15 October 2013

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EAST SAN JOAQUIN WATER QUALITY COALITION MANAGEMENT PLAN COMPLETION

Thank you for submitting the 7 November 2012 request to remove specific constituents from select East San Joaquin Water Quality Coalition (Coalition) site subwatershed management plans. The Coalition has diligently implemented management plans according to requirements in the Coalition Group Conditional Waiver of Waste Discharge Requirements for Discharges from Irrigated Lands Order R5-2006-0053 (Conditional Waiver). The Coalition's approved 2008 Management Plan continues to be implemented as a part of the long-term Program after the Conditional Waiver has been rescinded as it applies to the Coalition's region. The condition for requesting completion of a Management Plan outlined in the Waste Discharge Requirements for Growers within the Eastern San Joaquin River Watershed Order R5-2012-0116 (Waste Discharge Requirements or WDRs) applies.

The Central Valley Regional Water Quality Control Board staff (staff) reviewed the Coalition's request for management plan completion (see enclosure). Staff compiled information and summarized data used to address the criteria outlined in the Waste Discharge Requirements (WDRs Attachment B, Appendix MRP-1, Section III, pages 8 and 9) and to consider if the completion of management plans is justified.

Based on the information provided in the request letter and in the enclosed staff review, I approve the completion of management plans for eight site/constituent pairs (Table 1).

Table 1. Summary of site/constituent pairs petitioned to be removed from management plan status and from the management plan monitoring (MPM) schedule.

Site Subwatershed	Copper	Chlorpyrifos	Lead	Diazinon	Diuron	Toxicity to water flea	Toxicity to algae	Sediment Toxicity
Bear Creek at Kibby Rd	✓							
Berenda Slough along Ave 18 1/2							✓	
Cottonwood Creek at Rd 20		✓						
Deadman Creek at Highway 59							✓	
Dry Creek at Rd 18				✓	x			
Duck Slough at Gurr Rd						x		
Highline Canal at Hwy 99							x	•
Highline Canal at Lombardy Rd		✓				✓		•
Livingston Drain at Robin Ave			✓					
Prairie Flower Drain at Crows Landing Rd								•

✓ Completion of management plan approved
• Additional monitoring required, not approved at this time
x Request not approved, management plan implementation should continue

Implementation of management plans must continue for the six remaining site/constituent pairs (Table 1). The Coalition should continue outreach and track ongoing implementation of appropriate management practices by growers to ensure that water quality problems do not recur. In accordance with the Waste Discharge Requirements, if more than one exceedance is observed within a three year period the Coalition must reinstate management plan implementation for those constituents.

If you have any questions or comments regarding this letter, or need further information, please contact Jelena Hartman at jhartman@waterboards.ca.gov or by phone at 916-464-4628.

Original signed by

Pamela C. Creedon
Executive Officer

Enclosures: Staff Review of Request to Remove Constituents from Management Plan – East San Joaquin Water Quality Coalition

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: 15 October 2013

SUBJECT: REQUEST TO REMOVE CONSTITUENTS FROM MANAGEMENT PLAN – EAST SAN JOAQUIN WATER QUALITY COALITION

The East San Joaquin Water Quality Coalition (Coalition) is required to implement management plans for constituents that exceed water quality objectives at the same site more than once in a three-year period (Orders No. R5-2008-0005 and R5-2012-0116). The California Regional Water Quality Control Board, Central Valley Region (Central Valley Water Board) received a request from the Coalition on 7 November 2012 (revised on 28 November 2012) to remove a total of 14 site/constituent pairs from the management plan monitoring schedule.

The request to remove monitoring requirements for specific constituents from select site subwatershed management plans is based on meeting the criteria in the Coalition's approved strategy for Management Plan Monitoring and Management Practices Evaluation (Coalition's Management Plan approved on 25 November 2008 and subsequent updates). The Coalition's approved strategy relies on two consecutive years of monitoring with no exceedances as the key criterion to request removal of constituents from management plans. When the request was submitted, there were sufficient monitoring data to demonstrate compliance during months of previous exceedances for two consecutive years for all petitioned constituents. Upon the adoption of the Waste Discharge Requirements for Growers within the Eastern San Joaquin River Watershed Order R5-2012-0116 (Waste Discharge Requirements or WDRs), at least three years of compliance with receiving water limitations during the times of year when previous exceedances occurred must be demonstrated before a management plan can be petitioned for completion.

The Central Valley Water Board staff reviewed the Coalition's request and evaluated whether completion of management plans for petitioned site/constituent pairs is justified. Considerations unique to each site/constituent pair were taken into account, and this review of the management plan completion request provides a transition to requirements of the long-term Program for the Coalition. Based on information available to staff, the petitioned site/constituent pairs were categorized in one of the following three groups:

I. There is sufficient information that management plan is no longer required. There are eight site/constituent pairs recommended for removal from management plans.

II. Additional monitoring is required to demonstrate at least three years of compliance with water quality objectives. Recent results show improvements in water quality, and when 2013 monitoring is completed management plans can be petitioned for completion if no additional exceedances occur. There are three site/constituent pairs in this category.

III. Test results still show exceedances of water quality objectives. The completion of management plans cannot be recommended for three site/constituent pairs.

Further details about each category of site/constituent pairs petitioned for the completion of management plans are provided below

I. Management plan no longer required

Since the most recent exceedance, there has been sufficient monitoring during the times of the year when the exceedances were observed to demonstrate that the water quality problem is no longer occurring. Based on the water quality data and other evidence discussed below, staff recommends approval of the management plan completion for select site/constituent pairs.

To assist in the transition to requirements of the long-term Program and address criteria outlined in the Waste Discharge Requirements (WDRs Attachment B, Appendix MRP-1, Section III, pages 8-9), the review includes a data summary (an example of the monitoring data summary for a hypothetical site/constituent pair is shown in Figure 1) for each constituent where criteria for management plan completion are met. Education and outreach, implemented management practices in each subwatershed, and additional information used to justify management plan completion are also summarized.

