

SAN JOAQUIN VALLEY DRAINAGE AUTHORITY

P O Box 2157 Los Banos, CA 93635
209 826 9696 Phone 209 826 9698 Fax

WESTSIDE SAN JOAQUIN RIVER WATERSHED COALITION

January 15, 2016

Pamela Creedon, Executive Officer
Central Valley Regional Water Quality Control Board
11020 Sun Center Drive, Suite 200
Rancho Cordova, CA 95670-6114

SUBJECT: Westside San Joaquin River Watershed Coalition Update to the Monitoring and Reporting Plan.

Dear Pamela,

This letter and the attachments are being submitted as the 2016 update to the Westside San Joaquin River Watershed Coalition (Westside Coalition) Monitoring and Reporting Plan (MRP) in compliance with Order R5-2014-0002.

The revised MRP was submitted in July of 2015 and approved in November 2015. Since that submittal, there have been two significant revisions to the MRP:

- Elimination of monitoring in November and December: At the request of the Central Valley Regional Water Quality Control Board, the Westside Coalition has joined in supporting the Delta Regional Monitoring Program (RMP) through financial contributions. In order to offset the RMP cost, the Westside Coalition proposed eliminating non-irrigation season monitoring during November and December. A proposal outlining the details of the reduced monitoring plan and the rationale behind it was submitted in August 2015 and the Westside Coalition received approval of that proposal on October 9, 2015. A copy of the Reduced Monitoring Proposal is included as Attachment A.
- Addition of monitoring on source water sites for wetland areas within the Westside Coalition. Due to changes in the Grassland Bypass Project (GBP) monitoring program, monitoring on the San Luis Canal (Site L2) and the Santa Fe Canal (Site M2) was eliminated in July of 2015. These two channels supply water to wetlands within the Westside Coalition and have a history of water quality exceedances for selenium. A proposal has been finalized by the Westside Coalition to continue monitoring at L2 and

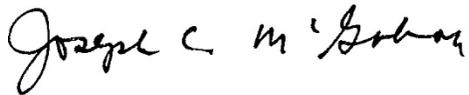
M2 for boron and selenium. The monitoring would be performed weekly at L2 and monthly at M2 as a special monitoring program within the Westside Coalition's MRP. A copy of the Wetland Supply Channel Monitoring Plan is included as Attachment B.

With acknowledgement of the changes noted above, the rest of the approved MRP remains the same. A revised version of the MRP is included as Attachment C, with the changes noted above added and highlighted.

Please let me know if you have any questions.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel or represented Members properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for knowingly submitting false information, including the possibility of fine and imprisonment for violations.

Very truly yours,

A handwritten signature in black ink that reads "Joseph C. McGahan". The signature is written in a cursive style with a large initial "J" and "M".

Joseph C. McGahan
Watershed Coordinator
Westside San Joaquin River Watershed Coalition

Attachment A

Reduced Monitoring Approval and Proposal

Central Valley Regional Water Quality Control Board

RECEIVED

OCT 9 2015

SUMMERS ENGINEERING, INC.

5 October 2015

Joseph C. McGahan
Watershed Coordinator
San Joaquin Valley Drainage Authority
P. O. Box 1122
887 N. Irwin St.
Hanford, CA 93232

APPROVAL TO ALLOW THE WESTSIDE SAN JOAQUIN RIVER WATERSHED COALITION TO REDUCE WATER QUALITY MONITORING AND PARTICIPATE IN THE DELTA REGIONAL MONITORING PROGRAM

Thank you for submitting your 3 August 2015 and 17 August 2015 letters to the Central Valley Regional Water Quality Control Board (Central Valley Water Board) proposing reductions to current water quality monitoring requirements in order to participate in the Delta Regional Monitoring Program (Delta RMP) as allowed by Order No. R5-2014-0002-R2 for growers within the Western San Joaquin River watershed.

I approve the proposed reductions in water quality monitoring according to Table 1 (attached) and further described in the attached staff memo. The reduced monitoring may begin October 2015. Other monitoring requirements in the MRP remain unchanged.

Per your 17 August 2015 letter, the Coalition estimates that an annual contribution of \$40,000 to the Delta RMP is reasonably equivalent to the costs the Coalition would have incurred absent the proposed monitoring reductions. While this letter approves reductions in water quality monitoring for participation in the Delta RMP, the Delta RMP Steering Committee ultimately will determine a process for defining adequate participation in the Delta RMP. The \$40,000 annual contribution is the minimum contribution to the Delta RMP in exchange for the reduced individual monitoring.

For the current fiscal year, the reduced monitoring may begin in October 2015 on the condition that the Coalition provides the first of two \$20,000 contributions to the Delta RMP by **31 October 2015** and the second contribution by **31 January 2016**.

The Coalition shall continue to adequately participate in the Delta RMP to maintain the reduced monitoring as described in Table 1 and the staff memo. If adequate participation is not maintained, the Central Valley Water Board will require that the Coalition reinstate the monitoring required by Order R5-2014-0002-R2.

Your request for a seat on the Delta RMP Steering Committee will be addressed at the 23 October 2015 Steering Committee meeting to be held at the Central Valley Water Board.

If you have any questions about the Delta RMP or this approval, please contact Selina Cole at (916) 464-4683 or selina.cole@waterboards.ca.gov. If you have questions about ILRP monitoring requirements, please contact Susan Fregien at (916) 464-4813 or susan.fregien@waterboards.ca.gov.



Pamela C. Creedon
Executive Officer

cc: Electronic copy only-
RMP Steering Committee
Chris Linneman, Summers Engineering

Table 1. Water Quality Monitoring Reductions for November and December of 2015 and 2016

Monitoring Sites	Current Monitoring Requirements	Approved Monitoring Reductions for 2015 and 2016
Ingram Creek At River Road	Core ¹ : Monthly ² Metals : Monthly Pesticides : Monthly (March - August) ³ Water Toxicity : <i>Ceriodaphnia</i> and <i>Selenastrum</i> , monthly (March - August) Rain Event ⁴ : all required constituents	Discontinue Core and Metals monitoring in November and December
Westley Wasteway near Cox Road	Core : Monthly Metals : Monthly Pesticides : Monthly (March - August) Water Toxicity : Monthly (March - August) - <i>Ceriodaphnia</i> and <i>Selenastrum</i> Rain Event : all required constituents	Discontinue Core and Metals monitoring in November and December
Del Puerto Creek Near Cox Road	Core : Monthly Metals : Monthly (March - August) Pesticides : Monthly (March - August) Water Toxicity : Monthly (March - August) Rain Event : <i>Ceriodaphnia</i> Rain Event : all required constituents	Discontinue Core monitoring in November and December
Ramona Lake Near Fig Avenue	Core : Monthly Metals : Monthly (March - August) Pesticides : Monthly (March - August) Water Toxicity : Monthly (March - August) Rain Event : <i>Ceriodaphnia</i> Rain Event : all required constituents	Discontinue Core monitoring in November and December
Marshall Road Drain Near River Road	Core : Monthly Metals : Monthly (March - August) Pesticides : Monthly (March - August) Water Toxicity : Monthly (March - August) Rain Event : <i>Ceriodaphnia</i> Rain Event : all required constituents	Discontinue Core monitoring in November and December
Orestimba Creek at River Road	Core : Monthly Metals : Monthly (March - August) Pesticides : Monthly (March - August) Water Toxicity : Monthly (March - August) Rain Event : <i>Ceriodaphnia</i> and <i>Selenastrum</i> Rain Event : all required constituents	Discontinue Core and Metals monitoring in November and December
Blewett Drain Near Hyw 132	Core : Monthly Metals : Monthly (March - August) Pesticides : Monthly (March - August) Water Toxicity : Monthly (March - August) Rain Event : <i>Ceriodaphnia</i> Rain Event : all required constituents	Discontinue Core monitoring in November and December
Newman Wasteway Near Hills Ferry Road	Core : Monthly Metals : Monthly (March - August) Pesticides : Monthly (March - August) Water Toxicity : Monthly (March - August) Rain Event : <i>Ceriodaphnia</i> Rain Event : all required constituents	Discontinue Core monitoring in November and December
San Joaquin River at Lander Avenue	Core : Monthly Metals : Monthly Pesticides : Monthly Water Toxicity : Monthly - <i>Ceriodaphnia</i> and <i>Selenastrum</i> Rain Event : all required constituents	Discontinue Core , Metals , Water Toxicity , and Pesticides monitoring in November and December
Mud Slough u/s ⁵ San Luis Drain	Core : Monthly Metals : Monthly (March - August) Pesticides : Monthly Water Toxicity : Monthly - <i>Ceriodaphnia</i> Rain Event : all required constituents	Discontinue Core , Water Toxicity , and Pesticides monitoring in November and December
Salt Slough at Lander Avenue	Core : Monthly Metals : Monthly (March - August) Pesticides : Monthly Water Toxicity : Monthly - <i>Ceriodaphnia</i> Rain Event : all required constituents	Discontinue Core , Water Toxicity , and Pesticides monitoring in November and December
Los Banos Creek at Hwy 140	Core : Monthly Metals : Monthly Pesticides : Monthly Water Toxicity : Monthly - <i>Ceriodaphnia</i> and <i>Selenastrum</i> Rain Event : all required constituents	Discontinue Core , Metals , Water Toxicity , and Pesticides monitoring in November and December
Los Banos Creek at China Camp Road	Core : Monthly Metals : Monthly Pesticides : Monthly (March - August) Water Toxicity : Monthly (March - August) - <i>Ceriodaphnia</i> and <i>Selenastrum</i> Rain Event : all required constituents	Discontinue Core and Metals monitoring in November and December
Poso Slough at Indiana Avenue	Core : Monthly Metals : Monthly Pesticides : Monthly (March - August) Water Toxicity : Monthly (March - August) - <i>Ceriodaphnia</i> and <i>Selenastrum</i> Rain Event : all required constituents	Discontinue Core and Metals monitoring in November and December
Source Water Sites		
San Joaquin River at Sack Dam	Core : Monthly Metals : Monthly (March - August) Pesticides : Monthly - Organophosphates	Discontinue Core and Pesticides monitoring in November and December
San Joaquin River at PID Pumps	Core : Monthly Metals : Monthly (March - August) Pesticides : Monthly - Organophosphates	Discontinue Core and Pesticides monitoring in November and December
Delta Mendota Canal at DPWD Turnout	Core : Monthly Metals : Monthly (March - August) Pesticides : Monthly - Organophosphates	Discontinue Core and Pesticides monitoring in November and December

¹ The Core monitoring group includes Field Measurements, Drinking Water, and General Physical parameters as described in Table 2 per Section III.C.3 of the permit and the approved monitoring plan.

² Scheduled to be monitored monthly during the Irrigation Season (March through August).

³ Scheduled to be monitored monthly during both Irrigation (March through August) and Non-Irrigation Season (September through February).

⁴ Monitoring is required for two rain events per year for the constituents listed in the current monitoring program. Rain event samples will continue to be collected regardless of the month in which they occur.

⁵ u/s is defined as upstream.

Central Valley Regional Water Quality Control Board

RECEIVED

OCT 9 2015

SUMMERS ENGINEERING, INC.

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

FROM: Gurbinder Dhaliwal
Environmental Scientist
Monitoring and Implementation Unit
Irrigated Lands Regulatory Program

DATE: 20 August 2015

SUBJECT: REGIONAL MONITORING PROGRAM AND REDUCTION IN MONTHLY
MONITORING – WESTSIDE SAN JOAQUIN RIVER WATERSHED COALITION

The Central Valley Water Board adopted Waste Discharge Requirements Order R5-2014-0002-R1 (Order) on 17 April 2015 for the Westside San Joaquin River Watershed Coalition (Coalition) to include voluntary Coalition participation with a Regional Monitoring Program (RMP). The Strategic Workplan for Activities in the San Francisco Bay/Sacramento-San Joaquin Delta Estuary, which was adopted by the State Water Board, Central Valley Regional Water Board, and San Francisco Bay Regional Water Board, identifies the development of a RMP as a priority action. Participation, as described in the Coalition's 17 August proposal and as reviewed in this memorandum, will consist of providing funds at least equivalent to discontinued individual monitoring and study efforts.

