San Joaquin Valley Drainage Authority

Westside San Joaquin River Watershed Coalition

Semi-Annual Monitoring Report

2011 Irrigation Season Report
Assessment Monitoring Year

Covering the period: March through August, 2011

(Sampling Events 77 through 82)

November 30, 2011

Prepared by:
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November 30, 2011

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

Subject: Westside San Joaquin River Watershed Coalition
Submittal of November 30, 2011 semi-annual monitoring report

Dear Pamela,

Attached is the November 30, 2011 semi-annual monitoring report as required under our Monitoring and Reporting Program Order No. R5-2008-0831. This report covers the irrigation season monitoring from March through August 2011.

Laboratory reports associated with this monitoring period are included electronically (on a CD) as Appendix C, along with associated electronic data deliverables (EDDs). Hard copies of the laboratory reports can be provided upon request.

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 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.

If you should have any questions on the information submitted in this report, please give me a call directly at 559-582-9237.

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

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SECTION 1: EXECUTIVE SUMMARY

This report covers the 2011 irrigation season sampling events beginning March 2011 through August 2011 (Event 77 through Event 82). In accordance with Monitoring Order No. R5-2008-0831, assessment monitoring was implemented in March of 2011 at all discharge sites. Nineteen of the 26 monitoring sites within the Westside San Joaquin River Watershed Coalition (Westside Coalition) are located on streams that are dominated by summer agricultural drainage runoff and are often dry or have little flow outside of the irrigation season.

Several storms contributed significant rainfall during the 2010/11 winter and 2011 spring and the 2010/11 water year is a wet hydrologic year type. Higher than average rainfall and snow pack resulted in a strong water supply for growers within the Westside Coalition. See **Section 3** for a discussion of measured rainfall. Irrigation season samples were collected at all sites containing sufficient water in accordance with the Westside Coalition's Monitoring and Reporting Plan (MRP – see MRP Order No. R5-2008-0831). As noted in the MRP Order, March 2011 began the assessment sampling for monitoring sites within the Westside Coalition and collected samples from all discharge sites were tested for aquatic toxicity for all three species, as well as all pesticides and other constituents as indicated in MRP order. Higher than average runoff in the monitored streams delayed the collection of sediment samples until May (rather than in March as scheduled). Sediment toxicity was observed at Hospital Creek, Ingram Creek, Del Puerto Creek (near Cox Road), Ramona Lake, Poso Slough, and Salt Slough at Sand Dam, although only Hospital and Ingram Creeks showed severe toxicity (survival less than 50%). Sediment toxicity at the remaining sites was marginal (survival greater than 75%). Sediment samples from Hospital Creek, Ingram Creek, and Salt Slough at Sand Dam were tested for selected pesticides. See **Sections 8** and **9.**

Attachment 1 details the samples collected at each site during each sampling event. A summary of the monitoring results is presented in **Appendix A**. Significant aquatic toxicity was measured eight times during four events: seven for *Ceriodaphnia dubia*, and once for algae. These are summarized in **Table 1** below.

Table 1: Summary of Toxicity

Event	Site	Species/% Survival or % Control Growth
Event 77 (March)	Little Panoche Cr. at W. Boundary	*Ceriodaphnia dubia* - 0% survival Algae – 60% of Control
Event 77 (March)	Orestimba Creek at River Road	*Ceriodaphnia dubia* - 80% survival
Event 80 (June)	San Joaquin River at Lander Ave.	*Ceriodaphnia dubia* - 20% survival
Event 82 (August)	Los Banos Creek at Hwy 140	*Ceriodaphnia dubia* – 70% survival
Event 82 (August)	Newman Wasteway	*Ceriodaphnia dubia* – 70% survival
Event 82 (August)	Poso Slough at Indiana Avenue	*Ceriodaphnia dubia* – 0% survival
Event 82 (August)	Turner Slough at Edminster Rd.	*Ceriodaphnia dubia* – 55% survival

These results, along with associated water quality and flow data, are summarized in **Attachment 2**. Details of the aquatic toxicity analyses are included in **Appendix C**.

Quality control samples were collected in addition to the event analysis sample. The quality control samples included field blanks, field duplicates, and matrix spike/matrix spike duplicate samples (MS/MSD).

There were also a handful of minor quality control issues, including exceedance of the field duplicate relative percent difference (RPD) value and laboratory spike recoveries outside of the expected range. None of these issues are expected to affect data usability. Results of the Field Quality Control samples are discussed in **Section 6** and **Attachment 3**. A review of Laboratory quality assurance activities is included in **Appendix D**.

Four sites within San Luis Water District (SLWD) were monitored monthly in accordance with the Monitoring and Reporting Plan. SLWD has implemented an aggressive tailwater prohibition policy and growers within the district do not discharge tailwater. Groundwater accretion into Little Panoche Creek accumulated sufficient volume to allow for sample collection at the Western Boundary site. The collected sample was highly mineralized (consistent with shallow groundwater quality of the region) with a TDS of 6,500 mg/L. Toxicity to Ceriodaphnia and algae was observed in the sample, but no pesticides were detected and a conductivity-adjusted control indicated that the toxicity was associated with the sample salinity.

Table 2 lists the sites that were sampled during the 2011 Irrigation Season.

Table 2: Collected Sample March 2011 through August 2011.

Map Designation	Monitoring Site	Event 77	Event 78	Event 79		Event 80	Event 81	Event 82
	Discharge Sites	March	April	May		June	July	August
1	Hospital Cr at River Road	NF	S	NF	SS	NF	S	S
2	Ingram Cr at River Road	NF	S	S	SS	S	S	S
3	Westley Wasteway near Cox Road	S	S	S	SS	S	S	S
4	Del Puerto Cr near Cox Road	NF	S	S	SS	S	S	S
5	Del Puerto Cr at Hwy 33	S	S	NF	SS	NF	NF	NF
7	Ramona Lake near Fig Avenue	NF	S	S	SS	S	S	S
8	Marshall Road Drain near River Road	NF	S	S	NP	S	S	S
9	Orestimba Cr at River Road	S	S	S	SS	S	S	S
10	Orestimba Cr at Hwy 33	S	S	S	SS	S	S	S
11	Newman Wasteway near Hills Ferry Road	S	S	S	NA	S	S	S
13	San Joaquin River at Lander Avenue	S	S	S	NA	S	S	S
14	Mud Slough u/s San Luis Drain	S	S	S	SS	S	S	S
15	Salt Slough at Lander Avenue	S	S	S	NA	S	S	S
16	Salt Slough at Sand Dam	S	S	S	SS	S	S	S
17	Los Banos Creek at Highway 140	S	S	S	SS	S	S	S
18	Los Banos Creek at China Camp Road	S	S	S	SS	S	S	S
19	Turner Slough near Edminster Road	S	S	S	SS	S	S	S
20	Blewett Drain near Highway 132	NF	S	S	SS	S	S	S
21	Poso Slough at Indiana Avenue	S	S	S	SS	S	S	S
24	Los Banos Creek at Sunset Ave	NF	NF	NF	NF	NF	NF	NF
25	Little Panoche Cr at Western Boundary	S	NF	NF	NF	NF	NF	NF
26	Little Panoche Cr at San Luis Canal	NF	NF	NF	NF	NF	NF	NF
27	Russell Ave. Drain at San Luis Canal	NF	NF	NF	NF	NF	NF	NF
	Source Water Sites							
12	San Joaquin River at Sack Dam	S	S	S	NP	S	S	S
22	San Joaquin River at PID Pumps	S	S	S	NP	S	S	S
23	Delta Mendota Canal at Del Puerto WD	S	S	S	NP	S	S	S

Notes: S = Water sampled according to the MRP.
SS = Sediment sampled according to the MRP.
NA = Not sampled due to lack of safe access.
NF = Not sampled due to lack of flow.
NP = Not included in the sampling plan.

SECTION 2: COALITION AND MONITORING PROGRAM DESCRIPTION

In June, 2003, the San Joaquin Valley Drainage Authority (SJVDA) submitted a Conditional Waiver Report for the Westside San Joaquin River Watershed Coalition (Westside Coalition). The Westside Coalition watershed generally lies on the westside of the San Joaquin River from approximately the Stanislaus River on the north to 10 miles south of Mendota and encompasses an area of approximately 460,500 acres. There are approximately 4,000 landowners and 1,500 operators within the watershed. Most of the watershed receives water supplies from the Central Valley Project, while certain areas receive water from the State Water Project. In addition, some areas receive supplies from the San Joaquin River and local water sources, one area receives a Kings River supply, and some areas receive water from groundwater wells. The Delta-Mendota Canal and San Luis Canal run through the center of the watershed. Water deliveries are made to Federal Central Valley Project Contractors and to San Joaquin River Exchange Contractors from these facilities. State water deliveries are also made to one area.

The Grassland Drainage Area encompasses 97,400 acres that are geographically within the watershed. The Grassland Drainage Area is covered under waste discharge requirements (No. 5-01-234), which regulates the discharge of subsurface drainage water through the San Luis Drain to the San Joaquin River. Tailwater is aggressively controlled and not allowed to discharge from the region. The area coordinates its separate monitoring and reporting program under the above waste discharge requirements.

The Westside Coalition area also includes federal, state and private managed wetlands. These areas share water delivery and drainage conveyance systems with the surrounding agricultural areas. Due to the integrated nature of the water facilities the managed wetlands have joined the Westside Coalition as a wetland sub-watershed participant to comply with the Conditional Waiver and effectively and efficiently address water quality issues. The effects of discharges from the wetland areas are covered in this monitoring program.

The communities of Grayson, Westley, Vernalis, Crows Landing, Patterson, Newman, Gustine, Stevinson, Los Banos, Dos Palos, South Dos Palos, Firebaugh, Mendota and Tranquillity lie within the geographic area of the Westside Coalition. These communities do not have discharges from irrigated lands and are not included in the Westside Coalition, but contribute storm waters and municipal waste waters to the watershed and may impact discharges from irrigated lands.

Interstate Highway 5 and State Highways 33, 140, 165 and 152 and many county roads run through the geographic area of the Westside Watershed. Storm water discharges from these roads and highways can contribute contaminants to the same water bodies that carry agricultural return water.

The San Joaquin Valley Drainage Authority, a joint powers agency, is the umbrella organization for the Westside Coalition for purposes of the Conditional Waiver of Waste Discharge Requirements for Discharges from Irrigated Lands within the Central Valley Region (Resolution No.R5-2003-0105). On July 30, 2004, the Westside Coalition received approval for its irrigated agricultural monitoring plan from the Central Valley Regional Water Quality Control Board. The first sampling event took place on July 6, 2004, with subsequent event samples collected monthly. In February, 2008, the Westside Coalition received approval for a revised Monitoring and Reporting Plan (Revised MRP). The Revised MRP was designed to focus monitoring efforts at sites with known water or sediment issues and to support the Management Plan issues. The Revised MRP was implemented in March of 2008. Monitoring and Reporting Program Order No. R5-2008-0831 (MRP Order or MRP) was issued by the Regional Board in September 2008. This order was largely reflective of the Revised MRP and took effect in March 2009.

The MRP Order includes a targeted monthly sampling plan for 26 monitoring sites within the Coalition area as well as plans for sampling for two rain events during each year. The monitoring sites include three source water sites and 23 sites that discharge agricultural drain water. Four of the discharge sites are within San Luis Water District, which maintains a tailwater discharge prohibition. These sites generally only discharge during severe storm events.

During any given sampling event, each accessible site is visited, visually assessed, and samples are collected in accordance with the field sampling manual. See **Table 2.**

The objectives of the original monitoring program are:

- To assess the existing water quality characteristics of major agricultural drains within the watershed area.
- To determine the location and magnitude of water quality problems.
- To determine the cause of water quality problems and develop solutions.

Three sampling crews have been trained by the analytical laboratories to collect samples according to the Westside Coalition's QAPP and Field Sampling Manual. These crews are responsible for collecting samples at each of the 26 sites; the field coordinator for the northerly region is responsible for collecting samples north of Newman Wasteway. The field coordinator for the southerly region is responsible for collecting samples south of (and including) Newman Wasteway, and staff from San Luis Water District are responsible for monitoring and sampling sites within that district. The sampling responsibilities include completion of the field data sheets, collection of water and sediment samples, completion of labels and chain of custody sheets, and coordination with the labs for sample pickup. The parameters analyzed at each site are shown in **Table 3**. The laboratory, method, and constituents analyzed are shown in **Table 4.**

Table 3: Monitoring Stations and Samples

Monitoring Site	Site Code	Season: Irrigation (Mar-Aug)*	Season: Non-Irrigation (Sep-Feb)*	Season: Rain Event (2x per year)	Ceriodaphnia Toxicity	Fathead Toxicity	Algae Toxicity	Sediment Toxicity	Pesticides: OP	Pesticides: OC	Pesticides: Group A	Pesticides: Carb	Pesticides: Herb
Discharge Sites													
Blewett Drain at Highway 132	VH132	Core	Core	Assmt									
Poso Slough at Indiana Avenue	PSAIA	Core	Core	Assmt									
Hospital Cr at River Road	HCARR	Special	-	Rain**	x			x	x	x			x
Ingram Cr at River Road	ICARR	Core + Special	Core	Rain**	x			x	x	x	x	x	x
Westley Wasteway near Cox Road	WWNCR	Core + Special	Core	Rain**	x		x	x	x	x	x		x
Del Puerto Cr near Cox Road	DPCCR	Core + Special	Core	Rain**	x			x	x	x	x		x
Del Puerto Cr at Hwy 33	DPCHW	Special	-	Rain**	x			x	x	x	x		x
Ramona Lake near Fig Avenue	ROLFA	Core + Special	Core	Rain**	x			x	x	x			x
Marshall Road Drain near River Road	MRDRR	Core + Special	Core	Rain**	x				x	x	x		x
Orestimba Cr at River Road	OCARR	Core + Special	Core	Rain**	x			x	x	x	x		x
Orestimba Cr at Hwy 33	OCAHW	Special	-	Rain**	x		x	x	x	x	x		x
Newman Wasteway near Hills Ferry Road	NWHFR	Core + Special	Core	Rain**	x			x	x	x	x		x
San Joaquin River at Lander Avenue	SJRLA	Core + Special	Core + Special	Rain**	x		x		x				x
Mud Slough u/s San Luis Drain	MSUSL	Core + Special	Core + Special	Rain**	x				x	x	x	x	x
Salt Slough at Lander Avenue	SSALA	Core + Special	Core + Special	Rain**	x		x		x	x	x	x	x
Salt Slough at Sand Dam	SSASD	Special	-	Rain**	x		x		x	x		x	x
Los Banos Creek at Highway 140	LBCHW	Core + Special	Core + Special	Rain**	x				x				x
Los Banos Creek at China Camp Road	LBCCC	Core + Special	Core	Rain**	x	x	x	x	x				x
Turner Slough near Edminster Road	TSAER	Core + Special	Core	Rain**	x	x			x				x
Little Panoche Cr at Western Boundary	LPCWB	Core	Core	Rain**	x		x	x					
Little Panoche Cr at San Luis Canal	LPCSL	Core	Core	Rain**	x		x	x					
Russell Ave. Drain at San Luis Canal	RADSL	Core	Core	Rain**	x		x	x					
Los Banos Creek at Sunset Ave	LBCSA	Core	Core	Rain**	x		x	x					
Source Water Sites													
San Joaquin River at Sack Dam	SJRSD	Source	Source	Source									
Delta Mendota Canal at Del Puerto WD	DMCDP	Source	Source	Source									
San Joaquin River at PID Pumps	SJRPP	Source	Source	Source									

* Irrigation season will run from March through August. Non-irrigation season will run from September through February. The Westside Coalition, in colaboration with the Regional Water Quality Control Board, may shift the seasons up or back 1 month to accont for actual practices.

Table 4: Analytes, Laboratories, and Methods

	Constituent	Laboratory	Method	Units	Laboratory SOP No.
Field Data	pH	Field Crew	YSI meter	-	Field Manual
	Temperature	Field Crew	YSI meter	ºC	Field Manual
	Conductivity	Field Crew	YSI meter	µmhos/cm	Field Manual
	Dissolved Oxygen	Field Crew	YSI meter	mg/L	Field Manual
	Flow	Field Crew	Estimate	cfs	Field Manual
	pH	Caltest	SM 4500-H+B	-	PH-rev4
	TDS	Caltest	SM 2540C	mg/L	TDS-rev4E
	TSS	Caltest	SM 2540D	mg/L	TSS-rev4
	Turbidity	Caltest	SM 2130B	NTU	TURB-rev4E
	Hardness	Caltest	EPA 130.2	mg/L	HARD-rev5E
	Metals	Caltest	EPA 200.7, 200.8	mg/L	M-ICP-rev10E & 2008rev5Ea
	Bromide/Nitrate	Caltest	EPA 300.0	mg/L	DIONEX-rev5E
	Nitrogen, Nitrite	Caltest	EPA 354.1	mg/L	NO2-rev6
	TKN	Caltest	EPA 351.3	mg/L	NH3-TKN-rev6E
	Phosphate	Caltest	EPA 365.2	mg/L	PHOS-rev4
	Ammonia (as N)	Caltest	EPA 350.2	mg/L	NH3-TKN-rev6E
	DOC	Caltest	SM 5310-B/C	mg/L	TOC-D0C-rev7E
	TOC	Caltest	SM 5310-B/C	mg/L	TOC-D0C-rev7E
	E. Coli	Caltest	SM 9221BF/9223-B	mpn/100ml	MMOMUG-rev8E
Pesticides	Organophosphates	APPL	EPA 8141A	µg/L	ANA8141A
	Organochlorines	APPL	8081A/8082	µg/L	ANA8081A
	Carbamates	APPL	EPA 8321A LL	µg/L	HPL8321A
	Herbicides	APPL	EPA 619	µg/L	ANA8151A
Sediment	Organochlorine	Caltest	SW846 8081	mg/kg (dry)	8081rev8
	Pyrethroid	Caltest	SW846 8270(SIM)	mg/kg (dry)	Pyrethroidsrev4a
	% Solids	Caltest	EPA 160.3	%	Residue-rev6
	TOC	Caltest	EPA 9060A	%	WalkleyBlack TOC
Toxicity	*Ceriodaphnia d.*	PER	EPA-821-R-02-012	% survival	Acute Cerio SOP
	Selenastrum c.	PER	EPA-821-R-02-013 & EPA-600-4-91-002	cell growth	Chronic Selenastrum SOP
	Pimephales p.	PER	EPA-821-R-02-012	% survival	Acute FHM SOP
	Hyalella a.	PER	EPA-600-R-99-064	% survival	10-D HyalellaAcuteSedTest

CalTest Labs in Napa, California
APPL labs in Fresno, California
Pacific Ecorisk (PER) in Martinez, California

Aquatic toxicity samples were collected and analyzed by Pacific Ecorisk, Inc. using the methods described below:

- *Ceriodaphnia dubia*: "Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms" (USEPA 2002a).
- *Pimephales promelas*: "Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms" (USEPA 2002a).
- *Selenastrum capricornutum*: "Short-term Methods for Estimated the Chronic Toxicity of Effluents and Receiving Water to Freshwater Organisms" (USEPA 2002b).
- *Hyalella azteca*: "Methods for Measuring the Toxicity and Bioaccumulation of Sediment-associated Contaminants with Freshwater Organisms" (USEPA 2000).

