth is 50% or less compared to the control. The Coalition also proposes to sample sediment toxicity to *Hyalella azteca* twice a year, once during the irrigation (March – October) and storm season (March – April) according to MRP section III.4.b. Additional sediment chemistry analyses for chlorpyrifos, piperonyl butoxide (PBO) and pyrethroids will be conducted on sediment samples as needed.

2. Represented Site Monitoring

Attachment B, Section III.C states, "...*monitoring periods shall be determined utilizing previous monitoring results, knowledge of agricultural use patterns (if applicable), pesticide use trends, chemical characteristics, and other applicable criteria.*" The proposed represented monitoring schedule complies with this section based on: a) previous water quality trigger limit exceedances, b) analyzing pesticide use, and c) scheduling monitoring events when management plans are already in place at the representative Core site.

The Coalition monitors the Represented site according to Attachment B, section III.A.2 of the Order. It requires monitoring at Represented sites when there is potential risk to water quality. When an exceedance occurs at an associated Core site, risk is evaluated by reviewing pesticide use for water quality impairments at Represented sites.

To evaluate the potential for risks or threats to water quality at the Represented sites based on Core site monitoring results, the Coalition considered pesticide use information including pounds of active ingredient and pesticide use trends, previous monitoring results, and acres treated.

With respect to nutrient (ammonia and nitrate) Represented monitoring, the Central Valley Water Board is working on a Delta Nutrient Research Plan to determine whether nutrient concentrations cause or contribute to water quality problems in the Delta. Consequently, after staff's evaluation of the MPU, data needs to be collected to show there is not an ongoing nutrient problem causing or contributing to pollution. Per the Order, based on historical monitoring results at Core sites, staff recommends additional ammonia and nitrate + nitrite monitoring as shown in Table 1.

Table 1. Additional nutrient monitoring.

Site Name	Analyte	Month
Duck Creek @ Hwy 4	Ammonia	March
Littlejohns Creek @ Jack Tone Rd	Ammonia	March
Mormon Slough @ Jack Tone Rd	Ammonia	March
Unnamed Drain to Lone Tree Creek @ Jack Tone	Ammonia	March
Empire Tract @ 8 Mile Rd	Nitrate + Nitrite	December
Rindge Tract Drain	Nitrate + Nitrite	December
Staten Island Drain @ Staten Island Rd	Nitrate + Nitrite	December
Upper Roberts Island Drain	Ammonia	November

On 13 October, the Coalition submitted an updated monitoring schedule including nutrient monitoring reflected in Table 1 above.

Staff concurs with the rationale and monitoring decisions provided in the MPU for all other constituents.

3. Management Plan Monitoring

The Coalition proposes to follow the evaluation process (MPU Figure 1) flow chart for constituents (pesticide, toxicity) to complete the management plan. A course of decisions determine if the management plan will be addressed through specific workplans, continued outreach, or continued monitoring ending in management plan completion.

To address the management plans that may require source identification workplans, the Coalition submitted preliminary analyses for analytes with potential irrigated agriculture sources that need further evaluation. Per the Order, the Coalition prepared preliminary source identification studies (DO, pH, SC, ammonia, *E.coli*, lead, DDE, arsenic, molybdenum, and nitrate/nitrite). Staff will review and coordinate with the Coalition to schedule the next steps. The Coalition will not need to prepare an *E. coli* workplan per the November 2015 Surface Water Quality Management Plan approval until the Executive Officer approves a joint *E. coli* management plan approach for the Central Valley Coalitions. Staff supports the proposal to monitor these constituents as part of an approved source identification study.

4. TMDL Monitoring

To ensure compliance with the Diazinon and Chlorpyrifos Total Maximum Daily Load (TMDL) requirements, the Coalition will monitor four sites that represent the Delta Waterways (Table 2) and sites outside and nearest to the Delta to assess compliance with the load allocation.

Table 2. TMDL diazinon and chlorpyrifos waterbody areas with the represented location name.

TMDL Waterbody Areas	Location Name
San Joaquin River (Stanislaus River to Delta Boundary)	Walthall Slough at Woodward Ave.
Delta Waterways (Stockton Ship Channel)	San Joaquin River at West Neugerbauer Rd.
Delta Waterways (export area, southern and western portions)	Old River at the west end of Clifton Court Rd.
Delta Waterways (central and eastern portions), Mosher Slough and Five Mile Slough	Light House Restaurant at West Brannon Island Rd.

Chlorpyrifos and diazinon samples will be collected once during the winter storm season (January or February or March) rain event, and monthly from May through August when applications are highest.

Agriculture has been identified as a contributing source to low dissolved oxygen in the Stockton Deep Water Ship Channel. The Coalition will review DO monitoring results in the Stockton Deep Water Ship Channel gathered from the California Data Exchange Center, Rough and Ready Island station, and from within its tributaries to assess compliance with the DO water quality objectives required in the TMDL.

5. 303(d) Constituents

The MRP requires monitoring of 303(d) listed constituents if irrigated agriculture is a contributing source and if monitoring is requested by the Executive Officer. At this time, the Executive Officer is not requesting additional 303(d) monitoring beyond the current schedule of 303(d) constituents found in the Core and Representative monitoring.

STAFF RECOMMENDATIONS

- Staff agrees that a MPU addendum presented in the May Annual Monitoring Report will be appropriate. The addendum will be based on results from July through September 2016 that were not available at the time the MPU was prepared. Those results may necessitate revisions to the monitoring schedule.
- Staff will address the proposed sample collection protocol in separate correspondence. In the meantime, the Coalition should continue collecting samples as approved in its Quality Assurance Project Plan.
- Additional ammonia and nitrate + nitrite Represented monitoring will occur as shown in Table 1.
- Staff recommends a comprehensive Excel worksheet monitoring schedule included with Attachment A in the next MPU. Tabulating the monitoring schedule will facilitate comparability with the sampling schedule requirements.