The goal of the Delta RMP is to develop a comprehensive and coordinated monitoring program across the many entities that currently conduct monitoring within the Delta or in water bodies that discharge to the Delta, including the agricultural coalitions (i.e. Westside San Joaquin River Watershed Coalition). Based on the success of similar programs, it is anticipated that this effort will lead to opportunities to fill data gaps related to contaminants, water quality impairment, and aquatic health and reduce redundant monitoring efforts and costs.

In July 2015, the Central Valley Water Board's staff and the Coalition representatives discussed the options for reducing some elements of the surface water monitoring requirements that would provide funding support to an approved RMP. This kind of support is described in the Order. Staff reviewed the Coalition's initial RMP proposal, monitoring plan, and constituents of concern exceedance frequency in an effort to identify monitoring reductions that would permit the Coalition to continue to comply with the Order and offer support to the RMP. Staff and the Coalition, through collaboration on 30 July 2015, discussed reduction in monthly monitoring two times during the year at all of the discharge and source water sites for all groups of monitoring constituents (Table 1).

The Coalition follows a 3 year monitoring cycle (1 year of Assessment monitoring followed by 2 years of targeted monitoring). The targeted monitoring is scheduled from March 2015 through

February 2017. Monitoring is normally done on a monthly basis and is divided into irrigation (March through August), non-irrigation (September through February) and rain-event monitoring (twice per year). The monitoring reduction is proposed for the non-irrigation months of November and December in 2015 and 2016; however, rain event monitoring will not be reduced. The Coalition will provide support to the Delta RMP in an amount that is equivalent to the anticipated reduction of monitoring costs. The Coalition's proposal to reduce monitoring in the above months is based on historical monitoring frequency, pesticide use patterns and pesticide detections. All previously proposed monitoring will be discontinued during November and December and the equivalent costs normally incurred during the sample events will be transferred to the RMP program.

Staff evaluated the Coalition's proposal to determine if it fulfills the Order requirements while reducing the monitoring and without affecting management plan activities. Core constituents (i.e., field measurements, drinking water, general physical and nutrients) are normally collected at every event throughout the year. Historical monitoring data collected since 2004 provides enough information to continue to characterize core constituent water quality in the waterbodies throughout the watershed area under the proposed reduction in frequency (further described below). Further, the core constituents will be collected per the Order in all months except November and December.

Aquatic Toxicity and Pesticides Monitoring Reductions

Targeted monitoring requires the Coalition to monitor aquatic toxicity in rain events, which will remain unchanged under RMP reductions. Staff reviewed the toxicity and pesticide water quality exceedance data since 2008 for the proposed monitoring reduction periods (November and December). Past monitoring data reveals that there were no exceedances of aquatic toxicity and pesticides during November and December. Although toxicity and pesticide management plans exist on sites where monitoring reductions are proposed (Table 2), none of the management plans were triggered in November or December. Sediment toxicity testing is conducted once during irrigation season and once during non-irrigation season and will remain unchanged.

- Current Monitoring
All constituents are monitored on a monthly basis except sediment toxicity which will be monitored once during irrigation season and once during non-irrigation season. Storm monitoring is conducted twice in a year.
- Monitoring Reductions
No monitoring will be scheduled in the months of November and December of year 2015 and 2016. The reductions do not apply to the rain event and sediment toxicity monitoring.
- Outcome
The proposed reductions in monitoring will not affect any management plan activities and the Coalition's ability to comply with the Order.

Metal Monitoring Reduction

Staff reviewed the metals water quality exceedance data of the past 3 years for the proposed monitoring reduction periods (November and December). Monitoring data (events 97, 98, 108, 109, 119 and R16- See Table 3 below) shows that exceedances have occurred at three sites for boron and arsenic. Table 3 shows that Los Banos Creek at Hwy 140 has multiple boron exceedances and is under a management plan. The boron concentration throughout the regular monitoring events (Table 3) does not vary widely except the rain event R16 where it was detected at 2100 µg/L while the water quality objective is 700 µg/L. Boron has been monitored every month for the past ten years providing enough information to characterize water quality

throughout the watershed. Proposed monitoring reductions of boron in the months of November and December, will not impact management plan activities because management plans include focused monitoring. There has only been one exceedance for arsenic at all monitoring stations since November 2012. For these reasons, staff agrees with the proposed reductions in monitoring of the metals (Table 1 and 3).

- Current Monitoring
Metals are monitored on a monthly basis (irrigation and non-irrigation season) and two rain events per year. November and December falls in non-irrigation season and metals are currently scheduled on 7 discharge sites (Table 1).
- Monitoring Reductions
No metals monitoring will be scheduled in the months of November and December of years 2015 and 2016. The reductions do not apply to the rain event and other monthly events.
- Outcome
The proposed reductions in monitoring will not affect any management plan activities and the Coalition's ability to comply with the Order.

Conclusions

The Coalition chose non-irrigation season months of November and December for reduced monitoring based on least use of pesticides, exceedance data and historical monitoring frequency. The proposed reductions in monitoring will not affect any management plan activities and the Coalition's ability to comply with the Order requirements.

The year 2016 is in the targeted monitoring cycle. Therefore, the proposed monitoring reductions may also be applied to year 2016 along with the corresponding monetary support to the Delta RMP. If there are any changes to the Delta RMP or Coalition's monitoring program, monitoring reductions and contributions to the Delta RMP could be revised accordingly.

Staff recommends an approval of the Coalition's 17 August 2015 reduced monitoring proposal to offset the monitoring cost for in-kind support to the Delta RMP.

Table 1: Green shading identifies reduced monitoring in the months of November and December for all groups of monitoring constituents

Monitoring Sites	Monitoring Parameters and Cost				
Discharge Sites	Core** (\$)	Metals (\$)	Aquatic Toxicity (\$)	Pesticides (\$)	Total cost (\$)
Hospital Creek At River Road	*	*	*	*	0
Ingram Creek At River Road	800	170	*	*	970
Westley Wasteway near Cox Road	800	170	*	*	970
Del Puerto Creek Near Cox Road	800	*	*	*	800
Del Puerto Creek Near Hwy 33	*	*	*	*	0
Ramona Lake Near Fig Avenue	800	*	*	*	800
Marshall Road Drain Near River Road	800	*	*	*	800
Orestimba Creek at River Road	800	170	*	*	970
Orestimba Creek at Hwy 33	*	*	*	*	0
Blewett Drain Near Hyw 132	800	*	*	*	800
Newman Wasteway Near Hills Ferry Road	800	*	*	*	800
San Joaquin River at Lander Avenue	800	170	550 (Algae and Cerio)	480 (OP&Herb)	2000
Mud Slough u/s San Luis Drain	800	*	250 (Cerio)	870 (all)	1920
Salt Slough at Lander Avenue	800	*	251 (Cerio)	870 (all)	1920
Salt Slough at Sand Dam	*	*	*	*	0
Los Banos Creek at Hwy 140	800	170	550 (Algae and Cerio)	480 (OP&Herb)	2000
Los Banos Creek at China Camp Road	800	170	*	*	970
Poso Slough at Indiana Avenue	800	170	*	*	970
Source Water Sites					0
San Joaquin River at Sack Dam	800	*	*	230 (OP)	1030
San Joaquin River at PID Pumps	800	*	*	230 (OP)	1030
Delta Mendota Canal at DPWD Turnout	800	*	*	230 (OP)	1030
Grand Total Cost Per Month					19780
Monitoring Reductions					

* The Constituent is not required to be monitored in November and December.

** Core monitoring group includes field measurements, general physical, drinking water and nutrient parameters.

Sample Collection: \$8,300
 Administration, EDDs, and Transportation \$3,700
 Monthly Monitoring Cost: \$19,780
 Total Monthly Cost (Base Cost): \$31,780

	Base Cost	Frequency Factor	Rain Event Factor	Adjusted Savings
November Sampling Cost	31780	79%	100%	\$25,106
December Sampling Cost	31780	80%	60%	\$15,254
				<u>\$40,360</u>

Table 2: Current pesticide and toxicity Management Plans at proposed monitoring reduction sites

Site Name	Organophosphates		Herbicides	Water Toxicity	
	Chlorpyrifos	Malathion	Diuron	Selanastrum	Ceriodaphnia
Discharge Sites					
San Joaquin River at Lander Avenue			*	*	
Mud Slough u/s San Luis Drain	*				*
Salt Slough at Lander Avenue	*		*	*	*
Los Banos Creek at Hwy 140		*			*
Source Water Sites					
San Joaquin River at Sack Dam	*				
San Joaquin River at PID Pumps	*				
Delta Mendota Canal at DPWD Turnout					
Management Plan					

* There are no pesticides/toxicity management plans triggered by exceedances in the months of November and December

Table 3: Metal exceedances in the month of November and December from 2012 through 2014

Monitoring Sites	2012		2013		2014	
	E97 (Nov)	E98 (Dec)	E108 (Nov)	E109 (Dec)	E119 (Nov)	R16 (Dec)
Ingram Creek at River Road					B (843 µg/L)	
Los Banos Creek at China Camp Road					Ar (11 µg/L)	
Orestimba Creek at River Road						
Poso Slough at Indiana Ave						
Westley Wasteway near Cox Road						
Los Banos Creek at Hwy 140		B (880 µg/L)	B (730 µg/L)	B (970 µg/L)	B (940 µg/L)	B (2100 µg/L)
SJR at Lander Avenue						

SAN JOAQUIN VALLEY DRAINAGE AUTHORITY

P O Box 2157 Los Banos, CA 93635
209 826 9696 Phone 209 826 9698 Fax

WESTSIDE SAN JOAQUIN RIVER WATERSHED COALITION

August 17, 2015

Adam Laputz, Assistant Executive Officer
Central Valley Regional Water Quality Control Board
11020 Sun Center Drive, #200
Rancho Cordova, CA 95670-6114

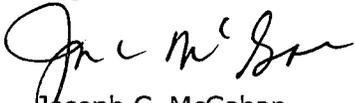
RE: Submission of Delta RMP - Reduced Monitoring Proposal

Dear Adam,

I have attached the Delta RMP - Reduced Monitoring Proposal for the Westside San Joaquin River Watershed Coalition for your consideration. Through a collaborative process with your staff, we have developed a reduced scheduling monitoring protocol that will provide the funding mechanism for the Coalition to participate in the Delta RMP as proposed in our joint letter with the Eastside Coalition dated August 8, 2015. We believe that the new monitoring protocol will have a negligible impact on the Coalition's current monitoring program and will maintain the integrity of the existing monitoring data-set.

If you require any further assistance, please contact me or Chris Linneman at your earliest convenience.

Regards,



Joseph C. McGahan
Watershed Coordinator
559-582-9237
jmcgahan@summereng.com

Attachment

Cc: Susan Fregien; Gurbinder Dhaliwal

SUMMERS ENGINEERING

887 N. Irwin St. – PO Box 1122
Hanford, CA 93232

MEMORANDUM

TO: The files of the Westside Coalition

FROM: Chris Linneman

DATE: August 10, 2015

SUBJECT: Delta RMP – Reduced Monitoring Proposal

The Westside San Joaquin River Watershed Coalition is proposing to contribute \$40,000 per year to the Delta RMP program. To offset this contribution monitoring within the Westside Coalition would be reduced by approximately the same cost.

A variety of reduced monitoring alternatives were developed and summarized in a July 20, 2015 memo. Comments on these alternatives were received from the Regional Board on July 30, which identified the “Reduced Scheduling” alternative as the preferred approach. The Reduced Scheduling alternative eliminated two months during the non-irrigation season from the sampling schedule. Based on these comments, the Reduced Monitoring Proposal was developed as follows:

- Non-irrigation season sample collection would not occur during the months of November and December at all monitoring sites.
- Rain Event samples (up to two per year in accordance with the order) would continue to be collected regardless of the month in which they occur.