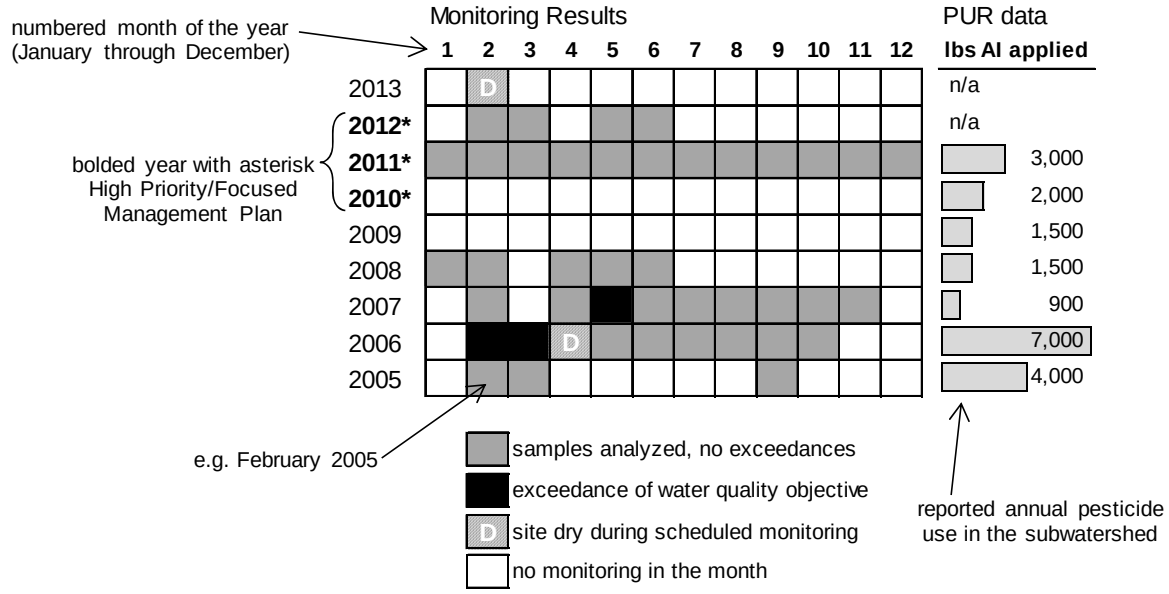
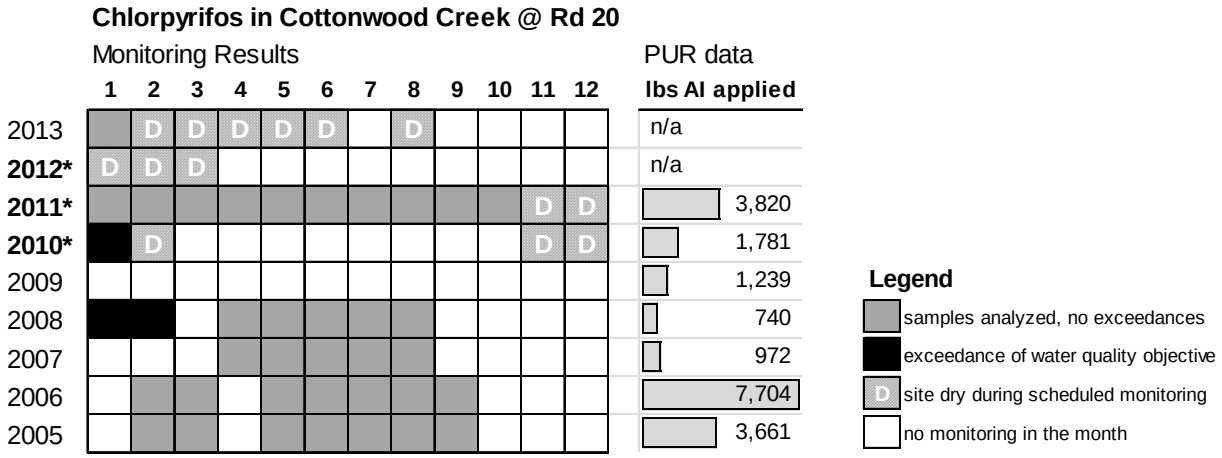


Figure 1. An example of monitoring data and pesticide use report (PUR) summary. Results of monitoring are shown by year (rows) and month (columns). Each cell represents one month, and the cell fill indicates if monitoring took place and if results were in compliance with the water quality objectives. Years of High Priority status for Management Plan implementation in the subwatershed are bolded and denoted with an asterisk. If available, relevant PUR data (pounds of active ingredient (AI) applied) are shown for each year. Growers are encouraged to implement management practices that prevent water from leaving the filed, hence months when a waterbody is dry are considered as being in compliance.

Management Plan	Most Recent Exceedance	Monitoring Events Since Exceedance	Demonstrated Compliance Sufficient	Approve?
Chlorpyrifos in Cottonwood Creek @ Rd 20	2010	25	✓	✓

Despite the relatively low reported use of chlorpyrifos in 2008, exceedances of chlorpyrifos during the winter storm season triggered a management plan in this subwatershed (2012 MPUR, Appendix I, Table V-6). During the focused management plan implementation from 2010 to 2012, the Coalition contacted 25 members with parcels that have the potential for direct drainage, representing 45% of the subwatershed's direct drainage area. Management plan performance measures, grower notification, outreach and education are documented in the 2012 AMR (Table 46 and Appendix VII) and 2012 MPUR (p. 36-38, 68-69).