SECTION 3: MONITORING EVENT SUMMARIES

Monitoring Event Summaries.
In accordance with the MRP order, assessment monitoring was implemented at all discharge sites beginning with the March 2011 event. Assessment monitoring will continue through the February 2012 event. Assessment monitoring is intended to re-asses the water quality conditions of each monitored site, and includes analysis for all three toxicity species, and the complete list of pesticides and metals.

Each site was visited monthly during the reporting period and samples were collected from every site with sufficient water to submerge and fill a sample container. Groundwater accretions resulted in sufficient ponded water at Little Panoche Creek at Western Boundary for a sample collection in March. However none of the other San Luis Water District Sites contained water for the reporting period.

Three CIMIS[1] stations were monitored by the Westside Coalition for rainfall: Patterson, Los Banos, and Firebaugh. **Table 5** summarizes the monthly rainfall measured at each station.

Table 5: Monthly Rainfall in Inches

Month	Patterson	Los Banos	Firebaugh
March	2.48	2.13	2.04
April	0.08	0.19	0.27
May	0.36	0.79	0.01
June	1.06	0.65	0.80
July	0	0	0
August	0	0	0
Report Period Total:	3.98	3.76	3.12

Water year 2011 was wettest on record since the Westside Coalition began monitoring and was classified as a wet year type. Two rain event sample were collected during the 2010/11 non-irrigation season and no additional rain event samples were collected during this report period.

Event 77, March 8th and 23rd, 2011.
Irrigation season water samples were collected at 16 sites on March 8th in accordance with the Westside Coalition MRP. Insufficient flow was present for sample collection at Hospital Creek, Ingram Creek, Del Puerto Creek at Cox Road, Ramona Lake, Marshall Road Drain, and Blewett Drain. Marginal toxicity to *Ceriodaphnia dubia* was observed in the Orestimba Creek at River Road sample (80% survival). Follow up testing was not required and only DDE was detected in the sample (0.0053 µg/L). On March 23rd, groundwater accretions had accumulated at Little Panoche Creek in sufficient volume to collect a sample. Significant toxicity to algae (40% different from control) and water flea (0% survival) was observed at this site. The sample water was highly mineralized (EC = 10,211 µs/cm) and toxicity to algae and water flea was attributed to the salinity. Because of the high flows at several sites (particularly the San Joaquin River, Salt and Mud Sloughs, and Los Banos Creek), sediment samples were not collected during this event.

[1] California Irrigation Management Information System, http://wwwcimis.water.ca.gov/cimis/welcome.jsp

Event 78, April 12, 2011.
Irrigation season water samples were collected at 22 monitoring sites on April 12th in accordance with the Westside Coalition MRP. No aquatic toxicity was observed in any of tested sites. All four SLWD sites were dry.

Event 79, May 10th and May 24th 2011.
Irrigation season water samples were collected at 21 sites on May 10th and sediment samples were collected at 15 sites on May 24th in accordance with the Westside Coalition's MRP. There was insufficient flow at Hospital Creek and Del Puerto Creek at Highway 33 to collect water samples and high water conditions prevented sediment collections at Newman Wasteway, San Joaquin River at Lander Avenue, and Salt Slough at Lander Avenue. Four of the algae toxicity tests were contaminated with a foreign algae species and had to be retested, however no other aquatic toxicity was observed. Sediment toxicity was observed at Hospital Creek (8.75% survival), Ingram Creek (16.3% survival), Salt Slough at Sand Dam (78.8% survival), Poso Slough (87.5% survival), and Ramona Lake (92.5% survival). Although this is an increase in the number of sites with statistically significant toxicity, only two sites showed severe toxicity (<50% survival, Ingram and Hospital Creeks), with the observed survival at the other three sites >75%. Sediment samples from Ingram Creek, Hospital Creek, and Salt Slough at Sand Dam were analyzed for pesticides. See **Section 8.**

Event 80, June 14th, 2011.
Irrigation season water samples were collected at 20 sites on June 14th in accordance with the Westside Coalition's MRP. There was insufficient flow at the Hospital Creek and Del Puerto Creek (Highway 33) sites for sample collection and the four SLWD sites were dry. Aquatic toxicity to *Ceriodaphnia dubia* was observed at the San Joaquin River at Lander Avenue (20% survival). A TIE was performed, however toxicity was not persistent in any of the treatments (including the baseline) and the test was inconclusive. No pesticides were detected in the sample and the cause of toxicity is not known. No other aquatic toxicity was observed.

Event 81, July 12th, 2011.
Irrigation season water samples were collected at 21 monitoring sites on July 12th. Insufficient flow was present at Del Puerto Creek at Highway 33 for sample collection and all of the SLWD sites were dry. No aquatic toxicity was observed in any of the samples.

Event 82, August 9th, 2011.
Irrigation season water samples were collected at 21 monitoring sites on August 9th in accordance with the Westside Coalition's MRP. Insufficient flow was present at Del Puerto Creek at Highway 33 and the four SLWD sites were dry. Aquatic toxicity to *Ceriodaphnia dubia* was observed at Newman Wasteway (70% survival), Los Banos Creek at Highway 140 (70 survival), Turner Slough (55% survival), and Poso Slough (0% survival). A dilution series and TIE were performed on the Poso Slough sample. The dilution series measured 2.8 toxic units, and the TIE indicated that a non-polar organic compound(s) was the likely cause of toxicity. Chlorpyrifos was the only detected pesticide in the sample (1.3µg/L) and is likely the cause of toxicity. No follow up was required for the other three samples that exhibited toxicity, and no pesticides were detected. See **Attachment 2**.

SECTION 4: SAMPLING SITE AND WATERSHED DESCRIPTIONS

Figure 1 shows the Westside Coalition area and the location of the monitoring sites. Following is a description and rationale for the monitoring sites.

- Blewett Drain near Highway 132 (originally called Vernalis at Highway 132 [VH132]). This site is located at the northerly boundary of the Westside Coalition. The cropping pattern for discharges into this drain is similar to that of Hospital Creek. Flow at this site is calculated as an estimated velocity and measured flow area. The Westside Coalition began monitoring this site in 2008.
- Poso Slough at Indiana Avenue (PSAIA). This site is located on Poso Slough near the boundary between San Luis Canal Company and Central California Irrigation District in the Dos Palos Subarea of the Westside Coalition. Flow at this site is calculated as an estimated velocity and measured flow area. The Westside Coalition began monitoring this site in 2008. Poso Slough is a tributary to Salt Slough, discharging upstream of the Sand Dam monitoring site.
- Hospital Creek at River Road (HCARR). This site is a significant drainage for the Patterson Subarea of the Westside Coalition and has been monitored since July 2004 for a variety of constituents. Sediment discharge, sediment toxicity, aquatic toxicity (water flea), and pesticides have been measured at this site. It is on the 303(d) list for pesticides. Flow at this site is measured by a rectangular weir.
- Ingram Creek at River Road (ICARR). This site is a significant drainage for the Patterson Subarea of the Westside Coalition and has been monitored since July 2004 for a variety of constituents. Sediment discharge, sediment toxicity, aquatic toxicity (water flea), and pesticides have been measured at this site. It is on the 303(d) list for pesticides. Flow at this site is measured by a rectangular weir.
- Westley Wasteway near Cox Road (WWNCR). Westley Wasteway is a significant drainage for the Patterson Subarea for both tailwater and storm runoff. Land use upstream of this monitoring station is similar to that of Del Puerto Creek. This site has been monitored for a variety of constituents since 2004. Sediment discharge, sediment toxicity, aquatic toxicity (water flea), and pesticides have been measured at this site. Flow at this site is measured by a rectangular weir.
- Del Puerto Creek near Cox Road (DPCCR) and Del Puerto Creek near Highway 33 (DPCHW). Del Puerto Creek is on the 303(d) list for pesticides and is a major drainage for the Patterson Subarea and major storm runoff collector. Two stations are identified on this waterbody; one near the discharge to the San Joaquin River, and one at Highway 33, near the middle of the Patterson Subarea. Biological assessments are performed on Del Puerto Creek to assess its overall health, which will be useful in relating to collected water quality data. Both of these sites have been monitored for a variety of constituents since 2004. Sediment discharge, sediment toxicity, aquatic toxicity (water flea), and pesticides have been measured at both sites. Flow at this site is measured through a stream rating.
- Ramona Lake near Fig Avenue (ROLFA). This site monitors discharge from a small lake as it flows into the San Joaquin River. Agricultural and storm runoff from the Patterson

Subarea can discharge into the lake. This site has been monitored for a variety of constituents since 2004. Some pesticides have been measured at this site.

- Marshall Road Drain near River Road (MRDRR). This site monitors a pipe drain that carries agricultural and storm runoff from the Patterson Subarea of the Westside Coalition. This site has been monitored for a variety of constituents since 2004. Some pesticides and aquatic toxicity have been measured at this site. Flow from this site is measured by a weir within the pipe. During periods of high flow, the weir can become submerged and incapable of measuring flow.
- Orestimba Creek at River Road (OCARR) and Highway 33 (OCAHW). There are two monitoring locations on Orestimba Creek; one near the discharge point to the San Joaquin River; and one upstream at Highway 33. Orestimba Creek is similar to that of Del Puerto in both the surrounding landscape and discharged water quality. It is on the 303(d) list for pesticides, is a major drainage for the Patterson Subarea, and is included in the biological assessment portion of the monitoring program. Pesticides, sediment discharge, sediment toxicity, and aquatic toxicity have been measured at these sites. USGS monitors are reports flow at Orestimba Creek at River Road. Flow at Orestimba Creek at Highway 33 is calculated through an estimated velocity and cross-sectional flow area.
- Newman Wasteway near Hills Ferry Road (NWHFR). The Newman Wasteway is a significant drainage for the Patterson Subarea and is on the 303(d) list for salt and pesticides. This site measures drainage that originates from the southerly region of the Patterson Subarea, and has been monitored for a variety of constituents since 2004. Pesticides, sediment discharge, sediment toxicity, and aquatic toxicity have been measured at this site. Flow at this site is calculated through an estimated velocity and cross-sectional flow area.
- The San Joaquin River at Lander Avenue (SJRLA). This site is both a receiving waterbody for agricultural and storm drainage and a source water for districts that pump from the San Joaquin River. It also receives drainage flows from irrigated wetlands in the fall and winter months. It has been monitored for a variety of constituents since 2004, and pesticides, sediment toxicity, and aquatic toxicity have been measured. Flow at this site is reported by a nearby CDEC station.
- Mud Slough upstream of the San Luis Drain (MSUSL). This site measures drainage originating from the Dos Palos and Los Banos Subareas that flow through the wetlands as well as the wetlands themselves. Mud Slough is on the 303(d) list for a variety of constituents. In addition to the Westside Coalition’s monitoring program, the Central Valley Regional Water Quality Control Board, Surface Water Ambient Monitoring Program (SWAMP) collects and analyzes samples from this site throughout the year. These samples are analyzed for selenium, boron, and EC, along with other constituents. Flow at this site is calculated as the difference between the flow downstream of the San Luis Drain (reported by CDEC) and the measured San Luis Drain Discharge. The SWAMP Data is available via the internet at: http://www.waterboards.ca.gov/centralvalley/programs/agunit/swamp/index.html.
- Salt Slough at Lander Avenue (SSALA) Salt Slough at Lander Avenue measures agricultural, storm, and wetland runoff from the Dos Palos and Los Banos Subareas, and has been monitored (and 303(d) listed) for a variety of constituents since 2004. In addition to the Westside Coalition’s monitoring program, the Central Valley Regional

Water Quality Control Board, SWAMP collects and analyzes samples from this site throughout the year. These samples are analyzed for selenium, boron, and EC, along with other constituents. Flow at this site is reported by CDEC. The SWAMP Data is available via the internet at:
http://www.waterboards.ca.gov/centralvalley/programs/agunit/swamp/index.html.

- Salt Slough at Sand Dam (SSASD). This site is upstream of the Lander Avenue site and measures agricultural and storm drainage originating in portions of the Dos Palos Subarea. Pesticides and aquatic toxicity have been measured at this site, which has been monitored for a variety of constituents since 2004. Flow at this site is measured by a weir.
- Los Banos Creek at Highway 140 (LBCHW). This site carries agricultural, storm and irrigated wetland runoff from the Los Banos Subarea. Some pesticides have been measured at this site. Flow at this site is calculated through an estimated velocity and cross-sectional flow area.
- Los Banos Creek at China Camp Road (LBCCC). This site monitors agricultural and storm runoff from the Los Banos Subarea, upstream of the Highway 140 site. There is a farmer-maintained dam downstream of this site which is frequently used to stop flows so that it may be diverted for irrigation. Flow at this site is calculated through an estimated velocity and cross-sectional flow area.
- Turner Slough near Edminster Road (TSAER). This station is located on the eastside of the San Joaquin River and measures drainage from a portion of the Patterson Subarea. A very small number of pesticides have been detected at this site since 2004. In 2007, Stevinson Water District constructed a drain water return system upstream of the Turner Slough discharge (and monitoring) point. This system captures most of the drainage that flows through Turner Slough and returns it to the Stevinson Water District irrigation system. Since the construction of this system, discharges from Turner Slough into the San Joaquin River have become infrequent. Flow at this site is calculated through an estimated velocity and cross-sectional flow area.
- Little Panoche Creek at Western Boundary (LPCWB) and at San Luis Canal (LPCSL). These two sites were incorporated from the San Luis Water District Water Quality Coalition. Because San Luis Water District has a strict no-discharge policy, these sites are typically dry. High water levels in the Panoche Creek Reservoir have caused shallow groundwater to accrete into the creek at the Western Boundary site, but no other flows (either agricultural discharges or storm runoff) have been observed at either site.
- Russell Avenue Drain at San Luis Canal (RADSL). This is a small drain along Russell Avenue that discharges into the San Luis Canal. These two sites were incorporated from the San Luis Water District Water Quality Coalition. Because San Luis Water District has a strict no-discharge policy, this site will typically measure only storm runoff. Since inclusion within the Westside Coalition, this site has not had any observed flow and has not been sampled.
- Los Banos Creek at Sunset Avenue (LBCSA). This monitoring site was incorporated from the San Luis Water District Water Quality Coalition, and is located near the western boundary of the Westside Coalition, downstream of the Los Banos Reservoir. There is not a large amount of actively farmed land at or upstream of this site, and discharges here are typically releases from the Los Banos Reservoir.

- San Joaquin River at Sack Dam (SJRSD). This is a source water monitoring site located at the diversion point for San Luis Canal Company. This site is monitored for source water constituents. Flow at this site is measured across the dam.
- Delta Mendota Canal at Del Puerto Water District (DMCDP). This site monitors water quality in the Delta Mendota Canal at a Del Puerto Water District turnout. This site characterizes the source water quality typical of the Delta Mendota Canal, and is monitored for source water constituents. Flow is not measured at this site.
- San Joaquin River at Patterson Irrigation District Pumps (SJRPP). This monitoring site is located at the Patterson Irrigation District pump station on the San Joaquin River and characterizes the source water quality of the San Joaquin River in the Patterson Subarea. This site is monitored for source water constituents. Flow from this site is reported by CDEC.

Table 6 lists the monitoring sites and coordinates in the WGS84 datum.

Table 6: Monitoring Site Coordinates

Site	Latitude (N)	Longitude (W)
Hospital Cr at River Road	37.61047	121.23078
Ingram Cr at River Road	37.60022	121.22506
Westley Wasteway near Cox Road	37.55822	121.16372
Del Puerto Cr near Cox Road	37.53936	121.12206
Del Puerto Cr at Hwy 33	37.51406	121.15956
Ramona Lake near Fig Avenue	37.47875	121.06839
Marshall Road Drain near River Road	37.43631	121.03617
Orestimba Cr at River Road	37.41386	121.01489
Orestimba Cr at Hwy 33	37.37717	121.05856
Newman Wasteway near Hills Ferry Road	37.32036	120.98336
San Joaquin River at Sack Dam	36.98353	120.50050
San Joaquin River at Lander Avenue	37.29506	120.85139
Mud Slough u/s San Luis Drain	37.26164	120.90614
Salt Slough at Lander Avenue	37.24797	120.85225
Salt Slough at Sand Dam	37.13664	120.76194
Los Banos Creek at Highway 140	37.27619	120.95547
Los Banos Creek at China Camp Road	37.11447	120.88953
Turner Slough near Edminster Road	37.30411	120.90083
Blewett Drain at Highway 132	37.64053	121.22942
Poso Slough at Indiana Ave	37.00622	120.59033
SJR at PID Pumps	37.49739	121.08267
DMC at Del Puerto WD	37.43678	121.13347
Los Banos Creek at Sunset Ave	37.02747	120.88983
Little Panoche Cr at Western Boundary	36.79100	120.76200
Little Panoche Cr at San Luis Canal	36.81728	120.72614
Russell Ave Drain at San Luis Canal	36.75142	120.65775

FIGURE 1: WATERSHED MAP W/ MONITORING SITES.

More than 59 different varieties of crops are grown within the Westside Coalition watershed area, ranging from fruit and nut trees to melons and cotton. **Table 7** shows the top ten crops within the Coalition area based on 2010 irrigation season Agricultural Commissioner pesticide use data.