Basis for the selection of November and December:

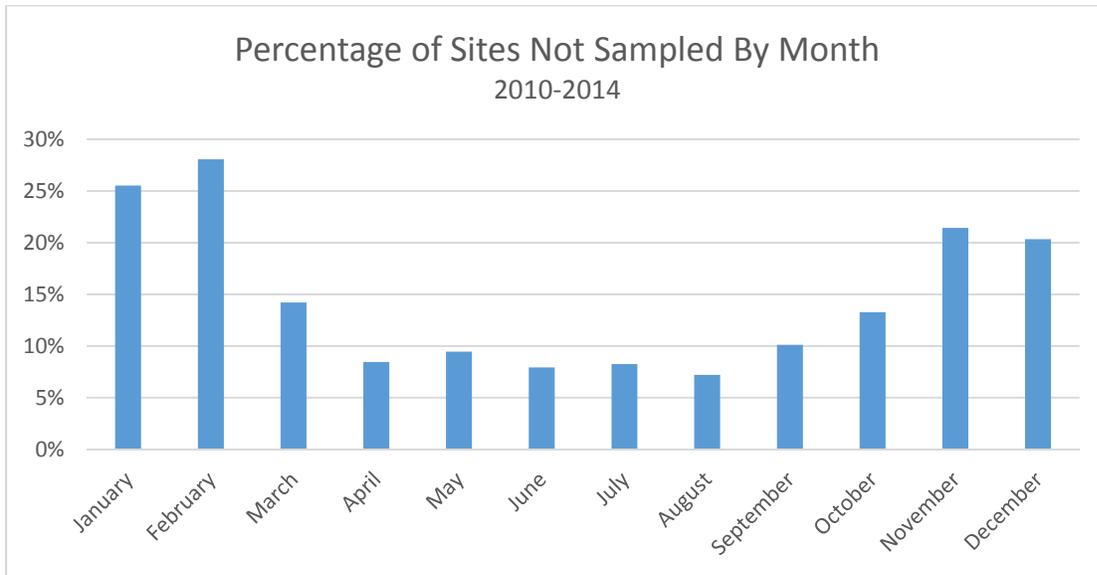
Months selected for elimination from the monitoring plan were selected based on a review of data including:

- Average frequency of samples collected by month.
- Reported pesticide applications by month.
- Measured pesticide detections by month.

Sample Frequency.

Figure 1 shows the percentage of sites not sampled each month from January 2010 through December 2014. This would cover sites with no flowing water and sites that were not safely accessible (typically due to weather or poor road conditions). Rain events were excluded from this evaluation and the figure shows only normal sampling events.

Figure 1



The period from November through February has the highest rate of non-sampled sites.

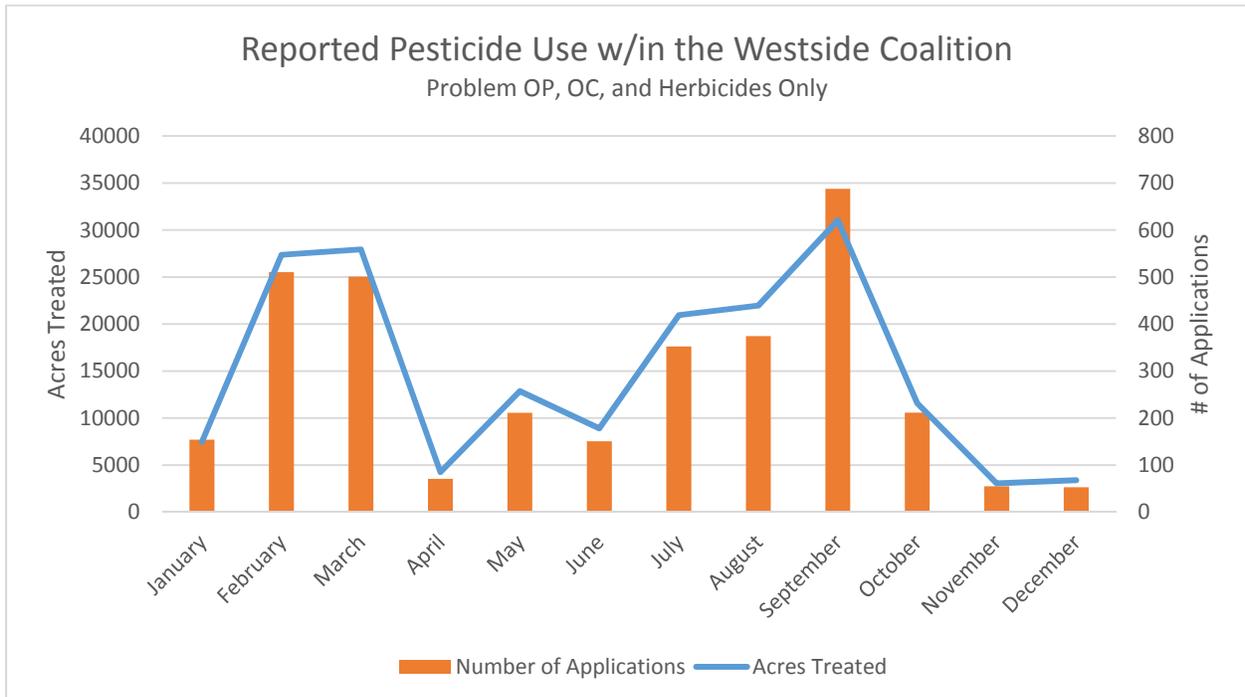
As noted earlier, Rain Event sampling would continue regardless of which month it occurred. Since the inception of the monitoring program in 2004, there have been 10 November sample events, of which none have been rain event samples, and 10 December sample events, of which 40% (4 events) have been during rain events.

Pesticide Use:

Pesticide Use Report (PUR) data was reviewed for the period of 2012 through 2015. To simplify the data review, only Organophosphate (OP), Organochlorine (OC), Carbamate, and key herbicides¹ were included in the review. Figure 2 shows both the average acres treated and average number of pesticide applications by month.

¹ Diuron and simazine were included as the herbicides since they are most commonly associated with algae toxicity.

Figure 2



The period from November through January has the lowest number of both acres treated and pesticide applications within the Westside Coalition during the non-irrigation season.

Pesticide Detections and Exceedances:

Pesticide data collected by the Westside Coalitions monitoring program were reviewed for the months of November, December, and January. This process included a review of the number of tests performed, the number of pesticides detected and the number of exceedances for the period of January 2012 to present. By month:

- January had the highest number of tests (1909), detections (27), and exceedances (8).
- November had the fewest number of tests (944), detections (5), and exceedances (3).
- December had 1156 tests performed, 18 detections and 5 exceedances.

Rain events were included in the data review. Pesticide tests and the count of detections included all pesticides, including legacy organochlorine insecticides.

The composite review of sample frequency, pesticide applications and pesticide detections indicates that eliminating the months of November and December will have the least short- and long-term impact on the quality of data collected by the Westside Coalitions monitoring program.

Cost Savings:

The costs saved by eliminating sample collection and analysis during the months of November and December will obviously vary from year to year depending on hydrologic and climate conditions. Based on historic data, the estimated costs savings will average \$40,000. This cost savings depends on several estimated items and is a reasonable justification of the cost savings. This cost was calculated using the constituent analytical unit cost for the constituents analyzed during the non-irrigation season, collection costs and laboratory reporting costs for each site. That amount was adjusted by the average percentage of samples collected for November (79%) and December (80%) and for the historic frequency of Rain Event sampling (0% for November and 60% for December). Table 1 shows the monthly site by site sampling cost, collection costs, and the calculations used to estimate the average monitoring costs for November and December. Values showing \$0 savings indicate a constituent(s) that would not normally be monitored in November or December.

Table 1.

Discharge Sites	Site Code	Total Sampling				Aquatic Toxicity
		Cost	Core	Metals	Pesticides	
Blewett Drain at Highway 132	VH132	\$800	\$800	\$0	\$0	\$0
Poso Slough at Indiana Avenue	PSAIA	\$970	\$800	\$170	\$0	\$0
Hospital Cr at River Road	HCARR	\$0	\$0	\$0	\$0	\$0
Ingram Cr at River Road	ICARR	\$970	\$800	\$170	\$0	\$0
Westley Wasteway near Cox Road	WWNCR	\$970	\$800	\$170	\$0	\$0
Del Puerto Cr near Cox Road	DPCCR	\$800	\$800	\$0	\$0	\$0
Del Puerto Cr at Hwy 33	DPCHW	\$0	\$0	\$0	\$0	\$0
Ramona Lake near Fig Avenue	ROLFA	\$800	\$800	\$0	\$0	\$0
Marshall Road Drain near River Road	MRDRR	\$800	\$800	\$0	\$0	\$0
Orestimba Cr at River Road	OCARR	\$970	\$800	\$170	\$0	\$0
Orestimba Cr at Hwy 33	OCAHW	\$0	\$0	\$0	\$0	\$0
Newman Wasteway near Hills Ferry Road	NWHFR	\$800	\$800	\$0	\$0	\$0
San Joaquin River at Lander Avenue*	SJRLA	\$2,000	\$800	\$170	\$480	\$550
Mud Slough u/s San Luis Drain	MSUSL	\$1,920	\$800	\$0	\$870	\$250
Salt Slough at Lander Avenue	SSALA	\$1,920	\$800	\$0	\$870	\$250
Salt Slough at Sand Dam	SSASD	\$0	\$0	\$0	\$0	\$0
Los Banos Creek at Highway 140	LBCHW	\$2,000	\$800	\$170	\$480	\$550
Los Banos Creek at China Camp Road	LBCCC	\$970	\$800	\$170	\$0	\$0
Source Water Sites						
San Joaquin River at Sack Dam*	SJRSD	\$1,030	\$800	\$0	\$230	\$0
Delta Mendota Canal at Del Puerto WD	DMCDP	\$1,030	\$800	\$0	\$230	\$0
San Joaquin River at PID Pumps*	SJRPP	\$1,030	\$800	\$0	\$230	\$0

Sample Collection: \$8,300.00
 Administration, EDDs, and Transportaiton: \$3,700.00
 Total Monthly Cost: \$31,700.00

	Base Cost	Frequency Factor	Rain Event Factor	Adjusted Savings
November Sampling Cost Savings:	\$31,700.00	79%	100%	\$25,000.00
December Sampling Cost Savings:	\$31,700.00	80%	60%	\$15,000.00
			Total:	\$40,000.00

Attachment B

Special Monitoring – Wetland Supply Channel

SUMMERS ENGINEERING

887 N. Irwin St. – PO Box 1122
Hanford, CA 93232

MEMORANDUM

TO: The Files of the Westside Coalition

FROM: Joe McGahan/Chris Linneman

DATE: July 16, 2015 (Rev 12-02-15, 01-11-16, 01-15-16)

SUBJECT: Wetland Supply Channel Monitoring Sites

This memo summarizes the addition of two new monitoring sites and a new monitoring site category for the Westside Coalition Monitoring Program. These sites are intended to monitor specific water quality criteria for the primary water supply channels to managed wetlands within the Westside Coalition and will be designated as Wetland Source Water sites. Table 1 identifies the sites, site code and coordinates. The sites are shown on the attached Figures 1 and 2.

Table 1: Wetland Source Water Sites

Monitoring Site	Site Code	Latitude	Longitude
Santa Fe Canal u/s Splits (Site M2)	SFCUS	37.092283	-120.822975
Santa Fe Canal at Hwy 152 (Site M3)	SFC152	37.054450	-120.785681
San Luis Canal u/s Splits (Site L2)	SLCUS	37.092299	-120.822724

These sites are to be considered special source water sites, separate from drainage discharge sites monitored by the Westside Coalition in compliance with the IRLP. The constituents monitored at these locations will be as shown in Table 2.

Table 2: Monitored Constituents Monthly (Sites M2 and L2)

	Material	Matrix	Frequency	
			Irrig Season	Non-Irrig
Field Measurements	Flow (cfs) at Site M3	Water	Monthly	Monthly
	Photo Documentation	Site	Monthly	Monthly
	Electrical Conductivity ($\mu\text{s}/\text{cm}$)	Water	Monthly	Monthly
	Temperature ($^{\circ}\text{C}$)	Water	Monthly	Monthly
	pH	Water	Monthly	Monthly
	Dissolved Oxygen (mg/L)	Water	Monthly	Monthly
	Boron (Total)	Water	Monthly	Monthly
	Selenium (Total)	Water	Monthly	Monthly

Monitored constituents in Table 2 will be collected and analyzed according to the Westside Coalition approved QAPP. Monitoring results will be reported in the Westside Coalition SAMR in the same format as other data. These sites will be added to the list

of sites visited by the CCID collection crew and delivered to Caltest Laboratories with other Westside Coalition samples.

Table 3: Monitored Constituents Weekly* (Site L2 on week not monitored in Table 2)

	Material	Matrix	Frequency	
			Irrig Season	Non-Irrig
	Electrical Conductivity (µs/cm)	Water	Weekly*	Weekly*
	Boron (Total)	Water	Weekly*	Weekly*
	Selenium (Total)	Water	Weekly*	Weekly*

* Weekly February through July except for week monitored in Table 2.