While chlorpyrifos continues to be applied in the subwatershed, growers were informed of the water quality issues during the focused outreach. Because there is little runoff during storm and irrigation seasons due to sandy soils in the region, the majority of recommended management practices addressed spray drift and retention of water on the property. All recommended management practices were implemented, as well as additional management practices not specifically recommended, such as maintaining filter strips at least 10 feet wide around perimeter of orchard, only spraying close to waterbodies when the wind is blowing away from them, using electronic controlled sprayer nozzles, and using less water during surface irrigation (2012 MPUR, p. 78-86 and Appendix I, p. 147).

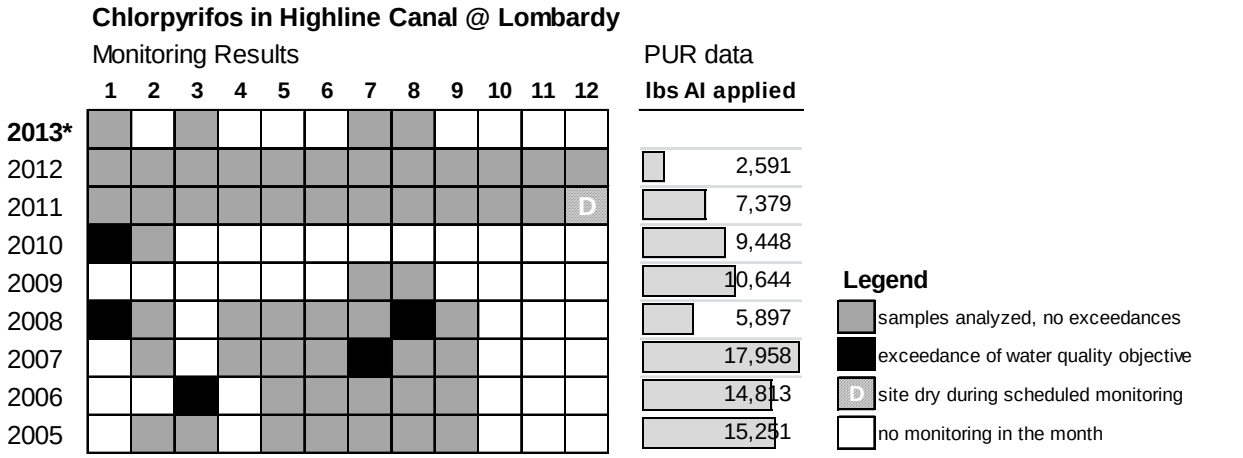


Results from three consecutive years of monitoring since the most recent exceedance demonstrate the effectiveness of the spray drift and water retention management practices implemented in the subwatershed. Samples collected during storm and irrigation seasons in 2011 showed no exceedances of chlorpyrifos. The site was dry three times during January/February storm seasons in 2012 and 2013; when water was present the chlorpyrifos concentration was below the water quality objective.

Management Plan	Most Recent Exceedance	Monitoring Events Since Exceedance	Demonstrated Compliance Sufficient	Approve?
Chlorpyrifos in Highline Canal @ Lombardy Rd	2010	29	✓	✓

Management plan for chlorpyrifos in the Highline Canal @ Lombardy Rd site subwatershed was triggered in 2007. Exceedances of chlorpyrifos occurred in storm and irrigation seasons. Based on the past monitoring results and pesticide use reports, it is likely that the chlorpyrifos exceedances in the early part of the year (January through March) were due to dormant sprays to almonds and/or storm water runoff. The most recent exceedance in January 2010 was during a large storm event (see the Coalition's 2011 Annual Monitoring Report, p. 46). Exceedances in July and August were associated with the highest use of chlorpyrifos (amount of applied active ingredient, and acreage treated, 2013 Management Plan Update Report, Figure XVII-2), and were likely due to off-site movement of irrigation tailwater and spray drift from almond orchards.

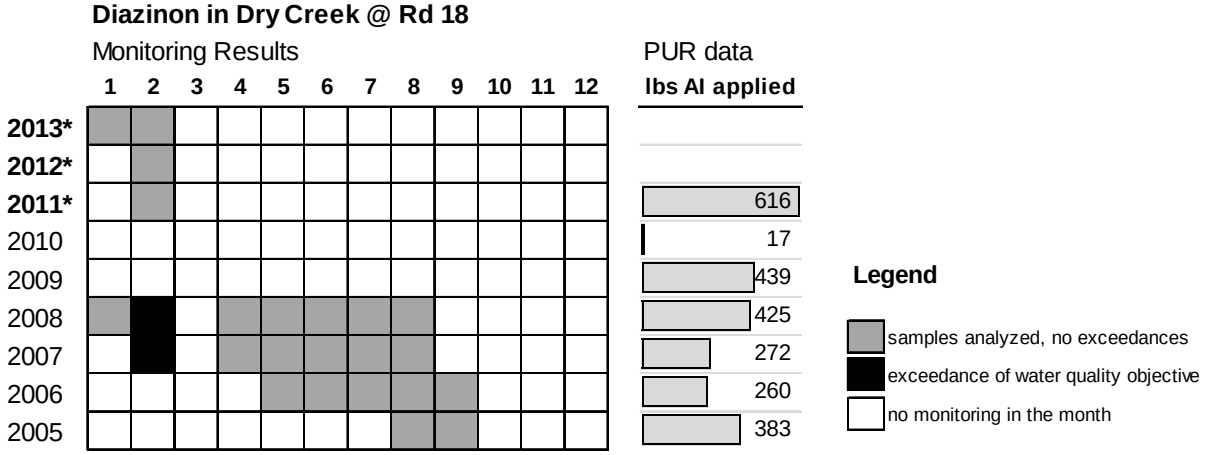
The site subwatershed became a high priority for outreach in 2013. The Coalition has contacted 22 growers with parcels with direct drainage potential who have applied constituents of concern in the past, and individual meetings with targeted growers are underway. Focused outreach and management practices surveys in the subwatershed will continue through 2015.