Table 7: Top 10 Crops Grown by County

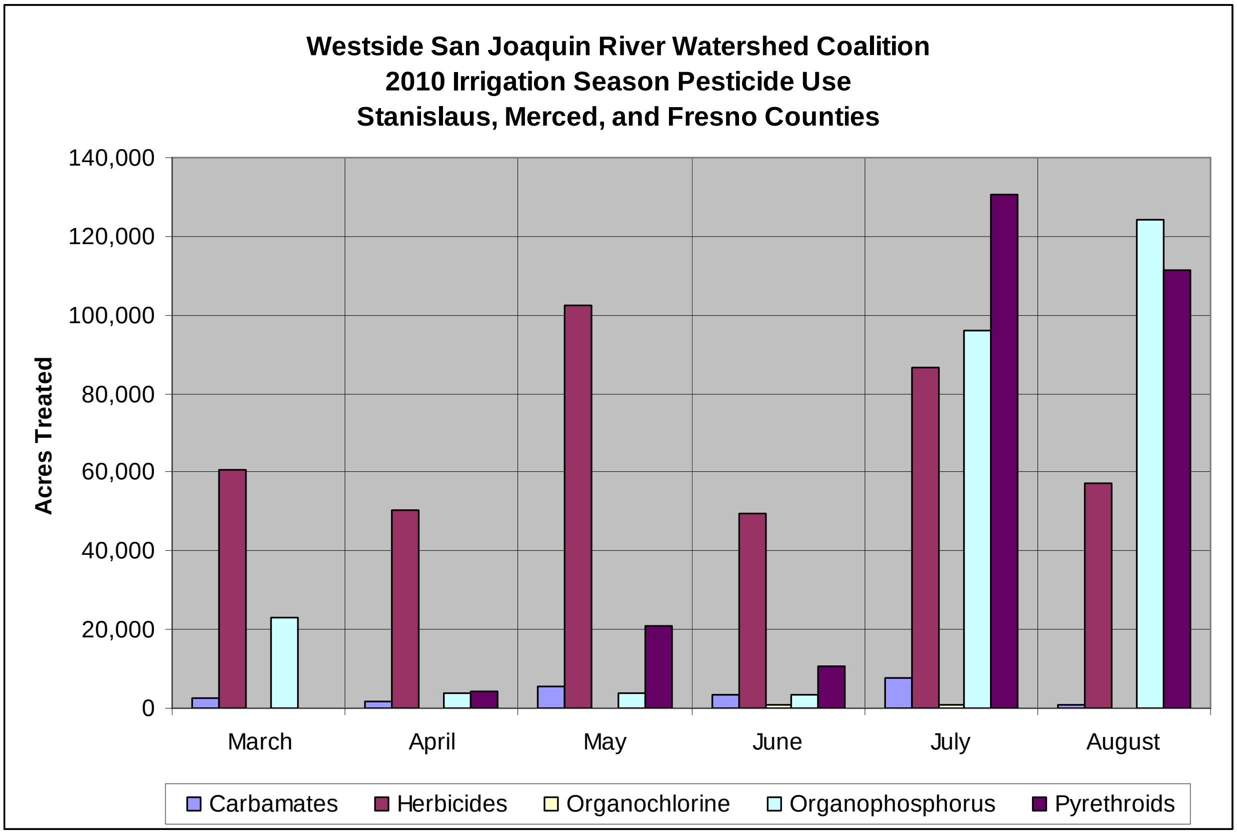
Fresno	Merced	Stanislaus
Alfalfa	Cotton	Almonds
Tomatoes	Tomatoes	Beans
Grapes	Alfalfa	Tomatoes
Cotton	Almonds	Walnuts
Almonds	Pistachios	Alfalfa
Rice	Corn	Grapes
Melons	Melons	Corn
Wheat	Walnuts	Apricots
Corn	Wheat	Cherries
Onions	Oats	Melons

These crops are dispersed approximately evenly throughout the Coalition area, with the exceptions of cotton (mostly in the Los Banos, Dos Palos and Tranquillity Subareas), and fruit trees and beans (mostly in the Patterson Subarea). The planting practices are typical for conventional agriculture within the Central Valley. A complete crop list and detailed crop calendar was presented in the "Watershed Evaluation Report", submitted in April, 2004.

Annual field crops are typically planted as seed or transplants after the field has been pre-irrigated to provide salt leaching and soil moisture for germination. These crops can be furrow irrigated using either a plowed head ditch or gated pipe, sprinkler irrigated with hand-move sprinkler pipe, or sub-surface drip irrigated. Permanent field crops such as pasture or alfalfa are usually flood or sprinkler irrigated. The younger fruit and nut trees are almost universally irrigated with drip or micro-sprinkler systems, though some of the older orchards are still flood irrigated.

The irrigation season is typically the peak of agricultural activity, with most planting occurring between March and May, and irrigation and cultivation activities beginning just after planting and carrying on until harvest. Harvest timing is dependant or crop and weather conditions and may be as early as July or as late as October. Pesticide applications during the irrigation season include both insecticides and herbicides and will be applied according to the growth stage of the affected crop and the actual pest pressures. **Figure 2** shows the 2010 irrigation season monthly pesticide application within the Westside Coalition by pesticide group. Complete pesticide use data for the 2011 irrigation season is not yet available and the data presented in **Figure 2** should be considered representative of the general trend in cultural practices but not a direct measurement of actual 2011 pesticide use.

Figure 2: 2010 Irrigation Season Pesticide Use.



A more detailed review of pesticide use and detections is provided in **Section 8**. **Table 8** shows the 10 most commonly applied pesticides during the irrigation season (by acreage) within the three counties occupied by the Westside Coalition. Pesticide use reports from the county's Agricultural Commissioner for the 2010 irrigation season were used as it was the most current complete record.

Table 8: Most Commonly Applied Pesticides by County (2010 Irrigation Season)

Fresno County		Merced County		Stanislaus County	
Pesticide	**Class**	**Pesticide**	**Class**	**Pesticide**	**Class**
Lambda-cyhalothrin	Pyrethroid	Glysophate	Herbicide	Dimethoate	Organophosphorus
Trifluralin	Herbicide	Trifluralin	Herbicide	Lambda-cyhalothrin	Pyrethroid
Glysophate	Herbicide	Lambda-cyhalothrin	Pyrethroid	Glysophate	Herbicide
Malathion	Organophosphorus	Oxyfluorfen	Herbicide	Esfenvalerate	Pyrethroid
Oxyfluorfen	Herbicide	Malathion	Organophosphorus	Oxyfluorfen	Herbicide
Chlorpyrifos	Organophosphorus	Bifenthrin	Pyrethroid	Prowl	Herbicide
Rimsulfuron	Herbicide	Chlorpyrifos	Organophosphorus	Chlorpyrifos	Organophosphorus
Cupper Sulfate	Herbicide	Dimethoate	Organophosphorus	Acephate	Organophosphorus
Prowl	Herbicide	Aldicarb	Carbamates	Bifenthrin	Pyrethroid
Bifenthrin	Pyrethroid	Cyfluthrin	Pyrethroid	Metolachlor	Herbicide

Pesticide use trends for this report period are likely similar to the 2011 irrigation season, although the order in which they appear in **Table 8** may be different.

SECTION 5: FIELD SAMPLING PROCEDURE

Field water quality data and sample collections were collected as outlined in the Westside Coalition's Quality Assurance Project Plan (QAPP) and Field Sampling Manual. Three sampling crews have been trained by the analytical laboratories to collect samples according to the Westside Coalition's QAPP and Field Sampling Manual. These crews are responsible for collecting samples at each of the 26 sites: The field coordinator for the northerly region is responsible for collecting samples from north of Newman Wasteway. The field coordinator for the southerly region is responsible for collecting samples south of (and including) Newman Wasteway, and staff from San Luis Water District are responsible for monitoring and sampling sites within that district. The sampling responsibilities include completion of the field data sheets, collection of water and sediment samples, completion of labels and chain of custody sheets, and coordination with the labs for sample pickup. Samples are collected either as a direct grab from the waterbody or as a bucket grab, where a large volume of water is collected in a stainless steel bucket and transferred to the sample bottles. Details of these collection methods are explained in the Field Sampling Manual. The list of tested constituents is discussed in the MRP Order.

In accordance with the MRP Order, the Westside Coalition implemented Assessment Monitoring at all discharge sites starting with the March 2011 event. Assessment monitoring requires that each discharge site be analyzed for aquatic toxicity for algae, fathead minnow, and water flea; organochlorine, organophosphate, carbamate, and herbicide pesticides; and general chemistry constituents, including the full panel of nutrients and metals as listed in the MRP Order. Assessment monitoring will continue through February 2012.

SECTION 6: FIELD AND LABORATORY QUALITY CONTROL SAMPLES

Laboratory Quality Control Samples. The three laboratories that perform analyses for the Westside Coalition monitoring activities are certified through the National Environmental Laboratory Accreditation Program (NELAP) and perform all testing and analyses according to the most current NELAP standards, including the performance of several quality control tests to ensure all methods and equipment are operating correctly. A handful of quality control tests for APPL and Caltest failed to meet acceptability criteria, however these failures represented less than 5% of the QA/QC analyses performed by each lab and do not affect data usability. All analyses performed by Pacific Ecorisk met test acceptability criteria. Details of the laboratory quality control review are included in **Appendix D**. Although the Westside Coalition reviews each of the laboratories' QA/QC results, it considers each of the laboratories to be experts in their respective fields and defers to their judgment regarding data acceptability.

Field Quality Control Samples. Field quality control samples included the collection of field duplicate samples for sediment and aquatic toxicity analysis, and the collection of both field duplicate and field blank samples for pesticides, drinking water, and general physical constituent analysis. It should be noted that the field duplicate samples are typically collected as separate samples simultaneously with the event sample (as opposed to field split samples). The calculated RPD between the event sample and field duplicate sample should be considered a measurement of site water variability.

- **Water Chemistry Analyses.** Six sets of field duplicate and field blank samples were collected during the reporting period and analyzed for general chemistry and drinking water constituents. A comparison of the event samples, duplicate samples, and blank samples is tabulated in **Attachment 3**. A total of 156 duplicate analyses were completed and compared to the event sample results. Twenty nine duplicate samples exceeded the 25% relative percent difference (RPD) established in the QAPP for:

Ammonia	Bromide	Copper (diss)	Copper (tot)
E. Coli	Lead	Nickel	TKN
TSS	Turbidity	Zinc (total)	

  These exceedances of the field duplicate quality control criteria are reflective of the complicated nature of the site water and the naturally occurring variations of the stream water quality. Four of the results exceeding the RPD criteria were detected below the reporting limit (flagged “DNQ”) where small variations between the duplicate and event sample can result in relatively large RPD values. The Westside Coalition does not expect these variations to impact data usability.

  Six field blank sample sets were analyzed during the report period (156 results, total). Of these, none resulted in values greater than 20% of the event sample result.

- **Pesticide Analyses.** Six field duplicate and field blank samples sets were collected during the reporting period and analyzed for pesticides (315 and 307 results, respectively). There were no pesticide detections in any of the field blank samples. Calculated RPD for field duplicate results did not exceeded the 25% threshold for any analyte. The results of the field blank, field duplicate and event sample comparisons are tabulated in **Attachment 3**.

- **Aquatic Toxicity Analyses.** Field duplicate samples were collected and analyzed for toxicity to all species tested during the report period. The calculated RPD value was less than 25% in all cases.

- **Sediment Toxicity Analyses.** A field duplicate sample was collected for sediment toxicity during the March sampling event (Event 65). The measured RPD was 3.8%.

Completeness for sampling collection and analysis was reviewed for samples collected during this monitoring program. Completeness was measured for sample collection and transit, sample analysis, and field quality control samples.

- Collection and Transit: Completeness for this reporting period for sample collection and transit is 100%. No sample containers were lost or broken during this reporting period.

- Sample Analysis: Completeness for sample analysis during this reporting period is 100%. All collected samples were analyzed in accordance with the appropriate method.
- Field Quality Control Samples: Completeness for toxicity duplicate samples is 100% for this reporting period. The completeness for field blank and duplicate samples is 100% for both pesticide analyses and water chemistry samples.

SECTION 7: ANALYTICAL METHODS

Table 4 indicates the laboratories responsible for the analytical results of this monitoring program, the analytical method used, and the standard operating procedure (SOP) document number. This table reflects the constituents analyzed as part of the Revised MRP.

Chain of Custody (COC) sheets were maintained from the time of sample collection to receipt at the laboratories. Copies of the COC sheets are included in **Appendix A**, along with a summary of the data results. The data summary includes all of the field readings, analytical chemistry results, pesticide scan results, and toxicity screening test results. The original laboratory reports are included in **Appendix C**. These reports also include all of the field and internal quality control results.

The laboratory original data sheets (raw data) for the toxicity results are included in **Appendix C**, as part of the laboratory reports. Raw data for general physical results, drinking water results, and pesticide results are kept by the laboratories for a minimum of five years and are available upon request.

SECTION 8: DATA INTERPRETATION

The primary objective of the monitoring program is to identify water bodies that are adversely affected by agricultural discharges and to help determine the impacts of management activities. The monitoring program has used a combination of toxicity tests and pesticide analyses, along with close coordination among districts and growers to not only identify problem areas but also to determine the magnitude and cause of the problems. During this report period, toxicity analyses for all three species along with complete pesticide analyses and metals analyses were performed at each flowing site.

The Westside Coalition’s monitoring program includes 26 monitoring sites on the Westside of the San Joaquin Valley (see **Table 3** and **Figure 2**). These sites are representative of the various regions within the Coalition and include agricultural discharge sites, storm drainage sites, and irrigation source water sites. A summary of this data is presented in **Appendix A**, and the laboratory data reports are provided in **Appendix C**.

All of the analyzed parameters were reviewed regularly to evaluate the overall health of the water bodies within the Coalition area. This reporting period covered the 2011 irrigation season months, during which there was significant agricultural activity, including planting, cultivation, irrigation, and harvest. The vast majority of all agricultural discharges occur during the irrigation season. Statistically significant aquatic toxicity occurred eight times during three events: seven to *Ceriodaphnia dubia* and one to algae. All observations of aquatic toxicity are detailed in **Attachment 2**.

Ceriodaphnia dubia. Toxicity to *Ceriodaphnia dubia* was measured seven times during three events.

- Orestimba Creek at River Road – Event 77 (March 8th), 80% survival. Low levels of DDE were measured (0.0053 µg/L) but no other pesticides were detected. The cause of toxicity is not apparent.
- Little Panoche Creek at Western Boundary – Event 77 (March 23rd), 0% survival. No pesticides were detected in the sample, however sample salinity (EC = 10,211 µs/cm) exceeded the normal threshold of *Ceriodaphnia dubia*. A conductivity controlled TIE and dilution series confirmed that the level of dissolved solids in the sample was likely cause of toxicity. Because of the high level of salinity, the collected water was likely to be accreted shallow groundwater rather than agricultural runoff.
- San Joaquin River at Lander Avenue – Event 80 (June 14th), 20% survival. No pesticides were detected in the sample. A TIE was initiated on June 20th, however no toxicity was observed in the baseline nor any of the treatments. Given the lack of persistence in toxicity and the absence of any pesticide or other apparent cause, this was likely an anomaly.
- Poso Slough at Indiana Avenue – Event 82 (August 9th), 0% survival. A dilution series measured 2.8 toxic units and the TIE observed toxicity through all treatments. Chlorpyrifos was detected in this sample (1.3µg/L) at levels expected to cause complete mortality and is likely the cause of toxicity.
- Turner Slough at Edminster Road – Event 82 (August 9th), 55% survival. No pesticides were detected in the sample and the cause of toxicity is not apparent.
- Newman Wasteway near Hills Ferry Road – Event 82 (August 9th), 70% survival. No pesticides were detected in the sample and cause of toxicity is not apparent.
- Los Banos Creek at Highway 140 – Event 82 (August 9th), 70% survival. No pesticides were detected in the sample and the cause of toxicity was not apparent.

Selenastrum capricornutum (algae). Toxicity to algae was observed once at Little Panoche Creek at Western Boundary during Event 77 (March). Water collected from this site was saline (EC = 10,211 µs/cm) and was likely accreted groundwater rather than irrigation runoff. No pesticides were detected in the sample and the toxicity is most likely associated with the sample water salinity.

Pimephales Promelas (fathead minnow). No measurements of fathead minnow toxicity were observed during this reporting period.

Sediment Toxicity (*Hyalella azteca*). The Westside Coalition's MRP Order specifies that sediment sample collection should occur at the beginning of the irrigation season, between March 1st and April 30th [2]. Due to high water levels in many of the monitored water bodies, sediment collection was delayed until May 24th. Sixteen samples were collected (including one duplicate) and tested for toxicity to *Hyalella azteca*. Statistically significant toxicity was

[2] MRP Order No. R5-2008-0831, p. 16.

measured at six sites, of which three were sufficiently severe to require follow up pesticide analysis. **Table 9** lists the results for the sites exhibiting sediment toxicity. **Table 10** summarizes the detected pesticide data at those four sites. See **Appendix C** for the full laboratory report. **Table 11** shows the sediment toxicity results since March 2005.

Table 9: Sites Exhibiting Statistically Significant Toxicity to *Hyalella azteca.*

Site	Percent Survival
Hospital Creek at River Road*	8.75%
Ingram Creek at River Road*	16.3%
Del Puerto Creek at Cox Road	81.3%
Ramona Lake near Fig Avenue	92.5%
Salt Slough at Sand Dam*	78.8%
Poso Slough at Indiana Avenue	87.5%

* Sample analyzed for specific pesticides.

Table 10: Detected Pesticides in Sediment Samples (September 2011)

	Hospital Creek	Ingram Creek	Salt Sl. at Sand Dam
Sediment Toxicity (% survival)	8.75	16.25	78.75
Percent Solids (%)	97	88	94
Bifenthrin (µg/kg)	2	3.3	3.2
Chlorpyrifos (µg/kg)	4.1	ND	2.2
Cyfluthrin (µg/kg)	ND	ND	0.51
Cypermethrin (µg/kg)	ND	ND	ND
Es/Fenvalerate (µg/kg)	24.5	0.81	ND
Lambda-Cyhalothrin (µg/kg)	0.85	3.5	3.2
Permethrin (µg/kg)	ND	0.43	ND
Total Organic Carbon (mg/kg)	10,100	9,550	15,700

Details of the sediment pesticide analyses are in **Attachment 4.**

Table 11: Sediment Toxicity Results.