Monitored constituents will be collected and analyzed by a certified laboratory (but outside of the approved QAPP and SWAMP reporting requirements). Monitoring results will be reported in the Westside Coalition SAMR in the same format as other data.

Background:

The sites L2 and M2 were previously monitored by the monitoring program for the Grassland Bypass Project. They were monitored as part of the overall selenium monitoring to determine levels of selenium in wetland channels to verify that the Grassland Bypass Project was not discharging into those channels. Similar monitoring sites were Sites J and K2, See Figure 1. These sites (J, K2, L2 and M2) are still incorporated into the Grassland Bypass Project for storm water monitoring only. With the development of the Irrigated Lands Regulatory Program, lands that discharge into Sites L2 and M2 are now regulated under the ILRP General order. The Westside San Joaquin River Watershed Coalition is the approved third party. Specific areas of concern are the Poso (Rice) Drain and Almond Drive Drain areas. It is now appropriate for these sites to be incorporated in the ILRP Westside Coalition.

It is proposed to use flow data for Site M3 for Site M2 results. Grassland Water District maintains a flow station at Site M3 however there is no flow monitoring at Site M2. Site M3 is approximately 3 miles South of M2 and there are no inputs between the two sites. Grassland Water District maintains a flow station at Site L2 which will be utilized for the monthly reporting.

All waters from the southern Grassland Water District and adjacent areas are conveyed north through either site L2 or M2/M3. This water includes all water deliveries to the north Grassland Water District or drainage water from the south GWD when the duck clubs are drained or any other drainage water that may be conveyed in the San Luis Canal, the Camp 13 Ditch, the Agatha Canal, the Santa Fe Canal the Poso (Rice) Drain or any other areas. Historic monitoring at L2 and M2 has noted elevated levels of selenium possibly originating in the Almond/Poso areas. It is proposed to continue monitoring these locations through this special monitoring of the ILRP Westside Coalition monitoring program. Sites J and K2 are fresh water delivery sites into the south Grassland Water District from the CCID Main Canal. There is also a connection to J and K2 from the Grassland Drainage Area. This discharge is only allowed to occur under storm water conditions and is regulated under the Grassland Bypass WDR.

Historically seven subsurface drainage sumps discharged into the Delta-Mendota Canal just upstream of the headworks of the CCID Main Canal near Mendota. These sumps were installed when the DMC was constructed to prevent damage to adjacent lands. The discharge from these sumps contain selenium and at times when flows in the DMC were low it was documented that elevated levels of selenium could be found in the CCID Main Canal. This water could be delivered into the Agatha Canal (Site K2), the Camp 13 Ditch (Site J) or the San Luis Canal and be measured at sites L2 and/or M2/M3. Recently these sumps have been disconnected from the DMC and now discharge into the Grassland Drainage Area. This will reduce detections of selenium in these channels.

Historic monitoring has indicated elevated levels of selenium at sites J and K2. Water is discharged into J and K2 from the Main Canal when the Grassland Water District is flooding up the duck clubs in the fall and winter. In many other times of the year there can be no flow at these sites. However groundwater percolation into the monitoring locations can give a false reading of high selenium even though there is no flow. Because the delivery of water into sites J or K2 is either on (flows greater than 20 cfs) or off, the Grassland Bypass Project has limited sampling to only those times when the flow is greater than 20 cfs.

Figure 1

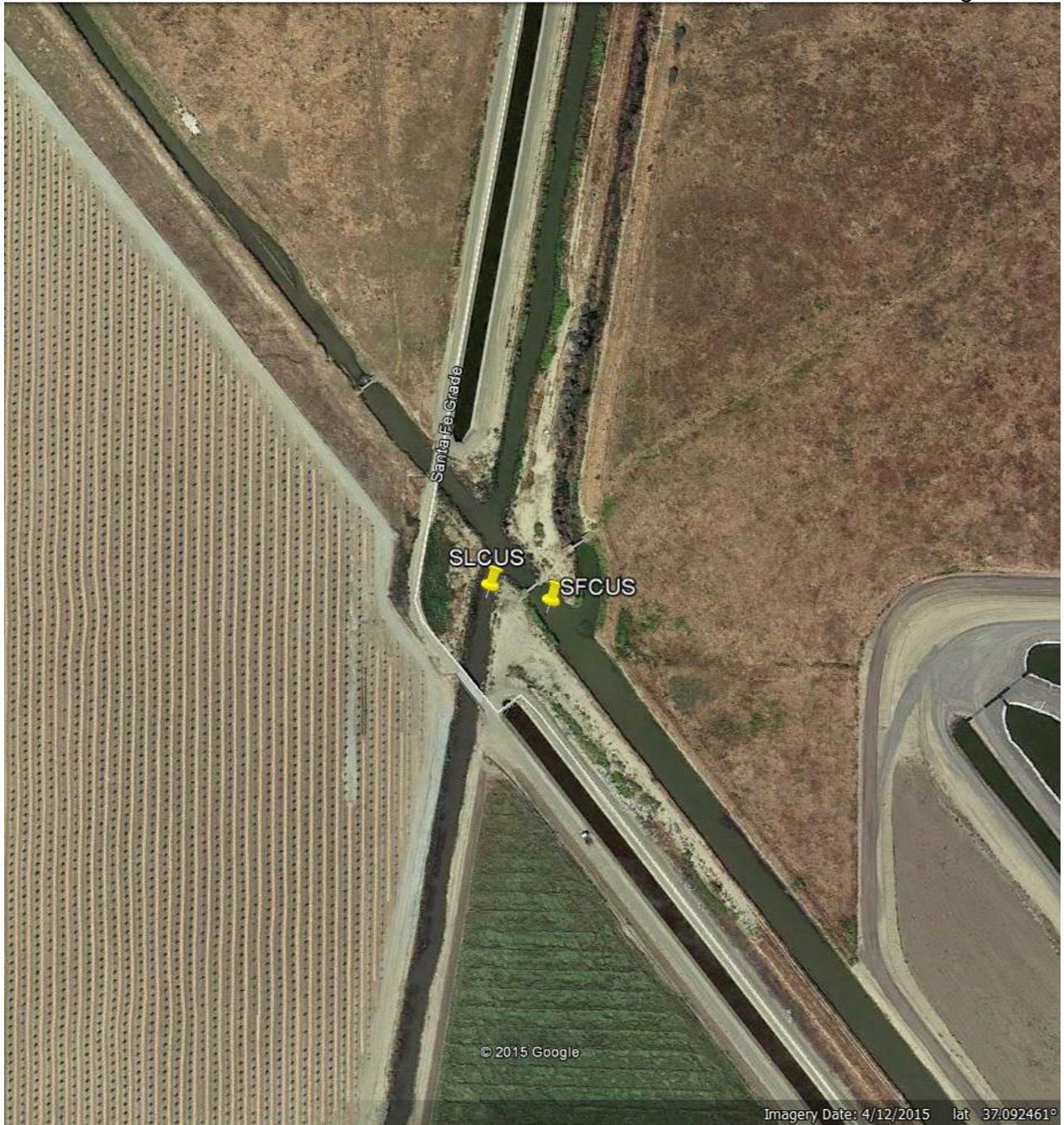
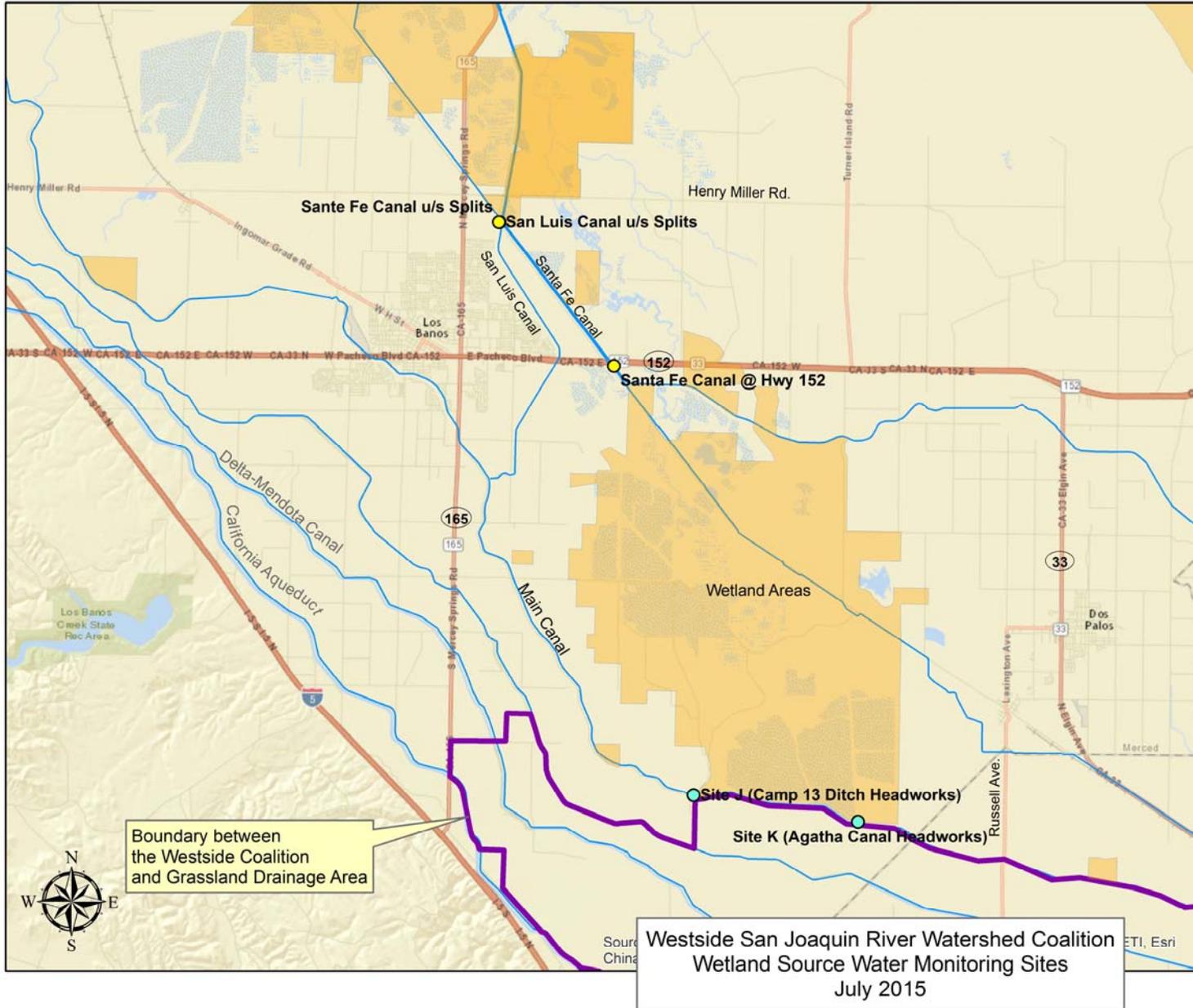


Figure 2



Attachment C

2016 Monitoring Plan Update

San Joaquin Valley Drainage Authority

Westside San Joaquin River Watershed Coalition
Monitoring Plan Update
In Compliance with Order No. R5-2014-0002-R2

Submitted to the California Regional Water Quality Control Board, Central Valley
Region

January 2016

Prepared by:
Summers Engineering
Hanford California

Table of Contents

Section 1: Background and Need.....	1
Section 2: Review of Historic Data	2
Section 3: Proposed Monitoring Program.....	6
Section 4: Data Review and Reporting.....	11

List of Tables

Table 1	Summary toxicity measurements September 2011 through August 2014	2
Table 2	Pesticide Detections and Tests – September 2011 through August 2014	4
Table 3	Pesticide Applications by Acres Treated - September 2013 to August 2014	5
Table 4	Westside SJRWC Field, General Physical, Drinking Water, Nutrients Monitoring Summary for 2015 - Irrigation Season	12
Table 5	Westside SJRWC Metals Monitoring Summary for 2015 Monitoring Year - Irrigation Season.....	13
Table 6	Westside SJRWC Pesticide Monitoring Summary for 2015 Monitoring Year - Irrigation Season.....	14
Table 7	Westside SJRWC Toxicity Monitoring Summary for 2015 Monitoring Year - Irrigation Season.....	15
Table 8	Westside SJRWC Field, General Physical, Drinking Water and Nutrients Monitoring Summary for 2015 - Non-Irrigation Season.....	16
Table 9	Westside SJRWC Metals Monitoring Summary for 2015 Monitoring Year - Non-Irrigation Season	17
Table 10	Westside SJRWC Pesticide Monitoring Summary for 2015 Monitoring Year - Non-Irrigation Season	18
Table 11	Westside SJRWC Toxicity Monitoring Summary for 2015 Monitoring Year - Non-Irrigation Season	19

List of Appendices

Appendix 1	Monitoring Sites and Locations
Appendix 2	Special Monitoring - Westland Supply Channel Monitoring

Section 1: Background and Need.