The amount of chlorpyrifos applied in the subwatershed has declined between 2009 and 2011. Chlorpyrifos has not exceeded the applicable water quality objective during the irrigation season since 2008, indicating that the potential issues associated with the irrigation season have been resolved. Monitoring results since the most recent exceedance in January 2010 show that chlorpyrifos has not exceeded the water quality objective during the storm season during three consecutive years, and indicate that the dormant sprays and storm runoff are no longer leading to water quality problems.

Management Plan	Most Recent Exceedance	Monitoring Events Since Exceedance	Demonstrated Compliance Sufficient	Approve?
Diazinon in Dry Creek @ Rd 18	2008	9	✓	✓

Exceedances of the water quality objective for diazinon were reported in February 2007 and 2008. The amount of diazinon applied in the subwatershed in 2011 was the greatest since 2005, yet monitoring in February 2011, 2012 and 2013 indicated that diazinon concentrations in water were below the water quality trigger limit. The majority of diazinon applied in the subwatershed from 2005 through 2011 was to almond and fig orchards, and storm water runoff and spray drift were the most likely contributors of the elevated diazinon concentrations in the water column. As a part of the focused management plan implementation that started in 2011, the Coalition contacted 17 targeted growers representing 53% of the acreage identified as direct drainage.

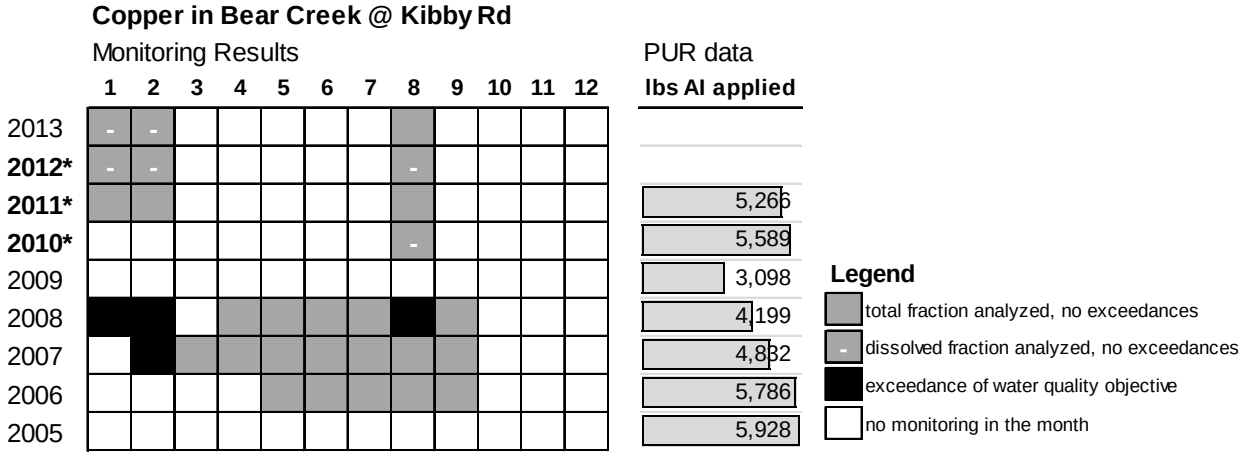


The majority of targeted growers implement several irrigation, erosion and sediment, and pest management practices. The Coalition provided general outreach to all members within the site subwatershed in 2012, including mailings, workshops and grower meetings. The Coalition recommended growers implement additional management practices designed to improve the management of storm water runoff and irrigation tailwater as well as to reduce spray drift. In 2012, the Coalition contacted the three growers with recommended practices to document newly implemented management practices and found growers implemented all recommended practices (2013 MPUR, pages 60-62). Results from three years of monitoring during the period of previous exceedances indicate that the water quality problem associated with diazinon is no longer present.

Management Plan	Most Recent Exceedance	Monitoring Events Since Exceedance	Demonstrated Compliance Sufficient	Approve?
Copper in Bear Creek @ Kibby Rd	2008	11	✓	✓

The management plan for copper in Bear Creek @ Kibby Road is based on exceedances of total copper in 2007 and 2008. When results are available, concentration of dissolved copper, rather than the total fraction, is used to assess compliance with water quality objectives (R5-2012-0116, Attachment B, page 27).

Between 2005 through 2011, the greatest amount of copper applied was in the months of January, February, March, April and May. Not all exceedances occurred during months of the greatest amount of use. The largest amount of copper applied from 2005 through 2011 was associated with walnut and peach orchards. The Coalition determined the most probable source of copper in the water column was spray drift and irrigation tailwater discharge.



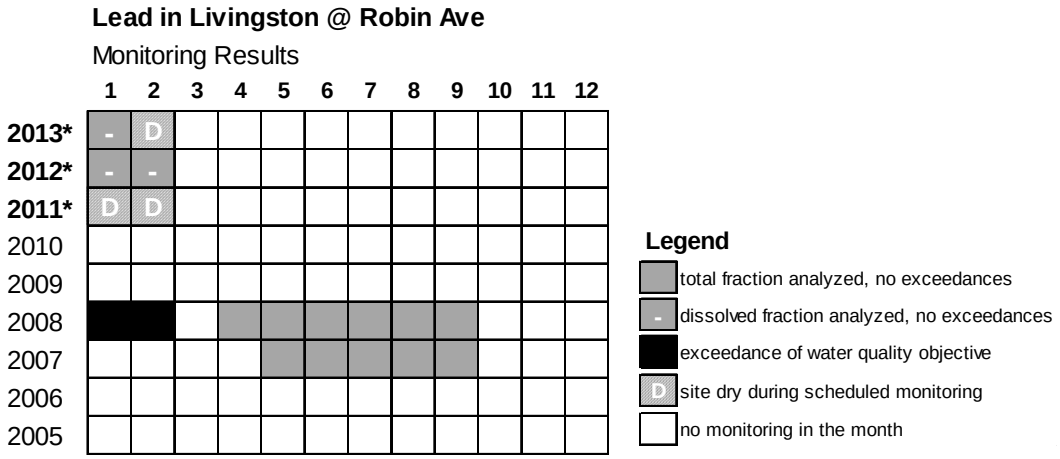
During the focused outreach in the site subwatershed between 2010 and 2012, the Coalition contacted 14 targeted growers representing 31% of parcels with direct drainage within the subwatershed, and focused on providing information to encourage the retention of water and sediment on the fields, especially during the dormant season. The majority of growers took steps to manage spray drift; some growers have switched from flood irrigation to microirrigation and/or have reduced the amount of water used for irrigation. Monitoring during three consecutive years show that the dissolved copper in the water columns is below the concentrations that affect aquatic life.