Site	May 11 % Survival	May 11 Toxicity (Y/N)	Sept 10 % Survival	Sept 10 Toxicity (Y/N)	March 10 % Survival	March 10 Toxicity (Y/N)	Sept 09 % Survival	Sept 09 Toxicity (Y/N)
Blewett Drain (Vernalis at hwy 132)	86.3	N						
Hospital Creek	8.75	**Y**	0	**Y**	77.5	**Y**	10	**Y**
Ingram Creek	16.3	**Y**	0	**Y**	35	**Y**	0	**Y**
Westley Wasteway	93.8	Y	41.2	**Y**	N/A	N/A	92.5	N
Del Puerto Creek (Cox Rd)	81.3	**Y**	0	**Y**	77.5	**Y**	13.8	**Y**
Del Puerto Creek (Hwy 33)	96.3	N	81.2	**Y**	92.5	N	N/A	N/A
Orestimba Creek at River Rd.	100	N	95	N	96.2	N	87.5	N
Orestimba Creek at Hwy 33	92.5	N	93.8	N	90	N	80	N
Ramona Lake at Fig Ave.	92.5	**Y**	92.5	N	93.8	N	92.5	N
Newman Wasteway			97.5	N	93.8	N	98.8	N
Poso Slough	87.5	**Y**						
Turner Slough	100	N						
SJR at Lander								
Salt Slough at Lander								
Salt Slough at Sand Dam	78.8	**Y**						
Los Banos Creek at Hwy 140	97.5	N						
Los Banos Creek at China Camp Rd.	96.3/100	N	98.8/96.2	N	95	N	96.2	N
Los Banos Creek at Sunset Ave.					96.2	N		
Mud Slough	96.3	N						

Site	Mar 09 % Survival	Mar 09 Toxicity (Y/N)	Sept 08 % Survival	Sept 08 Toxicity (Y/N)	Mar 08 % Survival	Mar 08 Toxicity (Y/N)	Sept 07 % Survival	Sept 07 Toxicity (Y/N)
Blewett Drain (Vernalis at hwy 132)	18.8	**Y**	16.2	**Y**				
Hospital Creek	0	**Y**	25	**Y**	80	**Y**	16.2	**Y**
Ingram Creek	18.8	**Y**	0	**Y**	2.5	**Y**	0	**Y**
Westley Wasteway	82.5	**Y**	1.25	**Y**	65	**Y**	0	**Y**
Del Puerto Creek (Cox Rd)	97.5	N	62.5	**Y**	N/A	N/A	93.8	N
Del Puerto Creek (Hwy 33)	97.5	N	N/A	N/A	N/A	N/A	58.8	**Y**
Orestimba Creek at River Rd.	91.2	**Y**	80	N	95	N	98.8	N
Orestimba Creek at Hwy 33	88.8	**Y**	92.5	N	90	N	95	N
Ramona Lake at Fig Ave.	97.5	N	98.8	N	68.8	**Y**	91.2	**Y**
Newman Wasteway	98.8	N	82.5	**Y**	97.5	N	51.2	**Y**
Poso Slough	N/A	N/A	72.5	**Y**	98.8	N		
Turner Slough							92.5	N
SJR at Lander							95	N
Salt Slough at Lander							86.2	N
Salt Slough at Sand Dam							92.5	N
Los Banos Creek at Hwy 140							87.5	N
Los Banos Creek at China Camp Rd.	97.5	N	87.5	**Y**	92.5	N	13.8	**Y**
Los Banos Creek at Sunset Ave.								
Mud Slough							90	N

Site	Mar 07 % Survival	Mar 07 Toxicity (Y/N)	Sep 06 % Survival	Sep 06 Toxicity (Y/N)	Mar 06 % Survival	Mar 06 Toxicity (Y/N)	Oct 05 % Survival	Oct 05 Toxicity (Y/N)
Blewett Drain (Vernalis at hwy 132)								
Hospital Creek	0	**Y**	**1.25**	**Y**	**82.5**	**Y**	**0**	**Y**
Ingram Creek	0	**Y**	**0**	**Y**	**23.8**	**Y**	**0**	**Y**
Westley Wasteway	0	**Y**	**1.25**	**Y**	**0**	**Y**	**0**	**Y**
Del Puerto Creek (Cox Rd)	81.2	**Y**	**55**	**Y**	**0**	**Y**	**1.3**	**Y**
Del Puerto Creek (Hwy 33)	91.2	**Y**	**1.25**	**Y**	**68.8**	**Y**	**0**	**Y**
Orestimba Creek at River Rd.	90	N	96.25	N	97.5	N	93.8	N
Orestimba Creek at Hwy 33	13.8	**Y**	**6.25**	**Y**	66.3	N	**32.5**	**Y**
Ramona Lake at Fig Ave.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Newman Wasteway	93.8	N	98.75	N	90	N	**76.3**	**Y**
Poso Slough								
Turner Slough	96.2	N	98.75	N	91.3	N	95	N
SJR at Lander	90	**Y**	95	N	N/A	N/A	97.5	N
Salt Slough at Lander	96.2	N	97.5	N	100	N	98.8	N
Salt Slough at Sand Dam	96.2	N	98.75	N	95	N	91.3	N
Los Banos Creek at Hwy 140	96.2	N	98.75	N	95	N	97.5	N
Los Banos Creek at China Camp Rd.	98.8	N	100	N	93.8	N	**91.3**	**Y**
Los Banos Creek at Sunset Ave.								
Mud Slough	96.2	N	100	N	98.8	N	97.5	N

Pesticide Analyses.

A total of fifteen different pesticides were detected in water samples during the 2011 irrigation season for a total of 113 detections. Forty one of these detections (36%) were below the reporting limit and 47 (42%) were legacy pesticides that are no longer in use (aldrin, DDT, DDE, dieldrin, and toxaphene). Each of the detected pesticides is discussed below.

- Aldrin (1 detection): Aldrin was a widely used organochlorine insecticide until its use was banned in the 1970's. It is no longer used in the United States.
- Carbaryl (1 detection): Carbaryl is a carbamate insecticide used to control insects on a variety of citrus and nut trees and fruit and fiber crops.
- Carbofuran (1 detection): Carbofuran is a carbamate insecticide used to control insects on a variety of field, fruit, and vegetable crops. All uses of carbofuran were banned in 2009.
- Chlorpyrifos (9 detections): Chlorpyrifos is a common organophosphate pesticide used to control a wide range of insects in orchards, pasture, and field crops. It can be used as a dormant spray for fruit and nut trees. Chlorpyrifos use during this reporting season likely occurred on field and forage crops (corn, cotton, alfalfa) in the fall and as dormant sprays on fruit and nut trees in the mid to late winter.
- DDT/DDE (6 DDT detections, 35 DDE detections): DDT is an organochlorine pesticide that was banned for agricultural use in 1972. It is a legacy pesticide that is still detected in the watershed at relatively low levels. DDE and DDD have no commercial use but are compounds normally associated with the degradation of DDT.
- Dieldrin (2 detections): Dieldrin is an orgaonchlorine insecticide that was used on a variety of field and orchard crops including cotton, corn, and citrus. Most uses of Dieldrin were banned in 1987.
- Dimethoate (6 detections): Dimethoate is an organophosphate pesticide used to control a wide range of insects. It is used on a variety of field crops including alfalfa, beans, tomatoes, and cotton.
- Diuron (29 detections): Diuron is a substitute urea herbicide used to control weeds in a variety of field crops including cotton, alfalfa, walnuts and wheat. It is also effective in controlling algae.
- Malathion (5 detections): Malathion is an organophosphate insecticide used on a variety of crops including alfalfa, walnuts, lettuce, grapes, and cotton.
- Methomyl (3 detections): Methomyl is a carbamate insecticide used to control a variety of pests on vegetable, fruit, and field crops.
- Methoxychlor (1 detection): Methoxychlor is an organochlorine insecticide that was used to control various nuisance pests (such as cockroaches and mosquitoes) and protect vegetables, fruits, ornamentals, and stored grain. Methoxychlor was banned by the U.S. EPA in 2003.
- Prowl (11 detections): Prowl is a herbicide used to control broadleaf and grassy weeds and is approved for a variety of crops including cotton, field corn, beans, rice, and vineyards.
- Simazine (1 detection): Simazine is a triazine herbicide used to control broadleaf weeds and annual grasses in a variety of field crops.
- Toxaphene (2 detections): Toxaphene was used as an insecticide to treat mange in cattle as well as to control pests in cotton and corn. Toxaphene was banned in the United States in 1986.

Exceedances of Recommended Water Quality Values.
Water chemistry analyses were compared to recommended water quality values[3] (RWQV). **Attachment 5** tabulates all of the RWQV exceedances for the reporting period by site.

- **Field, General Physical and Drinking Water Quality Exceedances.** Comparisons were made to several RWQVs. **Attachment 5** tabulates the results for these constituents and the comparison to the RWQVs. The Westside Coalition performed analyses or observed 3,600 field and chemistry (non-pesticide) parameters during the reporting period, during which, 229 (6%) results were greater than the RWQVs. Electrical conductivity and total dissolved solids (TDS) accounted for 54 and 53 of these exceedances (respectively, approximately 47% of the exceedances, combined). E. coli results accounted for 40 of these exceedances, 27 for boron and 14 for dissolved oxygen. The RWQV for cadmium, copper, lead, nickel, and zinc are dependant on site water hardness and is a calculated value. One exceedance of copper was measured during Event 81 (July) at Westley Wasteway (measured concentration of 8.9µg/L with a RWQV of 7µg/L). Potential causes for EC/TDS, E. coli, DO, and boron exceedances are discussed below.
    - **EC/TDS.** Electrical Conductivity and TDS are measures of the amount of salts dissolved in the water column. There are a variety of sources of salts that may be contributing to these results including natural marine sediments, accretion of shallow/perched ground water, and the irrigation source water. Additionally, the many growers to rely on wells to supplement surface water supplies. Most of the groundwater wells within the Westside Coalition are more saline than the surface water sources.
    - **E. coli.** E. coli is a measurement of bacteria in the water column. The Westside Coalition has participated in a study to attempt to identify the source of these exceedances. The preliminary results were not conclusive, however human sources were identified as the possible cause for at least some of the exceedances. There is also some suspicion that E. coli colonies have become self-sustaining within some watersheds. The Westside Coalition's Management Plan, approved November 18, 2008, discusses future activities related to the E. coli exceedances.
    - **Dissolved Oxygen.** DO is measured through a field probe at the time of sample collection. By it's nature, DO is a highly variable and influenced by a variety of conditions including sunlight exposure (related to time of day and time of year), turbidity, biological growth and decay, and channel turbulence. The cause of the DO exceedances measured during this report period is not immediately clear, in many cases, a low DO measurement is accompanied with no flow – indicating that the water is stagnant. As part of the Management Plan, the Westside Coalition has reviewed DO exceedances from historic data.
    - **Boron.** Boron is a metal element commonly found in soils on the Westside of the San Joaquin Valley. It is not applied by growers for any agricultural

[3] Water Quality Limits were provided by the Central Valley Regional Water Quality Control Board as part of the MRP Order. Water quality limits for cadmium, copper, lead, nickel and zinc are calculated from equations provided by the Central Valley Regional Water Quality Control Board.

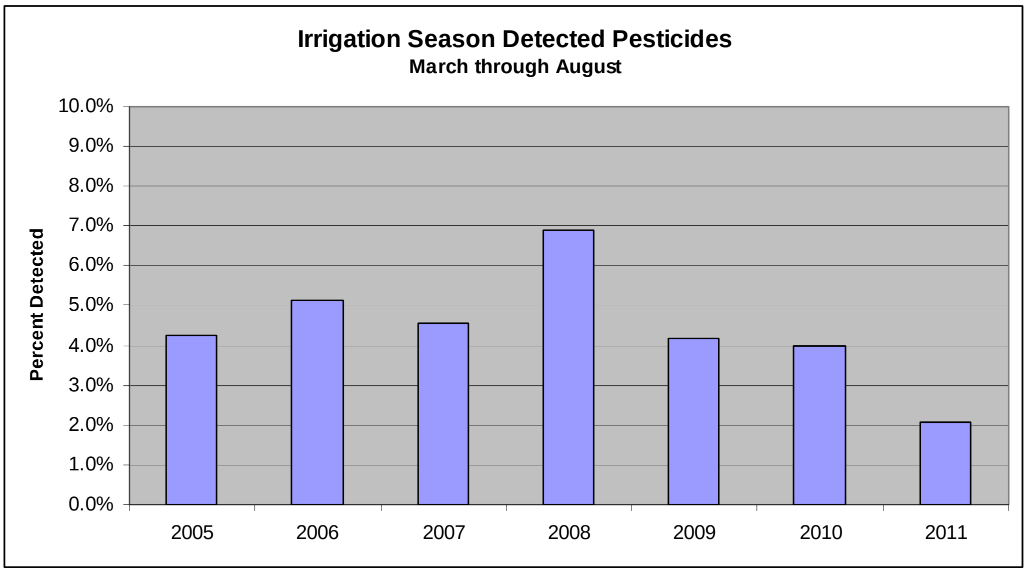
purpose but may be dissolved in tail water, storm runoff, subsurface flows, or groundwater supplies.

The number and type of field and general chemistry exceedances was not dramatically different than those of prior years.

- **Pesticide exceedances.** The Westside Coalition tested for more than 5,400 pesticides during the reporting period, 98% of which resulted in no detection. Of the detected pesticides (113), 63 were greater than established RWQVs. Of the 63 exceedances, 44 were caused by legacy pesticides (DDT, DDE, aldrin, and toxaphene), which are not currently in use. Of the remaining 19, nine were caused by chlorpyrifos, and five by diuron and five by malathion.

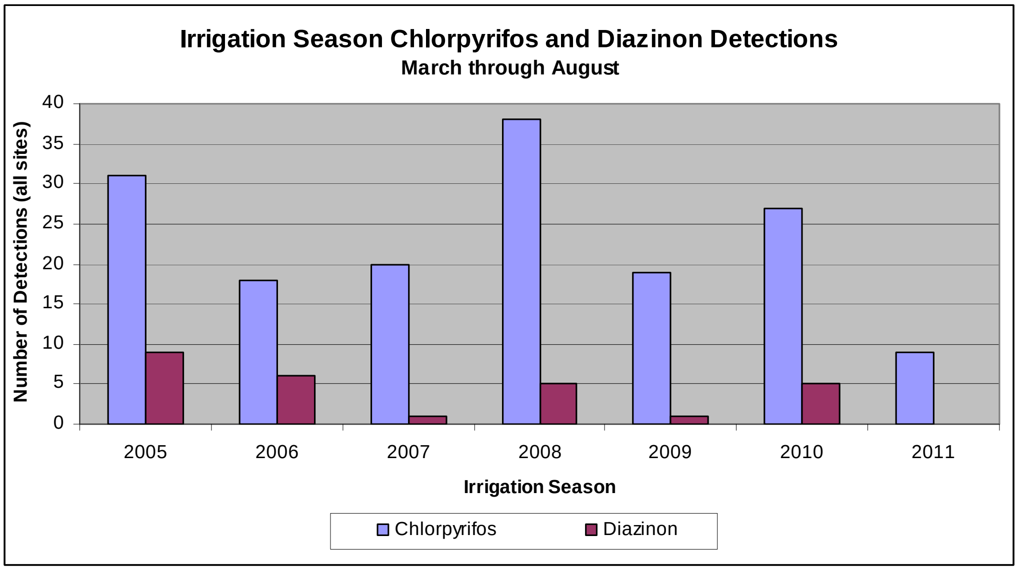
  As a fraction of the number of pesticide tests, there were significantly fewer pesticides detected during this reporting period when compared to previous irrigation seasons. **Figure 3** shows the percent of total pesticides detected in each irrigation season since 2005.

Figure 3: Percent of total pesticides detected.



Chlorpyrifos and Diazinon. In 2010, the Regional Board implemented a chlorpyrifos and diazinon TMDL on the San Joaquin River. In response to this TMDL, the Westside Coalition has increased its outreach efforts with additional grower workshops and individual grower meetings in regions with a history of chlorpyrifos or diazinon exceedances. These meetings emphasized the water quality issues related to these materials and management practices that could be implemented to reduce or eliminate discharge. During this reporting period there were no detections of diazinon and only nine detections of chlorpyrifos, which is a significant reduction compared to previous irrigation seasons. **Figure 4** shows the number of detections for both materials since the 2005 irrigation season.

Figure 4: Irrigation Season Chlorpyrifos and Diazinon Detections



SECTION 9: ACTIONS TAKEN TO ADDRESS WATER QUALITY IMPACTS – MANAGEMENT PLAN ACTIVITIES

In October 2008, the Westside Coalition submitted a Management Plan and Focused Watershed Plan (Focused Plan) which described the actions that would be taken to address the water quality issues identified by the monitoring program. The Management Plan described a general approach that covered all of the subwatersheds within the Westside Coalition. Focused Plans have been developed for specific issues within Hospital Creek, Ingram Creek, Del Puerto Creek, Westley Wasteway and Orestimba Creek and a draft Focused Plan for the Salt Slough watershed (including Poso Slough) has been submitted to the regional board. **Table 12** shows the implementation schedule listed in the Management Plan (see the Management Plan – General Approach, Table 4, October 23, 2008). In addition to these actions, the Westside Coalition reviews exceedances over the past three years to determine what modifications (if any) need to be made to the Management or Focused plans. A tally of exceedances from August 2008 through August 2011 is included in **Attachment 6**, along with a more detailed review of Management Plan activities.