The Regional Water Quality Control Board issued Order Number R5-2014-0002 (2014 Order) to growers in the Western San Joaquin River Watershed area that are members of the Westside San Joaquin River Watershed Coalition (Westside Coalition) in January 2014. This Order includes requirements for the Westside Coalition to provide an annual Monitoring Plan Update.

Prior to the adoption of the 2014 Order, the Westside Coalition performed monitoring according Order R5-2008-0831, issued September of 2008 (2008 Order). The purpose of this Monitoring Plan update is to:

- Update the monitoring plan and activities so that they comply with the 2014 Order.
- Conduct water quality monitoring to track management plan implementation success
- Adjust the Targeted Monitoring schedule according to the data acquired during the 2014-2015 Assessment Monitoring period (initiated March 2014 and completed February 2015).

This Monitoring Plan Update includes the Targeted Monitoring schedule and parameters for the period from March 2015 through February 2017. The Westside Coalition will submit an update by 15 January 2016 indicating any adjustments in this plan during the second year of Targeted Monitoring.

Based on a long history of monitoring, the Westside Coalition is continuing the general monitoring scheme of the original 2008 Order, which is also reflected in the 2014 Order. The Monitoring Plan is crafted to continue to characterize the water quality of major drainages within the Westside Coalition and support the activities of the Management Plan and associated Focused Watershed Plans. The Monitoring Plan remains a monthly program. All sites will be visited on a monthly basis and samples will be collected at accessible and flowing sites.

Section 2: Review of Historic Data

This Monitoring Program as described in R5-2014-0002-R2 is generally consistent with the monitoring program implemented by the Westside Coalition in September 2008.

This plan is updated to include sites/constituents where exceedances were observed in the 2011 and 2013 Assessment monitoring. Three years of general chemistry data, pesticide data and toxicity data were reviewed to confirm that this monitoring program will meet the requirements of the Irrigated Lands Program. Table 1 shows the number of toxicity measurements (both aquatic and sediment) by site for the period of September 2011 through August 2014. This period includes three complete irrigation seasons and non-irrigation seasons and spans portions of two assessment periods (September 2011 through February 2012 and March 2014 through August 2014).

Table 1: Summary toxicity measurements September 2011 through August 2014

Monitoring Site	Ceriodaphnia dubia		Selenastrum capricornutum		Pimephales promelas		Hyalella azteca	
	Sig. Tox.	# of Tests	Sig. Tox.	# of Tests	Sig. Tox.	# of Tests	Sig. Tox.	# of Tests
Blewett Drain @ Hwy 132	0	12	0	3	0	3	4	6
Hospital Cr. @ River Rd.	0	14	0	14	0	6	4	6
Ingram Cr. @ River Rd.	2	21	3	21	0	9	6	6
Westley Wasteway nr. Cox Rd.	0	21	1	21	0	9	4	6
Del Puerto Cr near Cox Rd.	3	25	0	13	0	13	1	6
Del Puerto Cr @ Hwy 33	0	2	0	1	0	1	1	3
Ramona Lake nr Fig Ave.	0	22	0	10	0	10	1	6
Marshall Road Drain @ River Rd.	1	17	0	6	0	6	0	0
Orestimba Cr @ River Road	0	8	0	8	0	3	0	4
Orestimba Cr @ Hwy 33	2	22	4	22	0	10	4	5
Newman Wasteway nr Hills Ferry Rd.	0	24	0	13	0	13	1	5
San Joaquin River @ Lander Ave.	0	33	1	8	0	8	0	2
Mud Sl upstream of San Luis Drain	0	34	0	13	0	13	0	2
Salt Sl @ Lander Ave.	0	32	1	13	0	13	0	2
Salt Sl @ Sand Dam	1	25	2	13	0	14	0	6
Poso Sl @ Indiana Ave.	3	25	2	26	0	25	0	6
Los Banos Cr @ Hwy 140	0	36	0	35	0	13	0	2
Los Banos Cr @ China Camp Rd.	0	0	0	0	0	0	0	0
Delta-Mendota Canal @ Del Puerto WD	0	2	0	2	0	2	0	0
San Joaquin River @ PID Pump Station	0	2	0	2	0	2	0	0
San Joaquin River at Sack Dam	0	3	0	3	0	3	0	0

Details of this summary are included in the associated semi-annual reports submitted by the Westside Coalition.

From the data summarized in Table 1, some basic conclusions can be made:

- *Ceriodaphnia dubia* toxicity: Measurements of significant toxicity to water flea is not common or wide spread, but occurs frequently enough to continue monitoring.
- *Selenastrum capricornutum* toxicity: Measurements of significant toxicity to algae is not wide spread, but appears to occur chronically at a small number of sites (i.e. Orestimba Creek at Highway 33).
- *Pimephales promelas* toxicity: Measurements of significant toxicity to fathead minnow are non-existent. Since the inception of the monitoring period (July 2004), there have only three observations of aquatic toxicity to fathead minnow (out of 669 tests).
- *Hyalella azteca* toxicity: Measurements of significant sediment toxicity have been generally isolated to a handful of monitoring sites. These sites tend to have repeated results showing significant (and often severe) toxicity.

Pesticides are used by growers to control weeds and insects that are harmful to crop production. Typically, a Pest Control Advisor (PCA) will advise growers on a pesticide rotation plan that uses materials from different pesticide classes throughout the year to prevent pests from developing pesticide tolerances. Table 2 shows the number of pesticide detections and analytical results for the September 2011 to August 2014 period. The pesticide results data is summarized according to the pesticide class (or group) in order to match the laboratory analytical methods used.

Table 2: Pesticide Detections and Tests - September 2011 through August 2014

Monitoring Site	Organophosphate		Organochlorine		Carbamate		Herbicide	
	Detected	# of Tests	Detected	# of Tests	Detected	# of Tests	Detected	# of Tests
Blewett Drain @ Hwy 132	2	163	3	162	0	24	5	83
Hospital Cr. @ River Rd.	7	203	3	126	0	78	8	110
Ingram Cr. @ River Rd.	7	268	11	285	2	102	10	145
Westley Wasteway nr. Cox Rd.	2	283	4	304	0	60	6	147
Del Puerto Cr near Cox Rd.	1	298	7	323	1	114	12	155
Del Puerto Cr @ Hwy 33	0	45	0	49	0	18	2	24
Ramona Lake nr Fig Ave.	2	285	2	304	2	60	6	147
Marshall Road Drain @ River Rd.	5	221	1	217	0	30	9	113
Orestimba Cr @ River Road	0	60	5	76	0	24	3	32
Orestimba Cr @ Hwy 33	4	255	15	272	0	96	7	131
Newman Wasteway nr Hills Ferry Rd.	4	286	1	323	0	66	4	152
San Joaquin River @ Lander Ave.	1	273	0	88	0	36	8	152
Mud Sl upstream of San Luis Drain	1	373	2	426	1	150	7	197
Salt Sl @ Lander Ave.	3	361	0	408	4	144	10	192
Salt Sl @ Sand Dam	7	278	2	183	1	114	15	152
Poso Sl @ Indiana Ave.	12	286	4	323	1	114	16	152
Los Banos Cr @ Hwy 140	0	381	0	268	0	96	8	206
Los Banos Cr @ China Camp Rd.	0	0	0	0	0	0	0	0
Delta-Mendota Canal @ Del Puerto WD	2	390	0	0	0	0	0	108
San Joaquin River @ PID Pump Station	2	362	0	0	0	0	1	102
San Joaquin River at Sack Dam	0	364	0	0	0	0	1	102

Organophosphate (OP) pesticides include many of the insecticides commonly used within the Westside Coalition. This pesticide class includes chlorpyrifos, diazinon, and dimethoate, all of which have been tied to measurements of water flea toxicity.

Organochlorine (OC) pesticides include mostly legacy insecticides, and pesticide breakdown products that are no longer available for use in California (dicofol being the exception). Although these pesticides are no longer applied, because of their longevity, they are still detected.

Carbamate (C) pesticide(s) is a class of insecticides that does not have wide-spread use within the Westside Coalition area. The 12 detections shown in Table 3 encompass only two materials (carbaryl and methomyl) and carbamate insecticides have not been tied to any measurement of aquatic toxicity.

Herbicides (H) are the most commonly detected pesticide, with diuron and Prowl (pendimethalin) making up the vast majority of herbicide detections. Most of the measurements of algae toxicity have been tied to diuron as the likely cause.

Order R5-2014-0002-R2 notes that the specific pesticides to be included in the monitoring program are currently listed as “To Be Determined”, and will be provided at a later date through consultation with the Department of Pesticide Regulation and other qualified scientists. Until that pesticide list is developed, the Westside Coalition will continue to monitor for the pesticides listed in Table 6 (Irrigation Season) and Table 10 (Non-irrigation Season).

In addition to data collected by the Westside Coalition, pesticide use reports from the Fresno, Merced, and Stanislaus county Ag Commissioners were reviewed to estimate the overall use of the four pesticide categories within the Westside Coalition. Table 3 shows the total acres within the Westside Coalition treated in 2006 with pesticides belonging to these groups.

Table 3: Pesticide Applications by Acres Treated - September 2013 to August 2014

Material	Fresno (ac. treated)	Merced (ac. treated)	Stanislaus (ac. treated)	Total (ac. treated)	% of Total (%)
Carbamates	16,600	8,400	3,400	28,400	2%
Organophosphorus	85,000	78,400	41,000	204,400	12%
Organochlorine	0	0	0	0	0%
Herbicide	285,200	386,100	180,600	851,900	51%
Fungicide	61,800	43,900	39,800	145,500	9%
Insect Growth Regulator	7,600	6,400	4,800	18,800	1%
Nicotinoid	54,800	44,500	13,500	112,800	7%
Oxadiazine	14,800	16,000	4,300	35,100	2%
Pyrethroid	71,000	59,400	63,100	193,500	12%
Other Pesticide Groups	29,300	40,200	14,600	84,100	5%

As is apparent in Table 3, Carbamate pesticides make up a relatively small portion of the total pesticide applications which may contribute to why they are rarely detected.

Although there were no reported applications of any organochlorine pesticide, several legacy insecticides were detected including DDT and DDE.

Section 3: Proposed Monitoring Program

A. Objectives

The objective of the monitoring program is to build on previous years of water quality data collected to comply with the 2008 Order and to comply with the requirements of Order No. R5-2014-0002-R2.

B. Monitoring Program Structure

The Monitoring Program is structured to provide representative data on all of the sub-watersheds within the Westside Coalition while maintaining a cost effective and flexible program. During the development of this plan, the previous three years of collected data were reviewed to determine where water quality issues existed and where resources should be expended. From this the Monitoring Program structure was developed. This Monitoring Plan Update also includes the monitoring to address management plans in each water body.

The Monitoring Program is structured to account for the type of water-body being monitored, amount of historical data, seasonal irrigation influence, and constituents to be analyzed.

1. Monitoring Site Groups. The monitoring sites have been designated either “Source Water Sites” or “Discharge Sites” according to what type of water is conveyed through the site.
 - Source Water monitoring sites are located on waterways that carry water primarily used to supply irrigation water used by growers in the Westside Coalition. Monitoring data from these sites is used to characterize the incoming irrigation supplies and does not represent drainage discharges.
 - Sites that convey agricultural drainage water are designated as “Discharge Sites”.

2. Monitoring Season. The constituents analyzed at a given site are controlled, to a degree, by the time of year (or season) during which the sample is collected. Tables 4-7 show the types of monitoring performed at each monitoring site during the Irrigation Season and Tables 8-11 show the monitoring performed at each monitoring site during the Non-irrigation Season.