Management Plan	Most Recent Exceedance	Monitoring Events Since Exceedance	Demonstrated Compliance Sufficient	Approve?
Lead in Livingston Drain @ Robin Ave	2008	12	✓	✓

The management plan for lead in Livingston Drain @ Robin Avenue is based on exceedances of total lead associated with storm events in January and February 2008 (2012 MPUR, Appendix I, Table XI-5). It is worth noting that most lead is bound to particles and not bioavailable (dissolved lead is considered to be the fraction that can affect aquatic life). When results are available, the concentration of dissolved lead, rather than the total fraction, is used to assess compliance with water quality objectives (R5-2012-0116, Attachment B, page 27).

While agricultural use of lead is banned, legacy contamination may be mobilized during storm events. Lead contamination is unlikely to be addressed by implementing agricultural management practices, although management practices that reduce the sediment and water runoff have the potential to minimize any agriculture-induced movement of lead.

As a part of the focused management plan implementation from 2011 to 2013, the Coalition contacted 11 members with the potential for direct drainage, representing 23% of the direct drainage area within the subwatershed. The outreach focused on chlorpyrifos, but all water quality problems in the subwatershed were reviewed and discussed, including lead (Table 46 and Appendix VII). Management plan performance measures and outcomes are documented in the 2012 MPUR (p. 39-41, 101). None of the contacted growers have any irrigation runoff, and the majority of growers already have at least one sediment management practice in place. Installation or improvement of berms between fields and waterways was recommended to two growers who reported drainage in heavy (100-year) storms (2012 MPUR, p. 120-125).

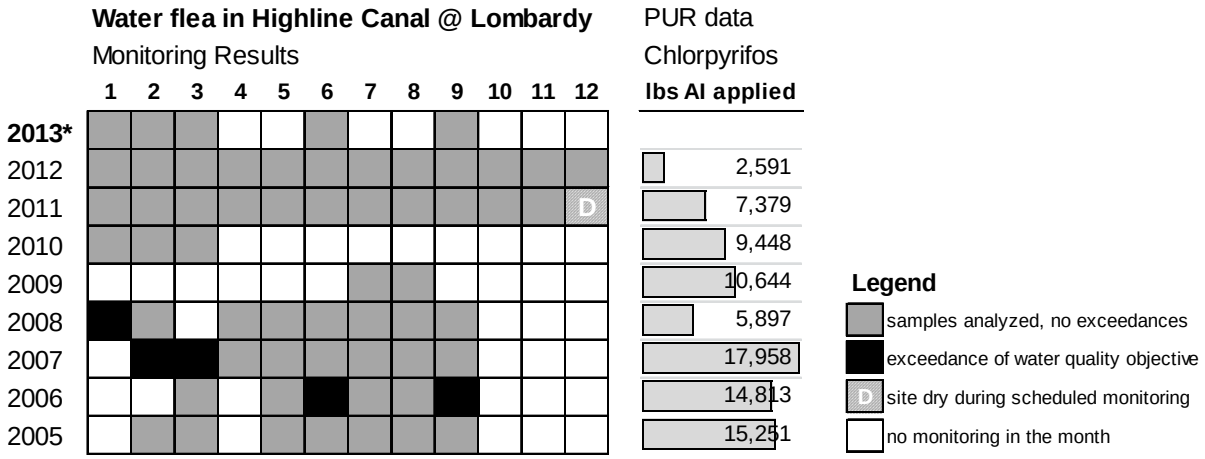


When water was present, the Coalition collected samples and tested for lead during months of previous exceedances from 2011 through 2013. Concentrations of dissolved lead, which allow for a more accurate characterization of water quality, were below the hardness-based water quality objective and indicated that there was no water quality impairment.

Management Plan	Most Recent Exceedance	Monitoring Events Since Exceedance	Demonstrated Compliance Sufficient	Approve?
Toxicity to water flea in Highline Canal @ Lombardy	2006	41	✓	✓

Acute toxicity to the water flea (*C. dubia*) was detected during both winter storm (February and March 2007, and January 2008) and irrigation seasons (June and September 2006). The Toxicity Identification Evaluation implicated pyrethroids in samples collected in January 2008, and the follow-up sample coincided with an exceedance of chlorpyrifos in the water column.