Table 12: Management Plan Implementation Schedule

Item	Action	Affecting	Estimated Start	Estimated Completion
1	Continue monitoring program	All Categories	On-going	On-going
2	Develop and implement Focused Plan	Site-specific	July 2008	2013
3	Compile MP inventory	All Categories	Jan. 2009	Complete for FP1 and FP2, March 2013 for FP3
4	Develop subwatershed maps	All Categories	On-going	Jan. 2013
5	Determine regional pesticide application	Pesticides, aquatic toxicity	On-going	Annually updated
6	Continue participation in the Dissolved Oxygen study	Dissolved Oxygen	On-going	On-going
7	Analyze results of E. coli study and map/inventory potential sources	E. coli	Sept. 2007	Jan. 2010
8	Continue outreach and education efforts	All Categories	On-going	On-going
9	Analyze for correlation between low DO and other parameters	Dissolved Oxygen	Sept. 2008	June 2009
10	Continue participation in the Salinity TMDL Program	EC/TDS	On-going	On-going
11	Track changes in water quality	All Categories	On-going	On-going

1. Continue Monitoring Program.
This semi-annual monitoring report represents the 14th monitoring report submitted by the Westside Coalition since its inception in 2004. The monitoring program (as revised by the MRP Order) is designed to be a dynamic program that aggressively tracks known water quality issues and conducts broad assessment monitoring to identify new issues (see the MRP Order). The monitoring program is also designed to support the activities of the Management Plan and the Focused Watershed plans. The results of the monitoring program are reported twice annually (June and November). Beginning in March of 2011 (the start of this reporting period) the Westside Coalition has implemented assessment monitoring at all discharge sites, analyzing samples collected at these sites for the full spectrum of toxicity, pesticide, and general chemistry constituents as indicated in the MRP order. Assessment monitoring will continue through February of 2012.

2. Develop and Implement Focused Watershed Plan.
A Focused Plan for the Ingram and Hospital Creek watersheds was developed and submitted to the Regional Board on October 23, 2008 followed by a Focused Plan for the Westley Wasteway, Del Puerto Creek, and Orestimba Creek in February 2011. A draft Focused Plan for Salt Slough (including Poso Slough) was submitted to the Regional Board in September 2011. Since that time, the Westside Coalition has implemented a number of activities. A detailed update of the focused plan activities is included in **Attachment 6.**

3. Compile Management Practice Inventory.
A management plan survey for the Ingram and Hospital creek watersheds was completed in 2010 with a similar survey completed for Del Puerto Creek, Westley Wasteway, and Orestimba Creek completed in the Spring of 2011, the results of which were reported in the June 2011 SAMR. A

management practice survey for Salt Slough has been developed and circulated (results are pending). See **Attachment 6**.

4. Develop Subwatershed Maps.
The Westside Coalition submitted subwatershed maps for the major watersheds within its boundaries in 2008. These maps were based on known drainage patterns and available mapping information. As part of the focused plans, the Westside Coalition collected highly detailed drainage information on the Ingram and Hospital creek subwatersheds. Draft maps for the Westley Wasteway, Del Puerto Creek, Orestimba Creek, and Salt Slough subwatersheds have been developed and will be updated as more detailed information becomes available. **See Attachment 6**.

5. Determine Regional Pesticide Use.
Pesticide use report data is collected from the agricultural commissioners in the various counties occupied by the Westside Coalition. Data for the complete 2011 irrigation season is not available and use trends from the previous season was used to develop the data presented in **Tables 7** and **8** and **Figure 3** of this report. In addition to general trends analysis, specific regional pesticide use data is periodically reviewed to attempt to compare with pesticide detections through the monitoring program. Limitations with pesticide use reporting data completeness and availability limit the usefulness of this data for that purpose.

6. Continue Participation in the Dissolved Oxygen Study.
On January 27, 2005 the Central Valley Regional Water Quality Control Board adopted Resolution R5-2005-0005 which included a TMDL directed to the point and non-point discharges that contribute to the dissolved oxygen impairment in the Stockton deepwater Ship Channel (DO TMDL). As part of the DO TMDL certain studies were required. The San Joaquin Valley Drainage Authority received funds from the State Water Resources Control Board to undertake these studies (Recipient Agreement ERP-02D-P63). These studies were completed in June of 2008. The project established a series of monitoring stations, developed a DO model, characterized the fate of algae and nutrients, developed linkages between flow, algae, nutrients and dissolved oxygen. Additional studies were proposed to connect the results of this effort to downstream impacts. This work is ongoing. The Westside Coalition has maintained the monitoring sites within boundaries of the Westside Coalition to maintain the data availability. The Westside Coalition also is prepared to continue to participate in the DO TMDL as further actions are developed. The SJVDA is currently participating with other stakeholders to provide funding for operation of the aerator installed by the Department of Water Resources. A funbdign agreement is anticipated to be completed within the next few months.

7. Analyze results of E. coli study and map/inventory potential sources.
In 2007 the Westside Coalition, along with other coalitions, participated in a study to help determine the possible cause of various E. coli exceedances. Although the study was not completely conclusive, it indicated that the majority of E. coli bacteria were likely human in origin. As part of the focused plan, the management practice inventory surveys will collect information on manure usage and locations of known septic systems. The Westside Coalition is also in the process of mapping rural residences and other buildings. Draft copies of the Hospital Creek, Ingram Creek, Del Puerto Creek, Westley Wasteway, and Orestimba Creek

subwatersheds, showing known buildings and residences are included in **Attachment 6.** As shown on the maps, all five subwatersheds include many homes and other buildings which may contribute to E. coli detections through leaking septic tanks.

Additionally, the Westside Coalition reviewed collected data on E. coli results for the period of 2008 through 2010 for all sites and provided a summary of this data in the November 2010 SAMR. Currently there is insufficient data to suggest any real trend or source for E. coli.

8. Continue Reporting and Outreach.

Coalition outreach during this period consisted of a Pest Control Advisors / Certified Crop Advisor meetings, monthly updates to the Westside Coalition management committee and one on one meetings with coalition members. A Coalition update newsletter written for an August 2011 grower meeting was also distributed at the meeting. Outreach was conducted per the tabulation in **Table 13**.

As a result of several chlorpyrifos detections in the Northerly Region during the May sampling event, the Westside Coalition implemented an aggressive outreach program which included one-on-one grower visits within the subwatersheds associated with the detections and circulation of a letter to all landowners within those regions (included in **Attachment 6**). Almost 150 parcels were surveyed covering more than 7,400 acres within the coalition. These meetings covered the recent chlorpyrifos detections and reviewed each growers management practices.

Outreach this period includeed our normal group outreach meeting as well as focused individual meetings. In addition notices and certified letters were sent out to focus efforts on certain areas. These mailings includeed letters from the Regional Board and management practice information sheets as to what should be done to correct the problems

Table 13 lists the general grower and individual landowner outreach meetings held in the reporting period for Ingram, Hospital, Orestimba, Del Puerto Creeks watersheds and local stakeholder meetings where Coalition information/updates were provided by Westside Coalition Staff and CURES.

Table 13: Outreach Meetings.

Date	Group	Location	Description	Attended	By
3/29/11	CCID Landowners Meeting	Firebaugh	Dos Palos Area Update	85	Dave Cory gave presentation
3/30/11	CCID Landowners Meeting	Los Banos	Los Banos Area Update	160	Dave Cory gave presentation
3/31/11	CCID Landowners Meeting	Gustine	Patterson Area Update	160	Dave Cory gave presentation
May 2011	Del Puerto Creek Growers	Field	BMPs	1	Rich Peltzer
6/1/2011	Westley Spring Outreach Meeting	Westley	Districts mailed invitations	30	JCM, Parry, RWQCB

Table 13: Outreach Meetings (Continued).

Date	Group	Location	Description	Attended	By
6/10/11	Exceedance Notice	Notice	Districts distributed	40	Notice
July 2011	Ingram Creek Growers	Field	BMPs	2	Rich Peltzer
July 2011	Hospital Creek Growers	Field	BMPs	5	Rich Peltzer
7/18/11	Certified Letter to northerly watersheds	Letter	Chlorpyrifos exceedances	80	Letter
7/20/11	Patterson Westside Farms	Field	Discussion of Chlorpyrifos exceedances	1	Rich Peltzer
7/20/11	Crowe Farms	Field	Discussion of Chlorpyrifos exceedances	1	Rich Peltzer
August 2011	Hospital Creek Growers	Field	BMPs	5	Rich Peltzer
August 2011	Ingram Creek Growers	Field	BMPs	2	Rich Peltzer
August 2011	Marshall Road Drain Growers	Field	BMPs	16	Rich Peltzer
August 2011	Orestimba Creek Growers	Field	BMPs	5	Rich Peltzer
August 2011	Del Puerto Creek Growers	Field	BMPs	11	Rich Peltzer
August 2011	Ramona Lake Growers	Field	BMPs	4	Rich Peltzer
8/8/2011	Orestimba Creek Watershed	Field	Sediment Exceedances	6	Rich Peltzer
8/10/2011	Salt Slough Outreach Meeting	Dos Palos	SLCC and CCID sent invitations	25	JCM, Rich Peltzer gave present.
8/23/2011	Ingram/Hospital Creek Watersheds	Field	Discussion of Chlorpyrifos exceedances	5	Rich Peltzer

In both general grower workshops and individual member meetings, landowners and operators with irrigation drainage are encouraged to adopt practices to protect surface water that include a number of options based on their crop and farming conditions. Those practices include irrigation drainage return systems, sediment ponds for containing irrigation drainage, managed vegetation in drainage ditches and use of PAM in irrigation water. The Coalition has collaborated with work in priority watersheds also continued in the reporting period with continuation of mapping parcels adjacent to Ingram, Hospital and Orestimba Creeks, identifying crops grown in the watersheds and scheduling individual meetings with growers who may have used pesticides associated with the exceedances in the waterways. A number of growers with parcels along Ingram and Hospital Creeks were contacted and scheduled for individual meetings that began in March 2010 and continue into 2011. In preparation for the meetings, pesticide use information from the Stanislaus County Agricultural Commissioners office is compiled and examined to see if use reports could be correlated to exceedances in the waterways. Due to the method of reporting pesticide applications based on Township, Section and Range (TSR) versus Assessor Parcels Numbers (APN) used to identify member parcels, exact correlations were not possible in many cases. However, the effort enables the Coalition to focus its resources on identifying the sources of agricultural discharge within the priority subwatersheds that could lead to water quality impairments.

Grant Funding

The Westside Coalition continued to offer private grant funding in 2011 to its members totaling more $30,000 for construction of new tailwater silt ponds or to maintain existing ponds. The program funds 75% of the costs of any single project, up to a maximum of $6,000 per project.

Proposition 84 has also been made available in 2011 a program managed by CURES and funded by the State Water Resources Control Board. Information on the grant funding availability has been communicated during the reporting period to landowners and operators through direct mailings, grower group meetings and individual contacts with landowners. A letter was sent in April 2011 to landowners with property along the Westside Coalitions priority watersheds (Ingram, Hospital, Orestimba and Del Puerto Creeks) regarding availability of Proposition 84 grant funds. The letters were mailed or hand delivered by irrigation districts encompassing the four watersheds.

The Proposition 84 program provides funding for projects in the Central Valley. Outreach by CURES was focused on landowners with fields along waterways with management plans in place by the local watershed coalition and located in the northern San Joaquin Valley, San Joaquin County/Sacramento Rivers Delta and southern Sacramento Valley. Applications were accepted until the July 1, 2011 deadline. Of the 41 applications received by CURES, 12 were submitted by members of the Westside Coalitions and had irrigation drainage into one of the following waterways: Hospital Creek, Ingram Creek, Orestimba Creek or the San Joaquin River. The payment rate is 50% of the total cost of the project and is paid at project completion (reimbursement of expenses). Several projects are in combination with NRCS funding. Priority for the funding was be given to fields located in watersheds with existing Management Plans (those listed above) that have frequent irrigation or storm water drainage. The projects selected for funding are for installing drip or micro sprinkler irrigation systems in row crops or orchards. Most project construction is expected to be completed in winter 2011 or spring 2012.

9. Analyze for Correlation Between Low DO and Other Parameters.

The Westside Coalition has performed a preliminary review of the low DO measurements and other data. A summary of this review was included in the November 2009 Semi-Annual Monitoring Report.

10. Continue Participation in the Salinity TMDL Program.

The Westside Coalition is actively engaged in the Central Valley Salinity Alternatives for Long-term Sustainability (CVSALTS) process and is an active member of the Central Valley Salinity Coalition that has been organized to facilitate the funding of the CVSALT effort. The Coalition's participation includes both monetary contributions and a substantial commitment of staff time.

Specific actions by the Westside Coalition to support the CVSALT efforts include: (1) Coalition representative's consistent participation in the CVSALT committees and sub-committees including serving as chair of the Economic and Social Impact Committee. (2) Consistent participation and economic contributions to the Central Valley Salinity Coalition, including representative serving as president of the CV Salinity Coalition. In addition the San Joaquin Valley Drainage Authority is providing contracting and contract administration services for the CVSALT effort. The Westside Coalition has committed to substantial resources to help ensure that the CVSALT effort results in an effective and efficient salinity management program for the Central Valley.

11. Track Changes in Water Quality.
Water quality changes are tracked through the Westside Coalition's monitoring program (see the MRP Order). Water quality data is reported and summarized twice annually.

Other Activities.

- **Conversion to high efficiency irrigation systems:** Several of the districts within the Westside Coalition have implemented grant and loan programs to assist growers in upgrading their irrigation systems, and at least 6,000 acre of high efficiency systems came on-line during the 2011 irrigation season within the Westside Coalition.

Monitoring Results:
Data gathered since the inception of the monitoring program has allowed the Westside Coalition to identify problem areas and issues. Details of sites exhibiting significant toxicity during this monitoring period are included in **Attachment 2** and all results that exceeded RWQVs are included in **Attachment 5**. This information, along with results from previous years will be used as talking points during upcoming grower meetings to outline the problem issues and sites. The Management Plan and Focused Watershed Plan also outline approaches that will be implemented to address the highlighted issues. A number of preliminary conclusions can be made from the data collected so far:

- **Sediment Toxicity:** Sediment toxicity tests were performed on 15 samples collected in May (Event 79). Statistically significant toxicity was measured at six sites (See **Tables 10** and **11**), however, only two of the five sites measured sever toxicity (survival less than 50%) with the other three sites measuring survival greater than 75%. Samples from Hospital Creek (8.75% survival), Ingram Creek (16.3% survival) and Salt Slough at Sand Dam (78.8% survival) were tested for a variety of pesticides as well as total organic carbon (TOC) and percent solids, the results of which were compared to literature values for the purpose of determining the probable cause of toxicity in each sample.

  - Hospital Creek: The likely cause of toxicity was esfenvalerate (1.53 toxic units). Other detected pesticides, including bifenthrin (0.37 toxic units), chlorpyrifos (0.22 toxic units) and lambda-cyhalothrin (0.18 toxic units) likely contributed to the toxicity.
  - Ingram Creek: The likely causes of toxicity were lambda-cyhalothrin (0.72 toxic units) and bifenthrin (0.58 toxic units). Chlorpyrifos was also detected (0.22 toxic units) and may have contributed to the toxicity. Other detected pesticides had low toxic units and would have a negligible effect on sample toxicity.

- Salt Slough at Sand Dam: likely causes of toxicity were bifenthrin (0.37 toxic units) and lambda-cyhalothrin (0.43 toxic units). Other detected pesticides (including chlorpyrifos) had low toxic units and would have a negligible effect on sample toxicity.

Lambda-cyhalothrin and bifenthrin are pyrethroids used on a variety of crops and are also common in commercial and residential applications. Pesticide use data for Stanislaus County (2010 irrigation season) show several applications of lambda-cyhalothrin within the four affected subwatersheds for a variety of crops including: alfalfa, apricots, almonds, tomatoes, and walnuts. There were several reported applications of binfenthrin on almonds and melons within the Ingram Creek, Hospital Creek, and Salt Slough subwatersheds for the 2010 irrigation season. Esfenvalerate is a pyrethroid used on a variety of fruit and nut crops. There were several reported applications of esfenvalerate within the Hospital Creek subwatershed during the 2010 irrigation season for tomatoes, almonds, and walnuts. Note that 2011 irrigation season pesticide use data is not available and these reported uses may not reflect actual 2011 applications.

The Westside Coalition believes the best way to reduce sediment toxicity will be through the management of sediment discharges at the farm level. Sedimentation ponds and tailwater return ponds, along with grower awareness of the issue will likely reduce the amount of sediment load leaving the farm and depositing in the waterways. The Coalition's Management Plan and Focused Watershed Plan include management approaches to address sediment toxicity.

Figure 5: Spring Sediment Toxicity Measurements

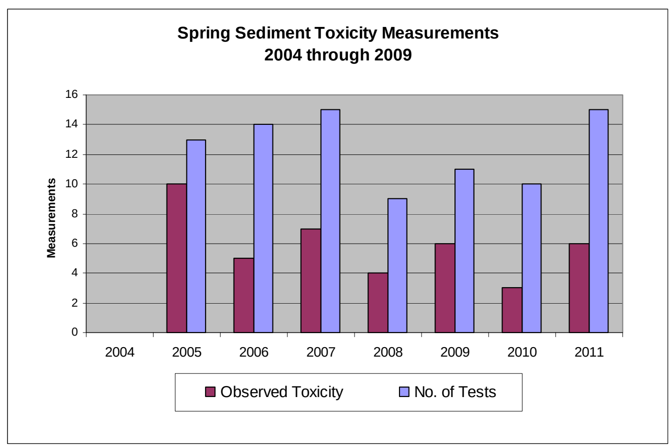


Figure 5 shows the number statistically significant observations during the Spring sediment sampling. The Spring 2011 sediment results did not show a dramatic change in the number of sites with observed toxicity from the previous three years.

- **Aquatic Toxicity:** Because assessment monitoring was implemented during this report period, samples collected at each discharge site were tested for aquatic toxicity to *Ceriodaphnia dubia*, fathead minnow, and algae in accordance with the MRP Order. A total of 347 aquatic toxicity tests were performed, including 18 field duplicates (compared to 142 for the previous year). A total of eight incidences of statistically significant toxicity were observed during the irrigation season – seven for *Ceriodaphnia dubia* and one for algae. **Attachment 2** provides monitoring results for all of the sites that measured significant toxicity, including a discussion of the TIE and dilution series findings.

- **Pesticide Analyses:** During this reporting period, total of fifteen different pesticides were detected for a total of 113 detections. Sixty three of these detections exceeded the established RWQV, however 70% of these exceedances were caused by legacy pesticides like DDT. During this report period, aquatic toxicity was observed eight times and only one observation was linked to a pesticide.

- **Chlorpyrifos and Diazinon TMDL Program.** In addition to its monthly monitoring program, the Westside Coalition also participates in the San Joaquin River Chlorpyrifos and Diazinon TMDL program. The Westside Coalition collects water samples for chlorpyrifos and diazinon analysis at the San Joaquin River at Sack Dam, Lander Avenue, and Las Palmas Avenue (near the PID pumps) and collaborates with the Eastside Coalition in the development of the TMDL monitoring report and outreach activities. During this reporting period, chlorpyrifos was not detected at any of the San Joaquin River monitoring sites sampled by the Westside Coalition.