- Irrigation Season (March through August). The majority of the land within the Westside Coalition is irrigated agriculture that is actively farmed only in the spring and summer. This is the time of year during which most of the pesticides and other constituents of concern are applied. Irrigation season sampling will occur at all discharge sites from March through August, which has typically been the irrigation season run for this region. The Westside Coalition may shift Irrigation Season sampling up or back one month to account of seasonal variations. The Regional Water Quality Control Board will be notified before this shift is enacted. Pesticide analyses and aquatic toxicity testing will be performed during irrigation season sampling. There are four “Discharge” sites that can carry agricultural runoff during the summer months and wetland irrigation runoff during the winter months (Los Banos Creek at Highway 140, Salt Slough at Lander Ave., the San Joaquin River at Lander Avenue, and Mud Slough upstream of the San Luis Drain). These four sites have the potential to carry pesticides all year and will be tested for toxicity and pesticides in all months (i.e. year-round discharge site monitoring).
- Non-Irrigation Season (September through February). The Non-Irrigation season is the period outside of the irrigation season, typically September through February. Physical and general chemical water quality monitoring will continue during the non-irrigation season, however most sites will not be tested for toxicity or pesticides, unless it is required for a management plan. In October 2015, the Westside Coalition committed to financially support the Delta Regional Monitoring Program (RMP). In order to offset the RMP cost, there will be no Non-Irrigation Season monitoring during the months of

November and December. Should a rain event occur during those two months, Rain Event sample collection would occur as outlined in this MRP.

- Rain Events. The Westside Coalition will attempt to collect runoff caused by storm events twice each year. Storm event samples will be collected once enough rainfall has occurred to cause the majority of the flow at a monitoring site to consist of rain runoff and will be tested for toxicity and pesticides, along with other physical and chemical parameters. This will be determined by the field sampling crews on a site by site basis.
3. Monitoring Categories. The monitoring program is a continuous three-year cycle (one year of Assessment, two years of Targeted monitoring) as explained below:
- Assessment Monitoring: The Assessment monitoring consists of the general water quality parameters, nutrients, pathogen indicators, water column and sediment toxicity, pesticides, and metals identified in Attachment B section III.C.3. of the General Order R5-2014-0002-R2. One year of Assessment monitoring was recently completed in February 2015.
 - Targeted Monitoring: To comply with the General Order R5-2014-0002-R2, Targeted monitoring at Discharge sites will be scheduled when the parameters of interest are expected to be present, and includes specific parameters associated with implementation of a TMDL, or for the implementation of a Management Plan that results from exceedances, and typically includes pesticide and toxicity analyses. Targeted monitoring will also include parameters not under a Management Plan that had a single water quality objective or trigger limit exceedance during the most recent Assessment Monitoring period; parameters that will allow for evaluation of trends; and parameters that will allow for evaluation of effectiveness of implemented management practices. Any revisions to the management plans that are approved by the Executive Officer will also be reflected in the monitoring schedule.

4. Special Monitoring:

- Sediment Toxicity Testing: The Westside Coalition will test chronic toxicity to *Hyalella azteca* (survival only) on sediment samples collected at the monitoring sites two times a year (typically March and September). Sediment samples will be collected at all stream locations (piped drains do not contain sediment and will not be sampled). Sediment samples that measure toxicity $\geq 20\%$ difference from the control will also be tested for sediment pesticides as listed in Table 6 for the purpose of determining the probable cause of toxicity. A number of the monitoring sites within the Westside Coalition have shown chronic and severe sediment toxicity and are targeted by the Coalition's management plan for sediment management. Follow-up sediment pesticide analysis at these sites will be performed in accordance with the Management Plan. The Westside Coalition will review each set of sediment toxicity results for the sites under the Management Plan with the Regional Board liaison and determine what follow-up is appropriate.
- Rain Events: The Westside Coalition will make every practical effort to collect samples associated with rain runoff twice a year at each site. A rain event sample will be collected when it is determined that the majority of flow in a given water body is from rain runoff, and this determination will be made by the field sampling crews in the field. The criteria may include, but are not limited to, precipitation amounts or intensity, visually observed or measured increases in flow at the monitoring site(s) following a rainfall event, knowledge of soils or other factors affecting when storm runoff is expected to occur at monitoring sites, or consultation with Central Valley Water Board staff. Safe access will also be considered prior to sample collection: Sites where the sampling crew would be exposing themselves to potential injury or damage to private property (such as significant rutting of farm roads) may be skipped. In addition to the water quality results and field measurements, rainfall data from CIMIS stations 7 (Firebaugh/Telles), 56 (Los Banos), and 161 (Patterson) will be collected and reported for the relevant time period before and during the Rain Event sample collection. Because of the varied nature of

rainfall intensity, this data will not trigger a sample collection, but be used to help qualify the nature of the samples.

- **Wetland Supply Channels.** The San Luis Canal and the Santa Fee Canal supplies fresh water to private, state and federal refuges in the Westside Coalition. Historically, these two channels were monitored through the Grassland Bypass Project (GBP) and periodic exceedances of selenium were observed. Recent changes in the GBP monitoring program have eliminated monitoring at these sites. The Westside Coalition will collect weekly samples at monitoring sites on the Santa Fee and San Luis Canals as outlined in Appendix 2.
- **Special Studies.** The Westside Coalition recognizes that this monitoring program does not address every possible circumstance and that some data gaps exist. Within the limits of its resources, the Westside Coalition may develop and implement special studies to address issues of concern. These studies will be developed in coordination with the Management Plan and associated Focused Management Plans and Regional Board Staff on a case-by-case basis.

C. Approach and methods

- **Implementation:** This monitoring program is scheduled to be implemented in the March 2015 monitoring event. Prior to that date, the existing Westside Coalition monitoring program (Order R5-2008-0831) will remain in effect. Samples will be collected according to the monitoring schedule by staff of water and irrigation districts within the Westside Coalition, using the methods described in the Field Sampling Manual and the QAPP (adopted December 2013).
- **Schedule:** The Westside Coalition will strive to maintain a consistent schedule throughout the year but may alter it to address scheduling conflicts. Typically, water samples will be collected on the second Tuesday of each month during both the irrigation and non-irrigation seasons. Sediment samples will be collected on the second Monday of the month in

which they are to be collected (1 day prior to the water sample collection). Rain event samples will be collected when the field sampling crews determine that the majority of flow at a given monitoring site is from rain runoff. The timing of rain event sample collection will vary throughout the Westside Coalition.

- Re-evaluation: The Westside Coalition recognizes that the agricultural landscape is dynamic, and that changes in agricultural practices could introduce new water quality concerns. Every third year (beginning March 1, 2017), assessment monitoring will be conducted according to this MRP. The results of this testing, combined with the previous two years, will be evaluated to determine which additional analyses are required or can be eliminated.

Section 4: Data Review and Reporting

Data generated by the Monitoring Program will be reviewed on a continuous basis for exceedances of water quality values and other anomalies. Exceedance Reports will be submitted as required by Order R5-2014-0002-R2 and follow-up analysis, newsletters, and outreach meeting will be initiated by the Westside Coalition to address the exceedance. Semi-annual monitoring reports will be submitted to the Regional Water Quality Control Board twice a year (November 30th and June 15th). During the development of the semi-annual reports, changes to the Monitoring Program based on collected data, may be recommended. These changes will be discussed with the Regional Water Quality Control Board staff on an as-needed basis. The contents of the Semi-Annual Monitoring Reports as well as required electronic data deliverables (EDDs) will be as specified in Order R5-2014-0002-R2.

Table 4: Westside SJRWC Field, General Physical, Drinking Water, Nutrients Monitoring Summary for 2015 - Irrigation Season

Site Name	Site Type	SWAMP Code	Station Code	Season	Field	Drinking Water		General Physical			Nutrients			
					Measurements	TOC	Pathogen Indicators: <i>E. Coli</i>	Total Suspended Solids (TSS)	Turbidity	Hardness (as CaCO3)	Total Ammonia (as N)	Unionized Ammonia (calculated value)	Nitrogen (nitrate + Nitrite)	Soluble Orthophosphate
Hospital Creek At River Road	D	541XHCARR	HCARR	Special	X		X		X	x	x	x	x	x
Ingram Creek At River Road	D	541STC040	ICARR	Core+Special	X	X	X	X	X	x	x	x	x	x
Westley Wasteway near Cox Road	D	541XWWNCR	WWNCR	Core+Special	X	X	X	X	X	x	x	x	x	x
Del Puerto Creek Near Cox Road	D	541XDPCCR	DPCCR	Core+Special	X	X	X	X	X	x	x	x	x	x
Del Puerto Creek Near Hwy 33	D	541XDPCWH	DPCHW	Rain Only	X		X		X		x	x	x	x
Ramona Lake Near Fig Avenue	D	541XROLFA	ROLFA	Core+Special	X	X	X	X	X		x	x	x	x
Marshall Road Drain Near River Road	D	541XMRDRR	MRDRR	Core+Special	X	X	X	X	X	x	x	x	x	x
Orestimba Creek at River Road	D	541STC019	OCARR	Core+Special	X	X	X	X	X	x	x	x	x	x
Orestimba Creek at Hwy 33	D	541STC519	OCAHW	Special	X		X		X	x	x	x	x	x
Blewett Drain Near Hyw 132	D	541XVH132	VH132	Special	X		X		X		x	x	x	x
Newman Wasteway Near Hills Ferry Road	D	541XNWHFR	NWHFR	Core+Special	X	X	X	X	X		x	x	x	x
San Joaquin River at Lander Avenue	D	541MER522	SJRLA	Core+Special	X	X	X	X	X	x	x	x	x	x
Mud Slough u/s San Luis Drain	D	541XMSUSL	MSUSL	Core+Special	X	X	X	X	X		x	x	x	x
Salt Slough at Lander Avenue	D	541MER531	SSALA	Core+Special	X	X	X	X	X		x	x	x	x
Salt Slough at Sand Dam	D	541XSSASD	SSASD	Special	X		X		X		x	x	x	x
Los Banos Creek at Hwy 140	D	541MER554	LBCHW	Core+Special	X	X	X	X	X	x	x	x	x	x
Los Banos Creek at China Camp Road	D	541XLBCCC	LBCCC	Core+Special	X	X	X	X	X	x	x	x	x	x
Poso Slough at Indiana Avenue	D	541XPSAIA	PSAIA	Special	X		X		X	x	x	x	x	x
San Joaquin River at Sack Dam	SW	541MAD0007	SJRSD	Source	X		X	X	X	x				
San Joaquin River at PID Pumps	SW	541STC507	SJRPP	Source	X		X	X	X	x				
Delta Mendota Canal at DPWD Turnout	SW	541XDMCDP	DMCDP	Source	X		X	X	X	x				

D= Discharge SW= Source Water

** Rain Event Sampling will include samples for all constituents at all samplable sites.

Table 5: Westside SJRWC Metals Monitoring Summary for 2015 Monitoring Year - Irrigation Season

Site Name	Site Type	SWAMP Code	Station Code	Irrigation (Mar-Aug)	Total Metals (Core)				Dissolved Metals (Special Sampling)				
					arsenic (total)	boron (total)	molybdenum (total)	selenium (total)	cadmium (dissolved)	copper (dissolved)	lead (dissolved)	nickel (dissolved)	zinc (dissolved)
Hospital Creek At River Road	D	541XHCARR	HCARR	Special	x	x	x		x	x	x	x	x
Ingram Creek At River Road	D	541STC040	ICARR	Core+Special	x	x	x	x	x	x	x	x	x
Westley Wasteway near Cox Road	D	541XWWNCR	WWNCR	Core+Special	x	x	x	x	x	x	x	x	x
Del Puerto Creek Near Cox Road	D	541XDPCCR	DPCCR	Core+Special	x	x	x	x	x	x	x	x	x
Del Puerto Creek Near Hwy 33	D	541XDPCHW	DPCHW	Rain Only	x	x	x	x					
Ramona Lake Near Fig Avenue	D	541XROLFA	ROLFA	Core+Special	x	x	x	x					
Marshall Road Drain Near River Road	D	541XMRDRR	MRDRR	Core+Special	x	x	x	x	x	x	x	x	x
Orestimba Creek at River Road	D	541STC019	OCARR	Core+Special	x	x	x	x	x	x	x	x	x
Orestimba Creek at Hwy 33	D	541STC519	OCAHW	Special			x	x	x	x	x	x	x
Blewett Drain Near Hyw 132	D	541XVH132	VH132	Special	x	x	x	x					
Newman Wasteway Near Hills Ferry Road	D	541XNWHFR	NWHFR	Core+Special	x	x	x	x					
San Joaquin River at Lander Avenue	D	541MER522	SJRLA	Core+Special	x	x	x	x	x	x	x	x	x
Mud Slough u/s San Luis Drain	D	541XMSUSL	MSUSL	Core+Special	x	x	x	x					
Salt Slough at Lander Avenue	D	541MER531	SSALA	Core+Special	x	x	x	x					
Salt Slough at Sand Dam	D	541XSSASD	SSASD	Special	x	x	x	x					
Los Banos Creek at Hwy 140	D	541MER554	LBCHW	Core+Special	x	x	x	x	x	x	x	x	x
Los Banos Creek at China Camp Road	D	541XLBCCC	LBCCC	Core+Special	x	x	x	x	x	x	x	x	x
Poso Slough at Indiana Avenue	D	541XPSAIA	PSAIA	Special	x	x	x	x	x	x	x	x	x
San Joaquin River at Sack Dam	SW	541MAD0007	SJRSD	Source		x				x		x	x
San Joaquin River at PID Pumps	SW	541STC507	SJRPP	Source		x				x		x	x
Delta Mendota Canal at DPWD Turnout	SW	541XDMCDP	DMCDP	Source		x				x		x	x

D= Discharge SW= Source Water

* Hardness is required for dissolved metals evaluation.