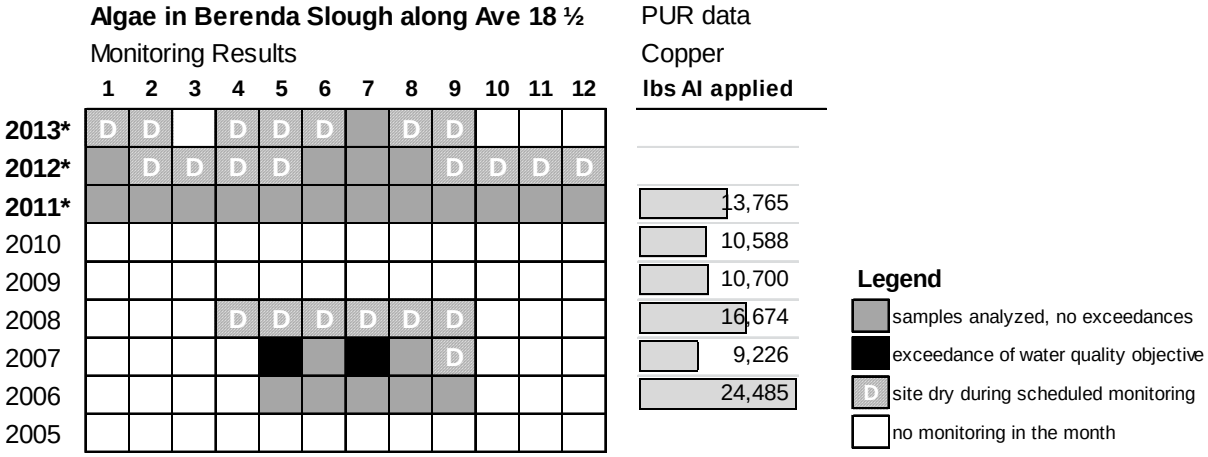
The chlorpyrifos use in the subwatershed has declined substantially, and no chlorpyrifos exceedances were observed during monthly testing in 2011 and 2012. Since the most recent sample that was toxic to the water flea, there are data showing that water was free from toxicity to the water flea during four winter storm and three irrigation seasons.



Management Plan	Most Recent Exceedance	Monitoring Events Since Exceedance	Demonstrated Compliance Sufficient	Approve?
Toxicity to algae in Berenda Slough along Ave 18 ½	2007	40	✓	✓

The Berenda Slough subwatershed is in the southern portion of the Coalition region where well-drained, sandy soils dominate the landscape and a dry monitoring site is not unusual. The current management plan for water column toxicity to algae is based on samples collected in May and July 2007 (2012 MPUR, Appendix I, Table VIII-5). Results of chemistry and toxicity analyses indicated that toxicity to algae was likely caused by diuron and/or copper. Diuron exceeded the water quality objective in May 2007, and Toxicity Identification Evaluation implicated a cationic metal as the cause of toxicity in samples collected in July 2007 (2012 MPUR, Appendix I, p. 254). The Coalition contacted 19 targeted growers representing 38% of the direct drainage within the subwatershed; more than two thirds of which are properties with no irrigation drainage. Outreach focuses on chlorpyrifos and copper but all water quality problems in the subwatershed are reviewed and discussed. Grower notification, management practice outreach and education, and tracking of management practice implementation are documented in the 2012 AMR (Table 46 and Appendix VII).

The Coalition's approach for eliminating toxicity is based on managing irrigation return flows and storm water from transporting copper and/or herbicides to the slough. Microirrigation is used on 95% of acreage, and all targeted growers implement at least one management practice to control sediment erosion. The Coalition made several recommendations to one grower, including utilizing grass row centers, shutting off outside nozzles when spraying outer rows next to sensitive sites, and only spraying areas close to waterbodies when the wind is blowing away from them. A settling pond, berms along field perimeters, and a device to control the timing of storm water runoff were recommended to two growers with storm water drainage (2012 MPUR, p. 102-107).

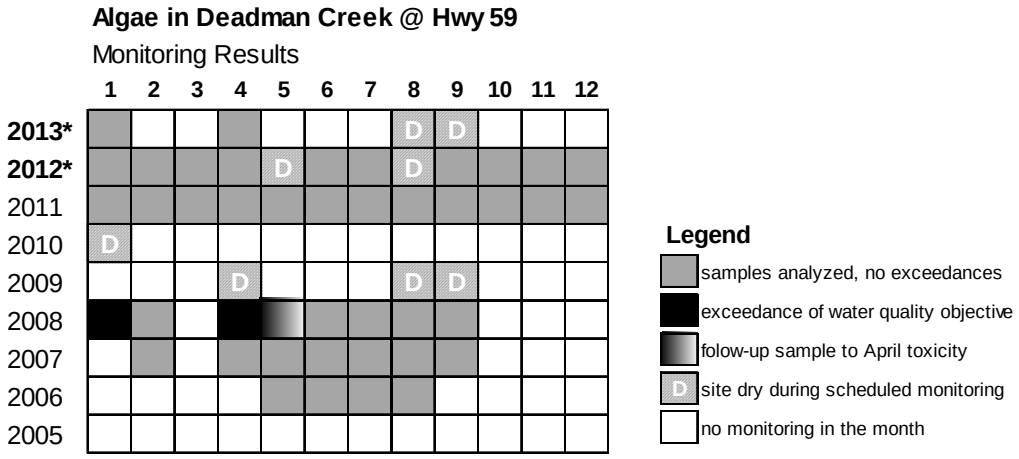


Since the most recent exceedance, monitoring was conducted for three years with no observed toxicity to algae. Events when the site was dry are included in this evaluation. No other exceedances of the diuron water quality objective have been observed, and despite 13 copper exceedances in 2011 and 2012 (2012 MPUR, Appendix I, p. 249-254), no acute water column toxicity to algae was observed during monthly monitoring in 2011 and 2012.

Management Plan	Most Recent Exceedance	Monitoring Events Since Exceedance	Demonstrated Compliance Sufficient	Approve?
Toxicity to algae in Deadman Creek @ Hwy 59	2008	36	✓	✓

Acute toxicity to algae (*S. capricornutum*) was observed in January and April 2008 (April toxicity persisted into May when the site was resampled). A high priority management plan has been underway since 2012 (2012 MPUR, p. 42-44). The focus of outreach is on improving management of irrigation return flows and storm water runoff as the reduction of the offsite movement of pesticides is expected to eliminate water column toxicity.