- **General Chemistry and Field Observations:** The monitoring results for field and general chemistry tests were generally similar to previous irrigation seasons. EC/TDS measured the largest number of exceedances for this reporting period (67 and 71 exceedances, respectively). Bacteria continues to be a leading source of exceedances (54 for E. Coli during this period). Other constituent exceedances include dissolved oxygen (9 exceedances), and boron (11 exceedances). Dissolved cadmium, copper, lead, nickel, and zinc results were compared to the calculated RWQV (based on site water hardness) and no exceedances was measured during this reporting period. With many of these constituents, the source of the exceedance is neither clear nor easily traceable, and often can be found in the source water itself (such as the San Joaquin River at Sack Dam or the Delta-Mendota Canal).

SECTION 10: COMMUNICATION REPORTS

Exceedance reports were submitted to the Central Valley Regional Water Quality Control Board in response to monitoring results for the reporting period. These reports are included in **Appendix B.**

Follow-up included reporting statistically significant toxic events and exceedences of water quality values to the overlying districts, PCA's and to individual Coalition participants. The districts would then communicate with the affected growers to notify them that there is a problem. Meetings are then to be organized at the Coalition level as required to inform landowners, operators, PCA's, chemical applicators and others on monitoring results and likely best management measures that could be undertaken to minimize these problems (see **Table 15**).

SECTION 11: CONCLUSIONS AND RECOMMENDATIONS

The Westside Coalition's monitoring program has identified constituents of concern (see **Attachments 2** and **5**). The Westside Coalition has submitted a Management Plan and Focused Watershed Plan to address the water quality concerns discovered by previous monitoring. Implementation of these plans has begun.

The Westside Coalition monitoring program has accumulated data from 82 regular monitoring events and 12 rain events. Data from this reporting period has verified previously identified water quality issues but has also showed some indications of an improving trend in water quality (see **Section 9**). As part of the Management Plan submitted in 2008, the Westside Coalition developed a tally of exceedances by constituent for the data collected between July 2004 through August 2007 (approximately three years). In comparison with the same sites over the most recent three year period (September 2008 through August 2011), there are some promising improvements:

- Chlorpyrifos exceedances reduced by 12 and diazinon exceedances reduced by 8. Over the most recent three year period, only one diazinon exceedance have been measured.
- Measurement of sediment toxicity reduced by 12.
- E. coli exceedances reduced by 94.

A complete tally of exceedances by site and constituent is included in **Attachment 6**.

Attachment 1
Sampling Event Details

Event 77 March, 2011	Map Desig.	Caltest Gen Phy	Caltest Drnk Wtr	APPL Pest	PER Sed Tox	PER CD Tox	PER PP Tox	PER SC Tox	Dup?
Hospital Cr at River Road	HCARR	**No Flow**							
Ingram Cr at River Road	ICARR	**No Flow**							
Westley Wasteway near Cox Road	WWNCR	x	x	x		x	x	x	
Del Puerto Cr near Cox Road	DPCCR	**No Flow**							
Del Puerto Cr at Hwy 33	DPCHW	x	x	x		x	x	x	
Ramona Lake near Fig Avenue	ROLFA	**No Flow**							
Marshall Road Drain near River Road	MRDRR	**No Flow**							
Orestimba Cr at River Road	OCARR	x	x	x		x	x	x	
Orestimba Cr at Hwy 33	OCAHW	x	x	x		x	x	x	
Newman Wasteway near Hills Ferry Road	NWHFR	x	x	x		x	x	x	
San Joaquin River at Lander Avenue	SJRLA	x	x	x		x	x	x	
Mud Slough u/s San Luis Drain	MSUSL	x	x	x		x	x	x	
Salt Slough at Lander Avenue	SSALA	x	x	x		x	x	x	x
Salt Slough at Sand Dam	SSASD	x	x	x		x	x	x	
Los Banos Creek at Highway 140	LBCHW	x	x	x		x	x	x	
Los Banos Creek at China Camp Road	LBCCC	x	x	x		x	x	x	
Turner Slough near Edminster Road	TSAER	x	x	x		x	x	x	
Blewett Drain near Highway 132	VH132	**No Flow**							
Poso Slough at Indiana Avenue	PSAIA	x	x	x		x	x	x	
Los Banos Creek at Sunset Ave	LBCSA	**No Flow**							
Little Panoche Cr at Western Boundary	LPCWB	x	x	x		x	x	x	
Little Panoche Cr at San Luis Canal	LPCSL	**No Flow**							
Russell Ave. Drain at San Luis Canal	RADSL	**No Flow**							
San Joaquin River at Sack Dam	SJRSD	x	x	x					
San Joaquin River at PID Pumps	SJRPP	x	x	x					
Delta Mendota Canal at Del Puerto WD	DMCDP	x	x	x					

Event 78 April, 2011	Map Desig.	Caltest Gen Phy	Caltest Drnk Wtr	APPL Pest	PER Sed Tox	PER CD Tox	PER PP Tox	PER SC Tox	Dup?
Hospital Cr at River Road	HCARR	x	x	x		x	x	x	
Ingram Cr at River Road	ICARR	x	x	x		x	x	x	
Westley Wasteway near Cox Road	WWNCR	x	x	x		x	x	x	
Del Puerto Cr near Cox Road	DPCCR	x	x	x		x	x	x	
Del Puerto Cr at Hwy 33	DPCHW	x	x	x		x	x	x	
Ramona Lake near Fig Avenue	ROLFA	x	x	x		x	x	x	
Marshall Road Drain near River Road	MRDRR	x	x	x		x	x	x	
Orestimba Cr at River Road	OCARR	x	x	x		x	x	x	
Orestimba Cr at Hwy 33	OCAHW	x	x	x		x	x	x	
Newman Wasteway near Hills Ferry Road	NWHFR	x	x	x		x	x	x	
San Joaquin River at Lander Avenue	SJRLA	x	x	x		x	x	x	
Mud Slough u/s San Luis Drain	MSUSL	x	x	x		x	x	x	
Salt Slough at Lander Avenue	SSALA	x	x	x		x	x	x	x
Salt Slough at Sand Dam	SSASD	x	x	x		x	x	x	
Los Banos Creek at Highway 140	LBCHW	x	x	x		x	x	x	
Los Banos Creek at China Camp Road	LBCCC	x	x	x		x	x	x	
Turner Slough near Edminster Road	TSAER	x	x	x		x	x	x	
Blewett Drain near Highway 132	VH132	x	x	x		x	x	x	
Poso Slough at Indiana Avenue	PSAIA	x	x	x		x	x	x	
Los Banos Creek at Sunset Ave	LBCSA	**No Flow**							
Little Panoche Cr at Western Boundary	LPCWB	**No Flow**							
Little Panoche Cr at San Luis Canal	LPCSL	**No Flow**							
Russell Ave. Drain at San Luis Canal	RADSL	**No Flow**							
San Joaquin River at Sack Dam	SJRSD	x	x	x					
San Joaquin River at PID Pumps	SJRPP	x	x	x					
Delta Mendota Canal at Del Puerto WD	DMCDP	x	x	x					

Event 79 May, 2011	Map Desig.	Caltest Gen Phy	Caltest Drnk Wtr	APPL Pest	PER Sed Tox	PER CD Tox	PER PP Tox	PER SC Tox	Dup?
Hospital Cr at River Road	HCARR	**No Flow**			x				
Ingram Cr at River Road	ICARR	x	x	x	x	x	x	x	
Westley Wasteway near Cox Road	WWNCR	x	x	x	x	x	x	x	
Del Puerto Cr near Cox Road	DPCCR	x	x	x	x	x	x	x	
Del Puerto Cr at Hwy 33	DPCHW	**No Flow**			x				
Ramona Lake near Fig Avenue	ROLFA	x	x	x	x	x	x	x	
Marshall Road Drain near River Road	MRDRR	x	x	x		x	x	x	
Orestimba Cr at River Road	OCARR	x	x	x	x	x	x	x	
Orestimba Cr at Hwy 33	OCAHW	x	x	x	x	x	x	x	
Newman Wasteway near Hills Ferry Road	NWHFR	x	x	x		x	x	x	
San Joaquin River at Lander Avenue	SJRLA	x	x	x		x	x	x	
Mud Slough u/s San Luis Drain	MSUSL	x	x	x	x	x	x	x	
Salt Slough at Lander Avenue	SSALA	x	x	x		x	x	x	x
Salt Slough at Sand Dam	SSASD	x	x	x	x	x	x	x	
Los Banos Creek at Highway 140	LBCHW	x	x	x	x	x	x	x	
Los Banos Creek at China Camp Road	LBCCC	x	x	x	x	x	x	x	
Turner Slough near Edminster Road	TSAER	x	x	x	x	x	x	x	
Blewett Drain near Highway 132	VH132	x	x	x	x	x	x	x	
Poso Slough at Indiana Avenue	PSAIA	x	x	x	x	x	x	x	
Los Banos Creek at Sunset Ave	LBCSA	**No Flow**							
Little Panoche Cr at Western Boundary	LPCWB	**No Flow**							
Little Panoche Cr at San Luis Canal	LPCSL	**No Flow**							
Russell Ave. Drain at San Luis Canal	RADSL	**No Flow**							
San Joaquin River at Sack Dam	SJRSD	x	x	x					
San Joaquin River at PID Pumps	SJRPP	x	x	x					
Delta Mendota Canal at Del Puerto WD	DMCDP	x	x	x					

Event 80 June, 2011	Map Desig.	Caltest Gen Phy	Caltest Drnk Wtr	APPL Pest	PER Sed Tox	PER CD Tox	PER PP Tox	PER SC Tox	Dup?
Hospital Cr at River Road	HCARR	**No Flow**							
Ingram Cr at River Road	ICARR	x	x	x		x	x	x	
Westley Wasteway near Cox Road	WWNCR	x	x	x		x	x	x	
Del Puerto Cr near Cox Road	DPCCR	x	x	x		x	x	x	
Del Puerto Cr at Hwy 33	DPCHW	**No Flow**							
Ramona Lake near Fig Avenue	ROLFA	x	x	x		x	x	x	
Marshall Road Drain near River Road	MRDRR	x	x	x		x	x	x	
Orestimba Cr at River Road	OCARR	x	x	x		x	x	x	
Orestimba Cr at Hwy 33	OCAHW	x	x	x		x	x	x	
Newman Wasteway near Hills Ferry Road	NWHFR	x	x	x		x	x	x	
San Joaquin River at Lander Avenue	SJRLA	x	x	x		x	x	x	
Mud Slough u/s San Luis Drain	MSUSL	x	x	x		x	x	x	
Salt Slough at Lander Avenue	SSALA	x	x	x		x	x	x	x
Salt Slough at Sand Dam	SSASD	x	x	x		x	x	x	
Los Banos Creek at Highway 140	LBCHW	x	x	x		x	x	x	
Los Banos Creek at China Camp Road	LBCCC	x	x	x		x	x	x	
Turner Slough near Edminster Road	TSAER	x	x	x		x	x	x	
Blewett Drain near Highway 132	VH132	x	x	x		x	x	x	
Poso Slough at Indiana Avenue	PSAIA	x	x	x		x	x	x	
Los Banos Creek at Sunset Ave	LBCSA	**No Flow**							
Little Panoche Cr at Western Boundary	LPCWB	**No Flow**							
Little Panoche Cr at San Luis Canal	LPCSL	**No Flow**							
Russell Ave. Drain at San Luis Canal	RADSL	**No Flow**							
San Joaquin River at Sack Dam	SJRSD	x	x	x					
San Joaquin River at PID Pumps	SJRPP	x	x	x					
Delta Mendota Canal at Del Puerto WD	DMCDP	x	x	x					

Event 81 July, 2011	Map Desig.	Caltest Gen Phy	Caltest Drnk Wtr	APPL Pest	PER Sed Tox	PER CD Tox	PER PP Tox	PER SC Tox	Dup?
Hospital Cr at River Road	HCARR	x	x	x		x	x	x	
Ingram Cr at River Road	ICARR	x	x	x		x	x	x	
Westley Wasteway near Cox Road	WWNCR	x	x	x		x	x	x	
Del Puerto Cr near Cox Road	DPCCR	x	x	x		x	x	x	
Del Puerto Cr at Hwy 33	DPCHW	**No Flow**							
Ramona Lake near Fig Avenue	ROLFA	x	x	x		x	x	x	
Marshall Road Drain near River Road	MRDRR	x	x	x		x	x	x	
Orestimba Cr at River Road	OCARR	x	x	x		x	x	x	
Orestimba Cr at Hwy 33	OCAHW	x	x	x		x	x	x	
Newman Wasteway near Hills Ferry Road	NWHFR	x	x	x		x	x	x	
San Joaquin River at Lander Avenue	SJRLA	x	x	x		x	x	x	
Mud Slough u/s San Luis Drain	MSUSL	x	x	x		x	x	x	
Salt Slough at Lander Avenue	SSALA	x	x	x		x	x	x	x
Salt Slough at Sand Dam	SSASD	x	x	x		x	x	x	
Los Banos Creek at Highway 140	LBCHW	x	x	x		x	x	x	
Los Banos Creek at China Camp Road	LBCCC	x	x	x		x	x	x	
Turner Slough near Edminster Road	TSAER	x	x	x		x	x	x	
Blewett Drain near Highway 132	VH132	x	x	x		x	x	x	
Poso Slough at Indiana Avenue	PSAIA	x	x	x		x	x	x	
Los Banos Creek at Sunset Ave	LBCSA	**No Flow**							
Little Panoche Cr at Western Boundary	LPCWB	**No Flow**							
Little Panoche Cr at San Luis Canal	LPCSL	**No Flow**							
Russell Ave. Drain at San Luis Canal	RADSL	**No Flow**							
San Joaquin River at Sack Dam	SJRSD	x	x	x					
San Joaquin River at PID Pumps	SJRPP	x	x	x					
Delta Mendota Canal at Del Puerto WD	DMCDP	x	x	x					

Event 82 August, 2011	Map Desig.	Caltest Gen Phy	Caltest Drnk Wtr	APPL Pest	PER Sed Tox	PER CD Tox	PER PP Tox	PER SC Tox	Dup?
Hospital Cr at River Road	HCARR	x	x	x		x	x	x	
Ingram Cr at River Road	ICARR	x	x	x		x	x	x	
Westley Wasteway near Cox Road	WWNCR	x	x	x		x	x	x	
Del Puerto Cr near Cox Road	DPCCR	x	x	x		x	x	x	
Del Puerto Cr at Hwy 33	DPCHW	**No Flow**							
Ramona Lake near Fig Avenue	ROLFA	x	x	x		x	x	x	
Marshall Road Drain near River Road	MRDRR	x	x	x		x	x	x	
Orestimba Cr at River Road	OCARR	x	x	x		x	x	x	
Orestimba Cr at Hwy 33	OCAHW	x	x	x		x	x	x	
Newman Wasteway near Hills Ferry Road	NWHFR	x	x	x		x	x	x	
San Joaquin River at Lander Avenue	SJRLA	x	x	x		x	x	x	
Mud Slough u/s San Luis Drain	MSUSL	x	x	x		x	x	x	
Salt Slough at Lander Avenue	SSALA	x	x	x		x	x	x	x
Salt Slough at Sand Dam	SSASD	x	x	x		x	x	x	
Los Banos Creek at Highway 140	LBCHW	x	x	x		x	x	x	
Los Banos Creek at China Camp Road	LBCCC	x	x	x		x	x	x	
Turner Slough near Edminster Road	TSAER	x	x	x		x	x	x	
Blewett Drain near Highway 132	VH132	x	x	x		x	x	x	
Poso Slough at Indiana Avenue	PSAIA	x	x	x		x	x	x	
Los Banos Creek at Sunset Ave	LBCSA	**No Flow**							
Little Panoche Cr at Western Boundary	LPCWB	**No Flow**							
Little Panoche Cr at San Luis Canal	LPCSL	**No Flow**							
Russell Ave. Drain at San Luis Canal	RADSL	**No Flow**							
San Joaquin River at Sack Dam	SJRSD	x	x	x					
San Joaquin River at PID Pumps	SJRPP	x	x	x					
Delta Mendota Canal at Del Puerto WD	DMCDP	x	x	x					

Attachment 2
Significant Aquatic Toxicity Results

Westside San Joaquin River Watershed Coalition
Significant Aquatic Toxicity Results

Monitoring Site	Sample Date	Event	Reactive Species	Results	Control Results	Percent Difference	Units
Orestimba Creek at River Road	3/8/2011	77	Ceriodaphnia dubia	80	100	20%	%

Followup: Toxicity did not trigger follow up testing and the cause of toxicity is not known. No current use pesticides were detected.

Field Data

DO	6.81	mg/l
EC	401	µmhos/cm
Est Depth	0.5	ft
Flow	5.6	cfs
pH	7.63	
Staff Gage		ft
Temp	17.96	c

Water Chemistry

Bromide	0.011	DNQ	mg/L
Dissolved Organic Carbon	3.5		mg/L
E. Coli	460		MPN/100m
Total Organic Carbon	3.5		mg/L
Dissolved Solids	86		mg/L
Hardness (as CACO3)	220		mg/L
Suspended Solids	6		mg/L
Turbidity	11		NTU
Arsenic	1.2		ug/L
Boron	219		ug/L
Cadmium	-0.011	ND	ug/L
Cadmium (Dissolved)	-0.011	ND	ug/L
Copper	2.3		ug/L
Copper (Dissolved)	1.3		ug/L
Lead	0.37		ug/L
Lead (Dissolved)	-0.071	ND	ug/L
Nickel	2.7		ug/L
Nickel (Dissolved)	1.4		ug/L
Zinc	5.6		ug/L
Zinc (Dissolved)	0.9	DNQ	ug/L
Ammonia as N	0.066	DNQ	mg/L
Nitrate + Nitrite as N	-0.02	ND	mg/L
Nitrogen, Total Kjeldahl	0.43		mg/L
OrthoPhosphate as P	0.01		mg/L
Phosphate as P	0.051		mg/L

Detected Pesticides

DDE(p,p')	0.0053	DNQ

DNQ = Estimated value, below reporting limit.
Y = % Difference primary and confirmation column is >40%.
B = Constituent also detected in blank sample.