Table 7: Westside SJRWC Toxicity Monitoring Summary for 2015 Monitoring Year - Irrigation Season

Site Name	Site Type	SWAMP Code	Station Code	TOXICITY					Pyrethroids, Chlorpyrifos, TOC in sediments
				Algae - Selenastrum	Fathead Minnow - Pimephales	Water Flea - Ceriodaphnia	Hyalella azteca	grain size in sediments	
Hospital Creek At River Road	D	541XHCARR	HCARR	x		x	x	x	F
Ingram Creek At River Road	D	541STC040	ICARR	x		x	x	x	F
Westley Wasteway near Cox Road	D	541XWVNCR	WVNCR	x		x	x	x	F
Del Puerto Creek Near Cox Road	D	541XDPCCR	DPCCR			x	x	x	F
Del Puerto Creek Near Hwy 33	Rain	541XDPCHW	DPCHW	x		x	x	x	F
Ramona Lake Near Fig Avenue	D	541XROLFA	ROLFA			x	x	x	F
Marshall Road Drain Near River Road	D	541XMRDRR	MRDRR	x		x			
Orestimba Creek at River Road	D	541STC019	OCARR	x		x	x	x	F
Orestimba Creek at Hwy 33	D	541STC519	OCAHW	x		x	x	x	F
Blewett Drain Near Hyw 132	D	541XVH132	VH132			x	x	x	F
Newman Wasteway Near Hills Ferry Road	D	541XNWHFR	NWHFR	x	x	x	x	x	F
San Joaquin River at Lander Avenue	D	541MER522	SJRLA	x		x			
Mud Slough u/s San Luis Drain	D	541XMSUSL	MSUSL			x			
Salt Slough at Lander Avenue	D	541MER531	SSALA	x		x			
Salt Slough at Sand Dam	D	541XSSASD	SSASD	x		x	x	x	F
Los Banos Creek at Hwy 140	D	541MER554	LBCHW	x		x			
Los Banos Creek at China Camp Road	D	541XLBCCC	LBCCC	x		x	x	x	F
Poso Slough at Indiana Avenue	D	541XPSAIA	PSAIA	x		x	x	x	F
San Joaquin River at Sack Dam	SW	541MAD0007	SJRSD						
San Joaquin River at PID Pumps	SW	541STC507	SJRPP						
Delta Mendota Canal at DPWD Turnout	SW	541XDMCDP	DMCDP						

D= Discharge SW= Source Water

F = Followup analysis performed when observed Hyalella azteca survival >20% different from control survival.

Table 8: Westside SJRWC Field, General Physical, Drinking Water and Nutrients Monitoring Summary for 2015 - Non-Irrigation Season

Site Name	Site Type	SWAMP Code	Station Code	Non-Irrigation (Sept-Feb)	Field Measurements	Drinking Water		General Physical			Nutrients (Core)			
					pH, conductivity, DO, temperature, flow, Photo	TOC	Pathogen Indicators: <i>E. Coli</i>	Total Suspended Solids (TSS)	Turbidity	Hardness (as CaCO ₃)	Total Ammonia (as N)	Unionized Ammonia (calculated value)	Nitrogen (nitrate + Nitrite)	Soluble Orthophosphate
Hospital Creek At River Road	D	541XHCARR	HCARR	Core	X		X		X	x	x	x	x	x
Ingram Creek At River Road	D	541STC040	ICARR	Core	X	X	X	X	X	x	x	x	x	x
Westley Wasteway near Cox Road	D	541XWWNCR	WWNCR	Core	X	X	X	X	X	x	x	x	x	x
Del Puerto Creek Near Cox Road	D	541XDPCCR	DPCCR	Core	X	X	X	X	X	X	x	x	x	x
Del Puerto Creek Near Hwy 33	D	541XDPCHW	DPCHW	Rain Only	X		X		X	x	x	x	x	x
Ramona Lake Near Fig Avenue	D	541XROLFA	ROLFA	Core	X	X	X	X	X		x	x	x	x
Marshall Road Drain Near River Road	D	541XMRDRR	MRDRR	Core	X	X	X	X	X	x	x	x	x	x
Orestimba Creek at River Road	D	541STC019	OCARR	Core	X	X	X	X	X	x	x	x	x	x
Orestimba Creek at Hwy 33	D	541STC519	OCAHW	Core	X		X		X	x	x	x	x	x
Blewett Drain Near Hyw 132	D	541XVH132	VH132	Core	X		X	X	X		x	x	x	x
Newman Wasteway Near Hills Ferry Road	D	541XNWHFR	NWHFR	Core	X	X	X	X	X		x	x	x	x
San Joaquin River at Lander Avenue	D	541MER522	SJRLA	Core+Special	X	X	X	X	X	x	x	x	x	x
Mud Slough u/s San Luis Drain	D	541XMSUSL	MSUSL	Core+Special	X	X	X	X	X		x	x	x	x
Salt Slough at Lander Avenue	D	541MER531	SSALA	Core+Special	X	X	X	X	X		x	x	x	x
Salt Slough at Sand Dam	D	541XSSASD	SSASD	Core	X		X		X		x	x	x	x
Los Banos Creek at Hwy 140	D	541MER554	LBCHW	Core+Special	X	X	X	X	X	x	x	x	x	x
Los Banos Creek at China Camp Road	D	541XLBCCC	LBCCC	Core	X	X	X	X	X	x	x	x	x	x
Poso Slough at Indiana Avenue	D	541XPSAIA	PSAIA	Core	X		X	X	X	x	x	x	x	x
San Joaquin River at Sack Dam	SW	541MAD0007	SJRSD	Source	X		X	X	X	x				
San Joaquin River at PID Pumps	SW	541STC507	SJRPP	Source	X		X	X	X	x				
Delta Mendota Canal at DPWD Turnout	SW	541XDMCDP	DMCDP	Source	X		X	X	X	x				

D= Discharge SW= Source Water

** Rain Event Sampling will include samples for all constituents at all samplable sites.

Table 9: Westside SJRWC Metals Monitoring Summary for 2015 Monitoring Year - Non-Irrigation Season

Site Name	Site Type	SWAMP Code	Station Code	Non-Irrigation (Sept-Feb)	Total Metals (Core)				Dissolved Metals (Special Sampling)				
					arsenic (total)	boron (total)	molybdenum (total)	selenium (total)	cadmium (dissolved)	copper (dissolved)	lead (dissolved)	nickel (dissolved)	zinc (dissolved)
Hospital Creek At River Road	D	541XCARR	HCARR	Core	x	x	x						
Ingram Creek At River Road	D	541STC040	ICARR	Core	x	x	x	x					
Westley Wasteway near Cox Road	D	541XWWNCR	WWNCR	Core	x	x	x	x					
Del Puerto Creek Near Cox Road	D	541XDPCCR	DPCCR	Core	x	x	x	x					
Del Puerto Creek Near Hwy 33	D	541XDPCHW	DPCHW	Rain Only	x	x	x	x					
Ramona Lake Near Fig Avenue	D	541XROLFA	ROLFA	Core	x	x	x	x					
Marshall Road Drain Near River Road	D	541XMRDRR	MRDRR	Core	x	x	x	x					
Orestimba Creek at River Road	D	541STC019	OCARR	Core	x	x	x	x					
Orestimba Creek at Hwy 33	D	541STC519	OCAHW	Core			x	x					
Blewett Drain Near Hyw 132	D	541XVH132	VH132	Core	x	x	x	x					
Newman Wasteway Near Hills Ferry Road	D	541XNWHFR	NWHFR	Core	x	x	x	x					
San Joaquin River at Lander Avenue	D	541MER522	SJRLA	Core+Special	x	x	x	x					
Mud Slough u/s San Luis Drain	D	541XMSUSL	MSUSL	Core+Special	x	x	x	x					
Salt Slough at Lander Avenue	D	541MER531	SSALA	Core+Special	x	x	x	x					
Salt Slough at Sand Dam	D	541XSSASD	SSASD	Core	x	x	x	x					
Los Banos Creek at Hwy 140	D	541MER554	LBCHW	Core+Special	x	x	x	x					
Los Banos Creek at China Camp Road	D	541XLBCCC	LBCCC	Core	x	x	x	x					
Poso Slough at Indiana Avenue	D	541XPSAIA	PSAIA	Core	x	x	x	x					
San Joaquin River at Sack Dam	SW	541MAD0007	SJRSD	Source		x				x		x	x
San Joaquin River at PID Pumps	SW	541STC507	SJRPP	Source		x				x		x	x
Delta Mendota Canal at DPWD Turnout	SW	541XDMCDP	DMCDP	Source		x				x		x	x

D= Discharge SW= Source Water

* Hardness is required for dissolved metals evaluation.

Table 11: Westside SJRWC Toxicity Monitoring Summary for 2015 Monitoring Year - Non-Irrigation Season

Site Name	Site Type	SWAMP Code	Station Code	TOXICITY					Pyrethroids, Chlorpyrifos, TOC in sediments
				Algae - Selenastrum	Fathead Minnow - Pimephales	Water Flea - Ceriodaphnia	Hyaella azteca	grain size in sediments	
Hospital Creek At River Road	D	541XHCARR	HCARR				x	x	F
Ingram Creek At River Road	D	541STC040	ICARR				x	x	F
Westley Wasteway near Cox Road	D	541XWWNCR	WWNCR				x	x	F
Del Puerto Creek Near Cox Road	D	541XDPCCR	DPCCR				x	x	F
Del Puerto Creek Near Hwy 33	D	541XDPCHW	DPCHW				x	x	F
Ramona Lake Near Fig Avenue	D	541XROLFA	ROLFA				x	x	F
Marshall Road Drain Near River Road	D	541XMRDRR	MRDRR						
Orestimba Creek at River Road	D	541STC019	OCARR				x	x	F
Orestimba Creek at Hwy 33	D	541STC519	OCAHW				x	x	F
Blewett Drain Near Hyw 132	D	541XVH132	VH132				x	x	F
Newman Wasteway Near Hills Ferry Road	D	541XNWHFR	NWHFR				x	x	F
San Joaquin River at Lander Avenue	D	541MER522	SJRLA	x		x			
Mud Slough u/s San Luis Drain	D	541XMSUSL	MSUSL			x			
Salt Slough at Lander Avenue	D	541MER531	SSALA			x			
Salt Slough at Sand Dam	D	541XSSASD	SSASD				x	x	F
Los Banos Creek at Hwy 140	D	541MER554	LBCHW	x		x			
Los Banos Creek at China Camp Road	D	541XLBCCC	LBCCC				x	x	F
Poso Slough at Indiana Avenue	D	541XPSAIA	PSAIA				x	x	F
San Joaquin River at Sack Dam	SW	541MAD0007	SJRSD						
San Joaquin River at PID Pumps	SW	541STC507	SJRPP						
Delta Mendota Canal at DPWD Turnout	SW	541XDMCDP	DMCDP						

D= Discharge SW= Source Water

F = Followup analysis performed when observed Hyaella azteca survival >20% different from control survival.

APPENDIX 1

Monitoring Sites and Locations

Table 12 lists the monitoring sites and their coordinates.