The January 2008 toxicity to algae coincided with exceedances of diuron and simazine reported in the subwatershed, and Toxicity Identification Evaluation indicated nonpolar organics were the cause of toxicity (2012 MPUR, Appendix I, p. 390-391). Toxicity detected in April persisted during the follow-up sampling but the cause of toxicity was not determined. In general, toxicity to algae is indicative of herbicides, alaecides or fungicides in surface waters. The amount of herbicides and acreage treated in the Merced County remained largely unchanged or increased since 2008 (CalPIP data). However, no other exceedances of diuron and simazine have been observed in the area, and no toxicity to algae was observed in samples collected monthly in 2011 and 2012. Monitoring results since the 2008 exceedances showed no further toxicity to algae.

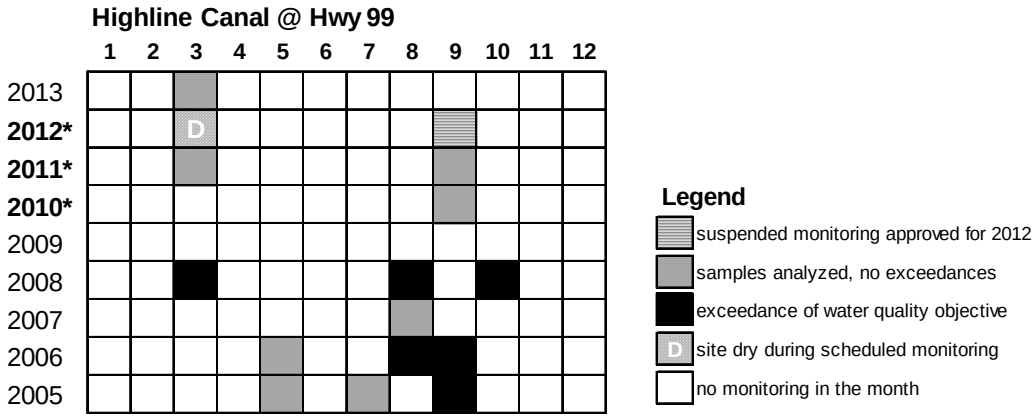


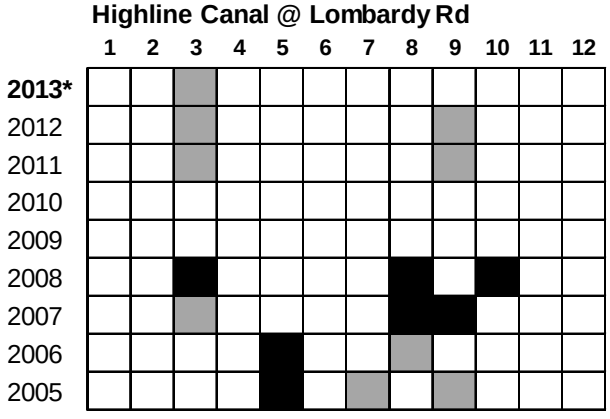
II. Additional monitoring required

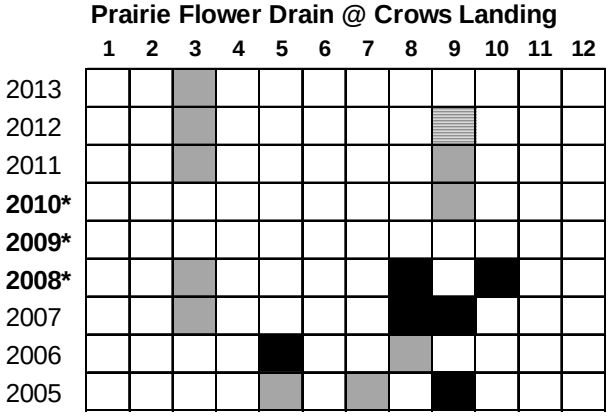
Sediment toxicity to *H. azteca* was observed several times from 2005 to 2008 at three sites petitioned for management plan completion. It is not possible to ascertain what caused sediment toxicity because chemical analysis on sediment was not required. Once 2013 monitoring is completed, and if no additional exceedances occur the sediment toxicity can be petitioned for removal from the management plans at the three sites.

Management Plan	Most Recent Exceedance	Monitoring Events Since Exceedance	Additional Monitoring Required in 2013	Approve?
Sediment toxicity in Highline Canal @ Hwy 99	2008	5	✓	NO
Sediment toxicity in Highline Canal @ Lombardy Rd	2008	5	✓	NO
Sediment toxicity in Prairie Flower Drain @ Crows Landing Rd	2008	5	✓	NO

* Since 2008, the requirement for sediment testing has been twice per year: once in the late winter/early spring (between 1 March and 30 April) and once in the late summer/early fall (between 15 August and 15 October) fall (MRP Orders No. R5-2012-0116 and R5-2008-0005).