Monitoring Site	Sample Date	Event	Reactive Species	Results	Control Results	Percent Difference	Units
Little Panoche Creek at W. Boundary	3/23/2011	77	Ceriodaphnia dubia	0	100	100%	%

Followup: Dilution series measeured 1.4 toxic units and TIE indicated that high salinity is the likely cause. Low concentration of DDE was detected but not likely the cause of toxicity.

Field Data

DO	5.22	mg/l
EC	10211	µmhos/cm
Est Depth	1.5	ft
Flow	1	cfs
pH	8.92	
Staff Gage		ft
Temp	12.41	c

Water Chemistry

Bromide	1.1		mg/L
Dissolved Organic Carbon	18		mg/L
E. Coli	650		MPN/100m
Total Organic Carbon	19		mg/L
Dissolved Solids	6500		mg/L
Hardness (as CACO3)	1900		mg/L
Suspended Solids	52		mg/L
Turbidity	8.5		NTU
Arsenic	3.7		ug/L
Boron	31000		ug/L
Cadmium	0.14		ug/L
Cadmium (Dissolved)	0.07	DNQ	ug/L
Copper	8.6		ug/L
Copper (Dissolved)	7.5		ug/L
Lead	0.09	DNQ	ug/L
Lead (Dissolved)	-0.03	ND	ug/L
Nickel	4		ug/L
Nickel (Dissolved)	3.6		ug/L
Zinc	5.4		ug/L
Zinc (Dissolved)	4		ug/L
Ammonia as N	0.29		mg/L
Nitrate + Nitrite as N	13		mg/L
Nitrogen, Total Kjeldahl	1.8		mg/L
OrthoPhosphate as P	0.24		mg/L
Phosphate as P	0.33		mg/L

Detected Pesticides

DDE(p,p')	0.0042	DNQ

DNQ = Estimated value, below reporting limit.
Y = % Difference primary and confirmation column is >40%.
B = Constituent also detected in blank sample.

Monitoring Site	Sample Date	Event	Reactive Species	Results	Control Results	Percent Difference	Units
Little Panoche Creek at W. Boundary	3/23/2011	77	Selenastrum capricornutum	1,240,000	2,075,000	40%	cells/ml

Followup: Toxicity did not trigger follow up. No herbicides detected. High salinity in the sample suspected to have caused toxicity.

Field Data

DO	5.22	mg/l
EC	10211	µmhos/cm
Est Depth	1.5	ft
Flow	1	cfs
pH	8.92	
Staff Gage		ft
Temp	12.41	c

Water Chemistry

Bromide	1.1		mg/L
Dissolved Organic Carbon	18		mg/L
E. Coli	650		MPN/100m
Total Organic Carbon	19		mg/L
Dissolved Solids	6500		mg/L
Hardness (as CACO3)	1900		mg/L
Suspended Solids	52		mg/L
Turbidity	8.5		NTU
Arsenic	3.7		ug/L
Boron	31000		ug/L
Cadmium	0.14		ug/L
Cadmium (Dissolved)	0.07	DNQ	ug/L
Copper	8.6		ug/L
Copper (Dissolved)	7.5		ug/L
Lead	0.09	DNQ	ug/L
Lead (Dissolved)	-0.03	ND	ug/L
Nickel	4		ug/L
Nickel (Dissolved)	3.6		ug/L
Zinc	5.4		ug/L
Zinc (Dissolved)	4		ug/L
Ammonia as N	0.29		mg/L
Nitrate + Nitrite as N	13		mg/L
Nitrogen, Total Kjeldahl	1.8		mg/L
OrthoPhosphate as P	0.24		mg/L
Phosphate as P	0.33		mg/L

Detected Pesticides

DDE(p,p')	0.0042	DNQ

DNQ = Estimated value, below reporting limit.
Y = % Difference primary and confirmation column is >40%.
B = Constituent also detected in blank sample.

Monitoring Site	Sample Date	Event	Reactive Species	Results	Control Results	Percent Difference	Units
San Joaquin River at Lander Ave	6/14/2011	80	Ceriodaphnia dubia	20	90	78%	%

Followup: A TIE was performed however toxicity was not persistant and the test was inconclusive. No pesticides were detected in the sample and the cause is not known.

Field Data

DO	7.8	mg/l
EC	89	µmhos/cm
Est Depth		ft
Flow	1400	cfs
pH	7.51	
Staff Gage		ft
Temp	23.28	c

Water Chemistry

Bromide	-0.01	ND	mg/L
Dissolved Organic Carbon	2.9		mg/L
E. Coli	47		MPN/100m
Total Organic Carbon	2.8		mg/L
Dissolved Solids	67		mg/L
Hardness (as CACO3)	28		mg/L
Suspended Solids	29		mg/L
Turbidity	44		NTU
Arsenic	1.8		ug/L
Boron	16		ug/L
Cadmium	-0.04	ND	ug/L
Cadmium (Dissolved)	-0.04	ND	ug/L
Copper	2.4		ug/L
Copper (Dissolved)	1.1		ug/L
Lead	0.74		ug/L
Lead (Dissolved)	0.06	DNQ	ug/L
Nickel	1.9		ug/L
Nickel (Dissolved)	0.56		ug/L
Zinc	3.9		ug/L
Zinc (Dissolved)	-0.7	ND	ug/L
Ammonia as N	0.077	DNQ	mg/L
Nitrate + Nitrite as N	0.09		mg/L
Nitrogen, Total Kjeldahl	0.43		mg/L
OrthoPhosphate as P	0.036		mg/L
Phosphate as P	0.095		mg/L

Detected Pesticides

DNQ = Estimated value, below reporting limit.
Y = % Difference primary and confirmation column is >40%.
B = Constituent also detected in blank sample.

Monitoring Site	Sample Date	Event	Reactive Species	Results	Control Results	Percent Difference	Units
Los Banos Creek at Hwy 140	8/9/2011	82	Ceriodaphnia dubia	70	100	30%	%

Followup: Toxicity did not trigger follow up testing. No pesticides detected in the sample. Cause of toxicity not known.

Field Data

Water Chemistry

Bromide	0.36	DNQ	mg/L
Dissolved Organic Carbon	8.4		mg/L
E. Coli	150		MPN/100m
Total Organic Carbon	8.4		mg/L
Dissolved Solids	720		mg/L
Hardness (as CACO3)	290		mg/L
Suspended Solids	194		mg/L
Turbidity	110		NTU
Arsenic	7.3		ug/L
Boron	985		ug/L
Cadmium	0.09	DNQ	ug/L
Cadmium (Dissolved)	-0.04	ND	ug/L
Copper	11		ug/L
Copper (Dissolved)	1.4		ug/L
Lead	3.1		ug/L
Lead (Dissolved)	-0.03	ND	ug/L
Nickel	23		ug/L
Nickel (Dissolved)	4.2		ug/L
Zinc	18		ug/L
Zinc (Dissolved)	-0.7	ND	ug/L
Ammonia as N	0.55		mg/L
Nitrate + Nitrite as N	1.7		mg/L
Nitrogen, Total Kjeldahl	2.5		mg/L
OrthoPhosphate as P	0.24		mg/L
Phosphate as P	0.5		mg/L

Detected Pesticides

DNQ = Estimated value, below reporting limit.
Y = % Difference primary and confirmation column is >40%.
B = Constituent also detected in blank sample.

Monitoring Site	Sample Date	Event	Reactive Species	Results	Control Results	Percent Difference	Units
Newman Wasteway near Hills Ferry Road	8/9/2011	82	Ceriodaphnia dubia	70	100	30%	%

Followup: Toxicity did not trigger follow up testing. No pesticides detected in the sample. Cause of toxicity not known.

Field Data

DO	5.54	mg/l
EC	1220	µmhos/cm
Est Depth	1.7	ft
Flow	127	cfs
pH	7.56	
Staff Gage	0.1	ft
Temp	21.04	c

Water Chemistry

Bromide	0.34	DNQ	mg/L
Dissolved Organic Carbon	4.1		mg/L
E. Coli	120		MPN/100m
Total Organic Carbon	4.1		mg/L
Dissolved Solids	740		mg/L
Hardness (as CACO3)	340		mg/L
Suspended Solids	30		mg/L
Turbidity	15		NTU
Arsenic	2.2		ug/L
Boron	735		ug/L
Cadmium	-0.04	ND	ug/L
Cadmium (Dissolved)	-0.04	ND	ug/L
Copper	2.6		ug/L
Copper (Dissolved)	0.61		ug/L
Lead	0.56		ug/L
Lead (Dissolved)	-0.03	ND	ug/L
Nickel	5.9		ug/L
Nickel (Dissolved)	2.7		ug/L
Zinc	3.9		ug/L
Zinc (Dissolved)	-0.7	ND	ug/L
Ammonia as N	0.066	DNQ	mg/L
Nitrate + Nitrite as N	1.2		mg/L
Nitrogen, Total Kjeldahl	0.89		mg/L
OrthoPhosphate as P	0.08		mg/L
Phosphate as P	0.16		mg/L

Detected Pesticides

DNQ = Estimated value, below reporting limit.
Y = % Difference primary and confirmation column is >40%.
B = Constituent also detected in blank sample.

Monitoring Site	Sample Date	Event	Reactive Species	Results	Control Results	Percent Difference	Units
Poso Slough at Indiana Ave	8/9/2011	82	Ceriodaphnia dubia	0	100	100%	%

Followup: Dilution series measured 2.8 toxic units and TIE showed toxicity through all treatments, with moderate increase in survival in the C-18 column. Elevated concentration of chlorpyrifos was detected and is the probable cause.

Field Data

DO	6.33	mg/l
EC	456	µmhos/cm
Est Depth	4.05	ft
Flow	82	cfs
pH	7.64	
Staff Gage	4.05	ft
Temp	26.15	c

Water Chemistry

Bromide	0.15	DNQ	mg/L
Dissolved Organic Carbon	5.1		mg/L
E. Coli	210		MPN/100m
Total Organic Carbon	5.2		mg/L
Dissolved Solids	300		mg/L
Hardness (as CACO3)	120		mg/L
Suspended Solids	284		mg/L
Turbidity	130		NTU
Arsenic	8.5		ug/L
Boron	215		ug/L
Cadmium	0.14		ug/L
Cadmium (Dissolved)	-0.04	ND	ug/L
Copper	12		ug/L
Copper (Dissolved)	1.9		ug/L
Lead	4.2		ug/L
Lead (Dissolved)	-0.03	ND	ug/L
Nickel	16		ug/L
Nickel (Dissolved)	2.1		ug/L
Zinc	35		ug/L
Zinc (Dissolved)	-0.7	ND	ug/L
Ammonia as N	0.38		mg/L
Nitrate + Nitrite as N	1.9		mg/L
Nitrogen, Total Kjeldahl	1.8		mg/L
OrthoPhosphate as P	0.25		mg/L
Phosphate as P	0.45		mg/L

Detected Pesticides

Chlorpyrifos	1.3	=

DNQ = Estimated value, below reporting limit.
Y = % Difference primary and confirmation column is >40%.
B = Constituent also detected in blank sample.

Monitoring Site	Sample Date	Event	Reactive Species	Results	Control Results	Percent Difference	Units
Turner Slough at Edminster Road	8/9/2011	82	Ceriodaphnia dubia	55	100	45%	%

Followup: Toxicity did not trigger follow up. No pesticides detected in the sample. Cause of toxicity unknown.

Field Data

DO	6.15	mg/l
EC	243	µmhos/cm
Est Depth	0.56	ft
Flow	14	cfs
pH	7.52	
Staff Gage	0.05	ft
Temp	22.67	c

Water Chemistry

Bromide	0.076	DNQ	mg/L
Dissolved Organic Carbon	4.1		mg/L
E. Coli	210		MPN/100m
Total Organic Carbon	4.1		mg/L
Dissolved Solids	170		mg/L
Hardness (as CACO3)	62		mg/L
Suspended Solids	73		mg/L
Turbidity	34		NTU
Arsenic	2.1		ug/L
Boron	49		ug/L
Cadmium	0.04	DNQ	ug/L
Cadmium (Dissolved)	-0.04	ND	ug/L
Copper	4.4		ug/L
Copper (Dissolved)	1.1		ug/L
Lead	1.2		ug/L
Lead (Dissolved)	0.05	DNQ	ug/L
Nickel	3.2		ug/L
Nickel (Dissolved)	0.94		ug/L
Zinc	8.5		ug/L
Zinc (Dissolved)	-0.7	ND	ug/L
Ammonia as N	0.14		mg/L
Nitrate + Nitrite as N	0.42		mg/L
Nitrogen, Total Kjeldahl	1.2		mg/L
OrthoPhosphate as P	0.04		mg/L
Phosphate as P	0.15		mg/L

Detected Pesticides

DNQ = Estimated value, below reporting limit.
Y = % Difference primary and confirmation column is >40%.
B = Constituent also detected in blank sample.

Attachment 3
Field Quality Control Sample Results

Field Quality Control Samples

Field Duplicate and RPD Calculation

Analyte/Species	Type	Event	QC Code	FD	QC Code	Units	RPD	
Sample Date: 3/8/2011	**Site: Salt Slough at Lander Ave**							
Ammonia as N	General Chemistry	0.22		0.099	DNQ	mg/L	76%	*
Arsenic	General Chemistry	5.8		6.4		ug/L	10%	
Boron	General Chemistry	584		597		ug/L	2%	
Bromide	General Chemistry	0.09	DNQ	0.51	DNQ	mg/L	140%	*
Cadmium	General Chemistry	0.03	DNQ	0.03	DNQ	ug/L	0%	
Cadmium (Dissolved)	General Chemistry	0.02	DNQ	-0.011	ND	ug/L	NA	
Copper	General Chemistry	3		4.2		ug/L	33%	*
Copper (Dissolved)	General Chemistry	1.9		2		ug/L	5%	
Dissolved Organic Carbon	General Chemistry	7		7.5		mg/L	7%	
E. Coli	General Chemistry	34		40		MPN/100mL	16%	
Hardness (as CACO3)	General Chemistry	270		250		mg/L	8%	
Lead	General Chemistry	0.46		0.98		ug/L	72%	*
Lead (Dissolved)	General Chemistry	-0.071	ND	-0.071	ND	ug/L	NA	
Nickel	General Chemistry	4		5.9		ug/L	38%	*
Nickel (Dissolved)	General Chemistry	2.5		2.4		ug/L	4%	
Nitrate + Nitrite as N	General Chemistry	4.2		4.1		mg/L	2%	
Nitrogen, Total Kjeldahl	General Chemistry	0.44		1.1		mg/L	86%	*
OrthoPhosphate as P	General Chemistry	0.31		0.31		mg/L	0%	
Phosphate as P	General Chemistry	0.38		0.39		mg/L	3%	
Suspended Solids	General Chemistry	48		21		mg/L	78%	*
Total Organic Carbon	General Chemistry	6.9		6.7		mg/L	3%	
Turbidity	General Chemistry	13		16		NTU	21%	
Zinc	General Chemistry	3.4		7.4		ug/L	74%	*
Zinc (Dissolved)	General Chemistry	-0.8	ND	-0.8	ND	ug/L	NA	
Aldicarb	Pesticide	-0.20	ND	-0.20	ND	ug/L	NA	
Aldrin	Pesticide	-0.009	ND	-0.009	ND	ug/L	NA	
Atrazine	Pesticide	-0.07	ND	-0.07	ND	ug/L	NA	
Carbaryl	Pesticide	-0.050	ND	-0.050	ND	ug/L	NA	
Carbofuran	Pesticide	-0.050	ND	-0.050	ND	ug/L	NA	
Chlorpyrifos	Pesticide	-0.0026	ND	-0.0026	ND	ug/L	NA	
Cyanazine	Pesticide	-0.09	ND	-0.09	ND	ug/L	NA	
DDD(p,p')	Pesticide	-0.003	ND	-0.003	ND	ug/L	NA	
DDE(p,p')	Pesticide	-0.004	ND	-0.004	ND	ug/L	NA	
DDT(p,p')	Pesticide	-0.007	ND	-0.007	ND	ug/L	NA	
Demeton-s	Pesticide	-0.08	ND	-0.08	ND	ug/L	NA	
Diazinon	Pesticide	-0.004	ND	-0.004	ND	ug/L	NA	
Dichlorvos	Pesticide	-0.02	ND	-0.02	ND	ug/L	NA	
Dicofol	Pesticide	-0.01	ND	-0.01	ND	ug/L	NA	
Dieldrin	Pesticide	-0.005	ND	-0.005	ND	ug/L	NA	
Dimethoate	Pesticide	-0.080	ND	-0.080	ND	ug/L	NA	
Disulfoton	Pesticide	-0.020	ND	-0.020	ND	ug/L	NA	

Event = Event Sample Results FD = Field Duplicate Sample Results RPD = Relative percent difference

Field Quality Control Samples

Field Duplicate and RPD Calculation

Analyte/Species	Type	Event	QC Code	FD	QC Code	Units	RPD	
Diuron	Pesticide	3.5		3.6		ug/L	3%	
Endosulfan I	Pesticide	-0.005	ND	-0.005	ND	ug/L	NA	
Endosulfan II	Pesticide	-0.004	ND	-0.004	ND	ug/L	NA	
Endosulfan Sulfate	Pesticide	-0.005	ND	-0.005	ND	ug/L	NA	
Endrin	Pesticide	-0.007	ND	-0.007	ND	ug/L	NA	
EPTC	Pesticide	-0.03	ND	-0.03	ND	ug/L	NA	
HCH, alpha	Pesticide	-0.005	ND	-0.005	ND	ug/L	NA	
HCH, beta	Pesticide	-0.008	ND	-0.008	ND	ug/L	NA	
HCH, delta	Pesticide	-0.005	ND	-0.005	ND	ug/L	NA	
HCH, gamma	Pesticide	-0.005	ND	-0.005	ND	ug/L	NA	
Heptachlor	Pesticide	-0.008	ND	-0.008	ND	ug/L	NA	
Heptachlor epoxide	Pesticide	-0.007	ND	-0.007	ND	ug/L	NA	
Linuron	Pesticide	-0.20	ND	-0.20	ND	ug/L	NA	
Malathion	Pesticide	-0.050	ND	-0.050	ND	ug/L	NA	
Methamidophos	Pesticide	-0.08	ND	-0.08	ND	ug/L	NA	
Methidathion	Pesticide	-0.04	ND	-0.04	ND	ug/L	NA	
Methiocarb	Pesticide	-0.20	ND	-0.20	ND	ug/L	NA	
Methomyl	Pesticide	-0.050	ND	-0.050	ND	ug/L	NA	
Methoxychlor	Pesticide	-0.008	ND	-0.008	ND	ug/L	NA	
Oxamyl	Pesticide	-0.20	ND	-0.20	ND	ug/L	NA	
Parathion, Ethyl	Pesticide	-0.02	ND	-0.02	ND	ug/L	NA	
Parathion, Methyl	Pesticide	-0.075	ND	-0.075	ND	ug/L	NA	
Phorate	Pesticide	-0.072	ND	-0.072	ND	ug/L	NA	
Phosmet	Pesticide	-0.06	ND	-0.06	ND	ug/L	NA	
Prowl	Pesticide	0.20		-0.04	ND	ug/L	NA	
Simazine	Pesticide	-0.08	ND	-0.08	ND	ug/L	NA	
Toxaphene	Pesticide	-0.380	ND	-0.380	ND	ug/L	NA	
Trifluralin	Pesticide	-0.036	ND	-0.036	ND	ug/L	NA	