Table 12: Monitoring Sites

Site Name	SWAMP Code	Station Code	Latitude	Longitude
Discharge Sites				
Hospital Creek at River Road	541XHCARR	HCARR	37.61047	-121.23078
Ingram Creek at River Road	541STC040	ICARR	37.60022	-121.22506
Westley Wasteway near Cox Road	541XWWNCR	WWNCR	37.55822	-121.16372
Del Puerto Creek near Cox Road	541XDPCCR	DPCCR	37.53936	-121.12206
Del Puerto Creek at Hwy 33	541XDPCHW	DPCHW	37.51406	-121.15956
Ramona Lake near Fig Avenue	541XROLFA	ROLFA	37.47875	-121.06839
Marshall Road Drain near River Road	541XMRDRR	MRDRR	37.43631	-121.03617
Orestimba Creek at River Road	541STC019	OCARR	37.41386	-121.01489
Orestimba Creek at Hwy 33	541STC519	OCAHW	37.37717	-121.05856
Blewett Drain near Highway 132	541XVH132	VH132	37.64053	-121.22942
Newman Wasteway near Hills Ferry Road	541XNWHFR	NWHFR	37.32036	-120.98336
San Joaquin River at Lander Avenue**	541MER522	SJRLA	37.29506	-120.85139
Mud Slough u/s San Luis Drain**	541XMSUSL	MSUSL	37.26164	-120.90614
Salt Slough at Lander Avenue**	541MER531	SSALA	37.24797	-120.85225
Salt Slough at Sand Dam	541XSSASD	SSASD	37.13664	-120.76194
Los Banos Creek at Highway 140**	541MER554	LBCHW	37.27619	-120.95547
Los Banos Creek at China Camp Road	541XLBCCC	LBCCC	37.11447	-120.88953
Poso Slough at Indiana Avenue	541XPSAIA	PSAIA	37.00622	-120.59033
Source Water Sites				
San Joaquin River at Sack Dam	541MAD0007	SJRSD	36.98353	-120.50050
San Joaquin River at PID Pumps	541STC507	SJRPP	37.49739	-121.08267
Delta Mendota Canal at DPWD Turnout	541XDMCDP	DMCDP	37.43678	-121.13347
Special Monitoring Sites – Wetland Source Water Sites				
San Luis Canal Upstream of the Splits	541XSLCUS	SLCUS	37.092299	-120.822724
Santa Fe Canal Upstream of the Splits	541XSFCUS	SFCUS	37.092283	-120.822975
Santa Fe Canal at Highway 152 (flow only)	541XSF152	SF152	37.054450	-120.785681

**Discharge sites that are monitored year-round (both irrigation and non-irrigation season, and two rain events).

APPENDIX 2

Special Monitoring: Wetland Supply Channels

SUMMERS ENGINEERING

887 N. Irwin St. – PO Box 1122
Hanford, CA 93232

MEMORANDUM

TO: The Files of the Westside Coalition

FROM: Joe McGahan/Chris Linneman

DATE: July 16, 2015 (Rev 12-02-15, 01-11-16, 01-15-16)

SUBJECT: Wetland Supply Channel Monitoring Sites

This memo summarizes the addition of two new monitoring sites and a new monitoring site category for the Westside Coalition Monitoring Program. These sites are intended to monitor specific water quality criteria for the primary water supply channels to managed wetlands within the Westside Coalition and will be designated as Wetland Source Water sites. Table 1 identifies the sites, site code and coordinates. The sites are shown on the attached Figures 1 and 2.

Table 1: Wetland Source Water Sites

Monitoring Site	Site Code	Latitude	Longitude
Santa Fe Canal u/s Splits (Site M2)	SFCUS	37.092283	-120.822975
Santa Fe Canal at Hwy 152 (Site M3)	SFC152	37.054450	-120.785681
San Luis Canal u/s Splits (Site L2)	SLCUS	37.092299	-120.822724

These sites are to be considered special source water sites, separate from drainage discharge sites monitored by the Westside Coalition in compliance with the IRLP. The constituents monitored at these locations will be as shown in Table 2.

Table 2: Monitored Constituents Monthly (Sites M2 and L2)

	Material	Matrix	Frequency	
			Irrig Season	Non-Irrig
Field Measurements	Flow (cfs) at Site M3	Water	Monthly	Monthly
	Photo Documentation	Site	Monthly	Monthly
	Electrical Conductivity ($\mu\text{s}/\text{cm}$)	Water	Monthly	Monthly
	Temperature ($^{\circ}\text{C}$)	Water	Monthly	Monthly
	pH	Water	Monthly	Monthly
	Dissolved Oxygen (mg/L)	Water	Monthly	Monthly
	Boron (Total)	Water	Monthly	Monthly
	Selenium (Total)	Water	Monthly	Monthly

Monitored constituents in Table 2 will be collected and analyzed according to the Westside Coalition approved QAPP. Monitoring results will be reported in the Westside Coalition SAMR in the same format as other data. These sites will be added to the list

of sites visited by the CCID collection crew and delivered to Caltest Laboratories with other Westside Coalition samples.

Table 3: Monitored Constituents Weekly* (Site L2 on week not monitored in Table 2)

	Material	Matrix	Frequency	
			Irrig Season	Non-Irrig
	Electrical Conductivity (µs/cm)	Water	Weekly*	Weekly*
	Boron (Total)	Water	Weekly*	Weekly*
	Selenium (Total)	Water	Weekly*	Weekly*

* Weekly February through July except for week monitored in Table 2.

Monitored constituents will be collected and analyzed by a certified laboratory (but outside of the approved QAPP and SWAMP reporting requirements). Monitoring results will be reported in the Westside Coalition SAMR in the same format as other data.

Background:

The sites L2 and M2 were previously monitored by the monitoring program for the Grassland Bypass Project. They were monitored as part of the overall selenium monitoring to determine levels of selenium in wetland channels to verify that the Grassland Bypass Project was not discharging into those channels. Similar monitoring sites were Sites J and K2, See Figure 1. These sites (J, K2, L2 and M2) are still incorporated into the Grassland Bypass Project for storm water monitoring only. With the development of the Irrigated Lands Regulatory Program, lands that discharge into Sites L2 and M2 are now regulated under the ILRP General order. The Westside San Joaquin River Watershed Coalition is the approved third party. Specific areas of concern are the Poso (Rice) Drain and Almond Drive Drain areas. It is now appropriate for these sites to be incorporated in the ILRP Westside Coalition.

It is proposed to use flow data for Site M3 for Site M2 results. Grassland Water District maintains a flow station at Site M3 however there is no flow monitoring at Site M2. Site M3 is approximately 3 miles South of M2 and there are no inputs between the two sites. Grassland Water District maintains a flow station at Site L2 which will be utilized for the monthly reporting.

All waters from the southern Grassland Water District and adjacent areas are conveyed north through either site L2 or M2/M3. This water includes all water deliveries to the north Grassland Water District or drainage water from the south GWD when the duck clubs are drained or any other drainage water that may be conveyed in the San Luis Canal, the Camp 13 Ditch, the Agatha Canal, the Santa Fe Canal the Poso (Rice) Drain or any other areas. Historic monitoring at L2 and M2 has noted elevated levels of selenium possibly originating in the Almond/Poso areas. It is proposed to continue monitoring these locations through this special monitoring of the ILRP Westside Coalition monitoring program. Sites J and K2 are fresh water delivery sites into the south Grassland Water District from the CCID Main Canal. There is also a connection to J and K2 from the Grassland Drainage Area. This discharge is only allowed to occur under storm water conditions and is regulated under the Grassland Bypass WDR.

Historically seven subsurface drainage sumps discharged into the Delta-Mendota Canal just upstream of the headworks of the CCID Main Canal near Mendota. These sumps were installed when the DMC was constructed to prevent damage to adjacent lands. The discharge from these sumps contain selenium and at times when flows in the DMC were low it was documented that elevated levels of selenium could be found in the CCID Main Canal. This water could be delivered into the Agatha Canal (Site K2), the Camp 13 Ditch (Site J) or the San Luis Canal and be measured at sites L2 and/or M2/M3. Recently these sumps have been disconnected from the DMC and now discharge into the Grassland Drainage Area. This will reduce detections of selenium in these channels.

Historic monitoring has indicated elevated levels of selenium at sites J and K2. Water is discharged into J and K2 from the Main Canal when the Grassland Water District is flooding up the duck clubs in the fall and winter. In many other times of the year there can be no flow at these sites. However groundwater percolation into the monitoring locations can give a false reading of high selenium even though there is no flow. Because the delivery of water into sites J or K2 is either on (flows greater than 20 cfs) or off, the Grassland Bypass Project has limited sampling to only those times when the flow is greater than 20 cfs.

Figure 1

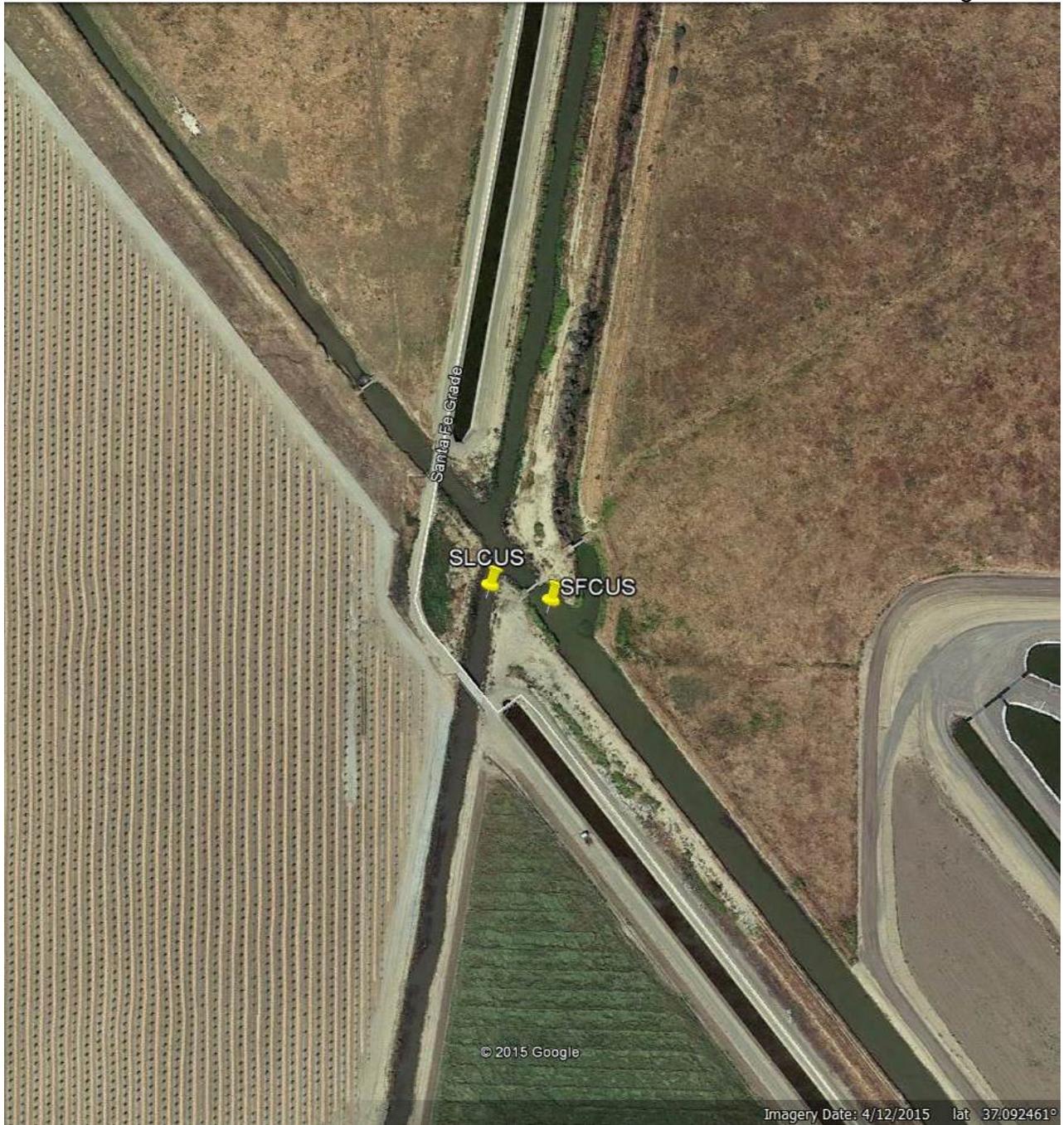


Figure 2