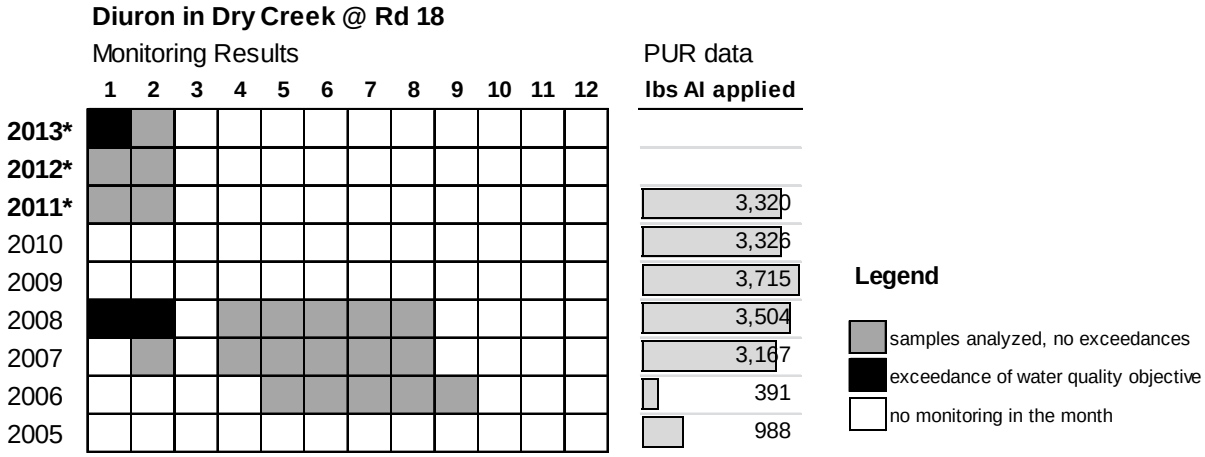


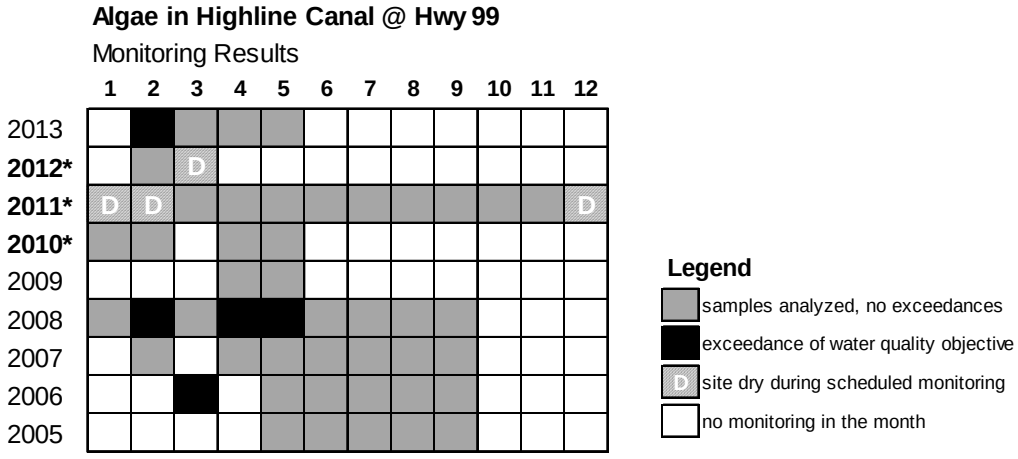


III. Monitoring data do not support completion of the management plan

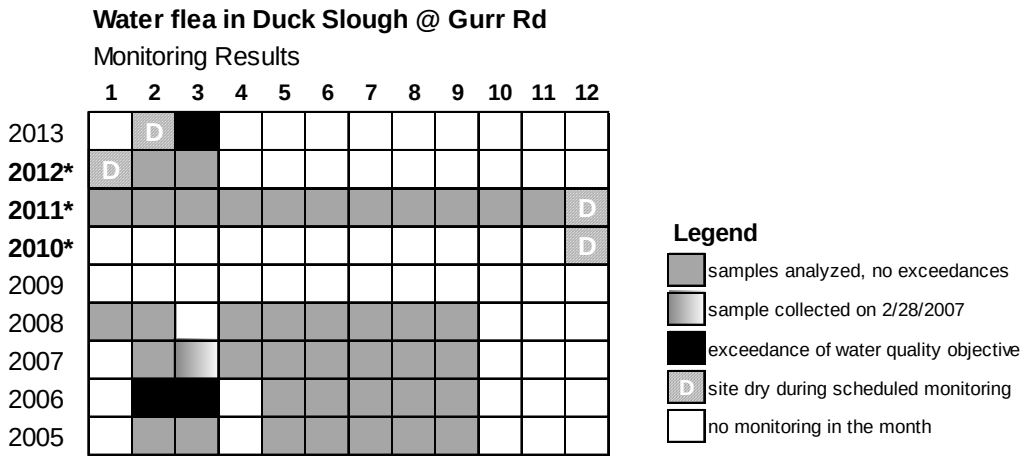
Samples collected in early 2013 indicate that concentrations of constituents under the management plan still exceed the applicable water quality objectives. Staff does not recommend completion of the management plan at this time.

Management Plan	Date of Most Recent Exceedance	Approve?
Diuron in Dry Creek @ Rd 18	8 January 2013	NO
Toxicity to algae in Highline Canal @ Hwy 99	12 February 2013	NO
Toxicity to water flea in Duck Slough @ Gurr Rd	12 March 2013	NO





There were exceedances of diuron and copper water quality objectives in the Highline Canal @ Hwy 99 site subwatershed in the past. Although in February 2008 toxicity to algae coincided with an exceedance of copper, the cause of toxicity could not be determined for any of the samples.



Acute water column toxicity to the water flea (*C. dubia*) in February and March 2006 triggered the current management plan; the toxicity was lost before Toxicity Identification Evaluation (TIE) was completed and could not be attributed to any specific compound. Samples collected in March 2013 had 0% survival compared to the control. The results from the TIE identified organophosphates as the cause of the toxicity. Samples collected from this site had no exceedances of any organophosphates since 2004 (55 scheduled monitoring events). No samples were collected for organophosphate pesticide analysis in March 2013.

During the focused management plan implementation from 2010 to 2012, growers were informed of the water quality issues and encouraged to implement additional management practices protective of water quality. Management plan performance measures, grower notification, outreach and education are documented in the 2012 AMR (Table 46 and Appendix VII) and 2012 MPUR (p. 36-38, 68-69). Although recommended management practices for retention of irrigation and storm water runoff were not implemented due to lack of funds, growers implemented management practices to minimize spray drift (2012 MPUR, p. 86-93).