Sample Date: 4/12/2011 Site: Salt Slough at Lander Ave

Analyte/Species	Type	Event	QC Code	FD	QC Code	Units	RPD	
Ammonia as N	General Chemistry	0.19		0.13		mg/L	38%	*
Arsenic	General Chemistry	4.8		5		ug/L	4%	
Boron	General Chemistry	829		816		ug/L	2%	
Bromide	General Chemistry	-0.01	ND	-0.01	ND	mg/L	NA	
Cadmium	General Chemistry	-0.04	ND	-0.04	ND	ug/L	NA	
Cadmium (Dissolved)	General Chemistry	-0.04	ND	-0.04	ND	ug/L	NA	
Copper	General Chemistry	2.3		3.6		ug/L	44%	*
Copper (Dissolved)	General Chemistry	0.85		0.78		ug/L	9%	
Dissolved Organic Carbon	General Chemistry	7.7		7.4		mg/L	4%	
E. Coli	General Chemistry	200		170		MPN/100mL	16%	
Hardness (as CACO3)	General Chemistry	360		360		mg/L	0%	
Lead	General Chemistry	0.65		1.3		ug/L	67%	*
Lead (Dissolved)	General Chemistry	-0.03	ND	-0.03	ND	ug/L	NA	

Event = Event Sample Results FD = Field Duplicate Sample Results RPD = Relative percent difference

Field Quality Control Samples

Field Duplicate and RPD Calculation

Analyte/Species	Type	Event	QC Code	FD	QC Code	Units	RPD	
Nickel	General Chemistry	4.5		6.6		ug/L	38%	*
Nickel (Dissolved)	General Chemistry	2		2		ug/L	0%	
Nitrate + Nitrite as N	General Chemistry	1.3		1.3		mg/L	0%	
Nitrogen, Total Kjeldahl	General Chemistry	1.2		1.3		mg/L	8%	
OrthoPhosphate as P	General Chemistry	0.22		0.22		mg/L	0%	
Phosphate as P	General Chemistry	0.39		0.38		mg/L	3%	
Suspended Solids	General Chemistry	51		72		mg/L	34%	*
Total Organic Carbon	General Chemistry	8		7.3		mg/L	9%	
Turbidity	General Chemistry	29		30		NTU	3%	
Zinc	General Chemistry	5.7		11		ug/L	63%	*
Zinc (Dissolved)	General Chemistry	-0.7	ND	0.8	DNQ	ug/L	NA	
Aldicarb	Pesticide	-0.20	ND	-0.20	ND	ug/L	NA	
Aldrin	Pesticide	-0.009	ND	-0.009	ND	ug/L	NA	
Atrazine	Pesticide	-0.07	ND	-0.07	ND	ug/L	NA	
Carbaryl	Pesticide	-0.050	ND	-0.050	ND	ug/L	NA	
Carbofuran	Pesticide	-0.050	ND	-0.050	ND	ug/L	NA	
Chlorpyrifos	Pesticide	-0.0026	ND	-0.0026	ND	ug/L	NA	
Cyanazine	Pesticide	-0.09	ND	-0.09	ND	ug/L	NA	
DDD(p,p')	Pesticide	-0.003	ND	-0.003	ND	ug/L	NA	
DDE(p,p')	Pesticide	-0.004	ND	-0.004	ND	ug/L	NA	
DDT(p,p')	Pesticide	-0.007	ND	-0.007	ND	ug/L	NA	
Demeton-s	Pesticide	-0.08	ND	-0.08	ND	ug/L	NA	
Diazinon	Pesticide	-0.004	ND	-0.004	ND	ug/L	NA	
Dichlorvos	Pesticide	-0.02	ND	-0.02	ND	ug/L	NA	
Dicofol	Pesticide	-0.01	ND	-0.01	ND	ug/L	NA	
Dieldrin	Pesticide	-0.005	ND	-0.005	ND	ug/L	NA	
Dimethoate	Pesticide	-0.080	ND	-0.080	ND	ug/L	NA	
Disulfoton	Pesticide	-0.020	ND	-0.020	ND	ug/L	NA	
Diuron	Pesticide	0.29	DNQ	0.31	DNQ	ug/L	7%	
Endosulfan I	Pesticide	-0.005	ND	-0.005	ND	ug/L	NA	
Endosulfan II	Pesticide	-0.004	ND	-0.004	ND	ug/L	NA	
Endosulfan Sulfate	Pesticide	-0.005	ND	-0.005	ND	ug/L	NA	
Endrin	Pesticide	-0.007	ND	-0.007	ND	ug/L	NA	
EPTC	Pesticide	-0.03	ND	-0.03	ND	ug/L	NA	
HCH, alpha	Pesticide	-0.005	ND	-0.005	ND	ug/L	NA	
HCH, beta	Pesticide	-0.008	ND	-0.008	ND	ug/L	NA	
HCH, delta	Pesticide	-0.005	ND	-0.005	ND	ug/L	NA	
HCH, gamma	Pesticide	-0.005	ND	-0.005	ND	ug/L	NA	
Heptachlor	Pesticide	-0.008	ND	-0.008	ND	ug/L	NA	
Heptachlor epoxide	Pesticide	-0.007	ND	-0.007	ND	ug/L	NA	
Linuron	Pesticide	-0.20	ND	-0.20	ND	ug/L	NA	
Malathion	Pesticide	0.076	DNQ	0.072	DNQ	ug/L	5%	
Methamidophos	Pesticide	-0.08	ND	-0.08	ND	ug/L	NA	

Event = Event Sample Results   FD = Field Duplicate Sample Results   RPD = Relative percent difference

Field Quality Control Samples

Field Duplicate and RPD Calculation

Analyte/Species	Type	Event	QC Code	FD	QC Code	Units	RPD	
Methidathion	Pesticide	-0.04	ND	-0.04	ND	ug/L	NA	
Methiocarb	Pesticide	-0.20	ND	-0.20	ND	ug/L	NA	
Methomyl	Pesticide	-0.050	ND	-0.050	ND	ug/L	NA	
Methoxychlor	Pesticide	-0.008	ND	-0.008	ND	ug/L	NA	
Oxamyl	Pesticide	-0.20	ND	-0.20	ND	ug/L	NA	
Parathion, Ethyl	Pesticide	-0.02	ND	-0.02	ND	ug/L	NA	
Parathion, Methyl	Pesticide	-0.075	ND	-0.075	ND	ug/L	NA	
Phorate	Pesticide	-0.072	ND	-0.072	ND	ug/L	NA	
Phosmet	Pesticide	-0.06	ND	-0.06	ND	ug/L	NA	
Prowl	Pesticide	-0.04	ND	-0.04	ND	ug/L	NA	
Simazine	Pesticide	-0.08	ND	-0.08	ND	ug/L	NA	
Toxaphene	Pesticide	-0.380	ND	-0.380	ND	ug/L	NA	
Trifluralin	Pesticide	-0.036	ND	-0.036	ND	ug/L	NA	

Sample Date: 5/10/2011 Site: Salt Slough at Lander Ave

Analyte/Species	Type	Event	QC Code	FD	QC Code	Units	RPD	
Ammonia as N	General Chemistry	0.16		0.088	DNQ	mg/L	58%	*
Arsenic	General Chemistry	5.6		5.6		ug/L	0%	
Boron	General Chemistry	355		356		ug/L	0%	
Bromide	General Chemistry	-0.01	ND	0.042	DNQ	mg/L	NA	
Cadmium	General Chemistry	-0.04	ND	-0.04	ND	ug/L	NA	
Cadmium (Dissolved)	General Chemistry	-0.04	ND	-0.04	ND	ug/L	NA	
Copper	General Chemistry	3.1		3.5		ug/L	12%	
Copper (Dissolved)	General Chemistry	1.1		1.1		ug/L	0%	
Dissolved Organic Carbon	General Chemistry	5.1		5.1		mg/L	0%	
E. Coli	General Chemistry	160		180		MPN/100mL	12%	
Hardness (as CACO3)	General Chemistry	230		230		mg/L	0%	
Lead	General Chemistry	0.85		1.1		ug/L	26%	*
Lead (Dissolved)	General Chemistry	-0.03	ND	-0.03	ND	ug/L	NA	
Nickel	General Chemistry	4.8		5.6		ug/L	15%	
Nickel (Dissolved)	General Chemistry	1.7		1.7		ug/L	0%	
Nitrate + Nitrite as N	General Chemistry	1.4		1.4		mg/L	0%	
Nitrogen, Total Kjeldahl	General Chemistry	1.1		1.3		mg/L	17%	
OrthoPhosphate as P	General Chemistry	0.26		0.24		mg/L	8%	
Phosphate as P	General Chemistry	0.4		0.4		mg/L	0%	
Suspended Solids	General Chemistry	46		140		mg/L	101%	*
Total Organic Carbon	General Chemistry	5		4.9		mg/L	2%	
Turbidity	General Chemistry	37		61		NTU	49%	*
Zinc	General Chemistry	7.9		9.2		ug/L	15%	
Zinc (Dissolved)	General Chemistry	-0.7	ND	-0.7	ND	ug/L	NA	
Aldicarb	Pesticide	-0.20	ND	-0.20	ND	ug/L	NA	
Aldrin	Pesticide	-0.009	ND	-0.009	ND	ug/L	NA	
Atrazine	Pesticide	-0.07	ND	-0.07	ND	ug/L	NA	
Carbaryl	Pesticide	-0.050	ND	-0.050	ND	ug/L	NA	

Event = Event Sample Results FD = Field Duplicate Sample Results RPD = Relative percent difference

Field Quality Control Samples

Field Duplicate and RPD Calculation

Analyte/Species	Type	Event	QC Code	FD	QC Code	Units	RPD
Carbofuran	Pesticide	-0.050	ND	-0.050	ND	ug/L	NA
Chlorpyrifos	Pesticide	-0.0026	ND	-0.0026	ND	ug/L	NA
Cyanazine	Pesticide	-0.09	ND	-0.09	ND	ug/L	NA
DDD(p,p')	Pesticide	-0.003	ND	-0.003	ND	ug/L	NA
DDE(p,p')	Pesticide	-0.004	ND	-0.004	ND	ug/L	NA
DDT(p,p')	Pesticide	-0.007	ND	-0.007	ND	ug/L	NA
Demeton-s	Pesticide	-0.08	ND	-0.08	ND	ug/L	NA
Diazinon	Pesticide	-0.004	ND	-0.004	ND	ug/L	NA
Dichlorvos	Pesticide	-0.02	ND	-0.02	ND	ug/L	NA
Dicofol	Pesticide	-0.01	ND	-0.01	ND	ug/L	NA
Dieldrin	Pesticide	-0.005	ND	-0.005	ND	ug/L	NA
Dimethoate	Pesticide	-0.080	ND	-0.080	ND	ug/L	NA
Disulfoton	Pesticide	-0.020	ND	-0.020	ND	ug/L	NA
Diuron	Pesticide	0.58		0.71		ug/L	20%
Endosulfan I	Pesticide	-0.005	ND	-0.005	ND	ug/L	NA
Endosulfan II	Pesticide	-0.004	ND	-0.004	ND	ug/L	NA
Endosulfan Sulfate	Pesticide	-0.005	ND	-0.005	ND	ug/L	NA
Endrin	Pesticide	-0.007	ND	-0.007	ND	ug/L	NA
EPTC	Pesticide	-0.03	ND	-0.03	ND	ug/L	NA
HCH, alpha	Pesticide	-0.005	ND	-0.005	ND	ug/L	NA
HCH, beta	Pesticide	-0.008	ND	-0.008	ND	ug/L	NA
HCH, delta	Pesticide	-0.005	ND	-0.005	ND	ug/L	NA
HCH, gamma	Pesticide	-0.005	ND	-0.005	ND	ug/L	NA
Heptachlor	Pesticide	-0.008	ND	-0.008	ND	ug/L	NA
Heptachlor epoxide	Pesticide	-0.007	ND	-0.007	ND	ug/L	NA
Linuron	Pesticide	-0.20	ND	-0.20	ND	ug/L	NA
Malathion	Pesticide	-0.050	ND	-0.050	ND	ug/L	NA
Methamidophos	Pesticide	-0.08	ND	-0.08	ND	ug/L	NA
Methidathion	Pesticide	-0.04	ND	-0.04	ND	ug/L	NA
Methiocarb	Pesticide	-0.20	ND	-0.20	ND	ug/L	NA
Methomyl	Pesticide	-0.050	ND	-0.050	ND	ug/L	NA
Methoxychlor	Pesticide	-0.008	ND	-0.008	ND	ug/L	NA
Oxamyl	Pesticide	-0.20	ND	-0.20	ND	ug/L	NA
Parathion, Ethyl	Pesticide	-0.02	ND	-0.02	ND	ug/L	NA
Parathion, Methyl	Pesticide	-0.075	ND	-0.075	ND	ug/L	NA
Phorate	Pesticide	-0.072	ND	-0.072	ND	ug/L	NA
Phosmet	Pesticide	-0.06	ND	-0.06	ND	ug/L	NA
Prowl	Pesticide	-0.04	ND	-0.04	ND	ug/L	NA
Simazine	Pesticide	-0.08	ND	-0.08	ND	ug/L	NA
Toxaphene	Pesticide	-0.380	ND	-0.380	ND	ug/L	NA
Trifluralin	Pesticide	-0.036	ND	-0.036	ND	ug/L	NA

Event = Event Sample Results FD = Field Duplicate Sample Results RPD = Relative percent difference

Field Quality Control Samples

Field Duplicate and RPD Calculation

Analyte/Species	Type	Event	QC Code	FD	QC Code	Units	RPD	
Sample Date: 6/14/2011	**Site: Salt Slough at Lander Ave**							
Ammonia as N	General Chemistry	0.2		0.21		mg/L	5%	
Arsenic	General Chemistry	6.2		6.2		ug/L	0%	
Boron	General Chemistry	380		393		ug/L	3%	
Bromide	General Chemistry	0.21	DNQ	-0.01	ND	mg/L	NA	
Cadmium	General Chemistry	-0.04	ND	-0.04	ND	ug/L	NA	
Cadmium (Dissolved)	General Chemistry	-0.04	ND	-0.04	ND	ug/L	NA	
Copper	General Chemistry	4.5		4.4		ug/L	2%	
Copper (Dissolved)	General Chemistry	1.6		2.1		ug/L	27%	*
Dissolved Organic Carbon	General Chemistry	5.9		5.6		mg/L	5%	
E. Coli	General Chemistry	130		130		MPN/100mL	0%	
Hardness (as CACO3)	General Chemistry	240		240		mg/L	0%	
Lead	General Chemistry	1.3		1.3		ug/L	0%	
Lead (Dissolved)	General Chemistry	-0.03	ND	-0.03	ND	ug/L	NA	
Nickel	General Chemistry	7.1		6.7		ug/L	6%	
Nickel (Dissolved)	General Chemistry	2		2.2		ug/L	10%	
Nitrate + Nitrite as N	General Chemistry	4.6		4.5		mg/L	2%	
Nitrogen, Total Kjeldahl	General Chemistry	0.56		1.3		mg/L	80%	*
OrthoPhosphate as P	General Chemistry	0.2		0.2		mg/L	0%	
Phosphate as P	General Chemistry	0.41		0.4		mg/L	2%	
Suspended Solids	General Chemistry	93		95		mg/L	2%	
Total Organic Carbon	General Chemistry	5.8		5.6		mg/L	4%	
Turbidity	General Chemistry	59		57		NTU	3%	
Zinc	General Chemistry	11		11		ug/L	0%	
Zinc (Dissolved)	General Chemistry	-0.7	ND	-0.7	ND	ug/L	NA	
Aldicarb	Pesticide	-0.20	ND	-0.20	ND	ug/L	NA	
Aldrin	Pesticide	-0.009	ND	-0.009	ND	ug/L	NA	
Aldrin	Pesticide	-0.045	ND	-0.009	ND	ug/L	NA	
Atrazine	Pesticide	-0.07	ND	-0.07	ND	ug/L	NA	
Carbaryl	Pesticide	-0.050	ND	-0.050	ND	ug/L	NA	
Carbofuran	Pesticide	-0.050	ND	-0.050	ND	ug/L	NA	
Chlorpyrifos	Pesticide	-0.0026	ND	-0.0026	ND	ug/L	NA	
Cyanazine	Pesticide	-0.09	ND	-0.09	ND	ug/L	NA	
DDD(p,p')	Pesticide	-0.015	ND	-0.003	ND	ug/L	NA	
DDD(p,p')	Pesticide	-0.003	ND	-0.003	ND	ug/L	NA	
DDE(p,p')	Pesticide	-0.020	ND	-0.004	ND	ug/L	NA	
DDE(p,p')	Pesticide	-0.004	ND	-0.004	ND	ug/L	NA	
DDT(p,p')	Pesticide	-0.007	ND	-0.007	ND	ug/L	NA	
DDT(p,p')	Pesticide	-0.035	ND	-0.007	ND	ug/L	NA	
Demeton-s	Pesticide	-0.08	ND	-0.08	ND	ug/L	NA	
Diazinon	Pesticide	-0.004	ND	-0.004	ND	ug/L	NA	
Dichlorvos	Pesticide	-0.02	ND	-0.02	ND	ug/L	NA	

Event = Event Sample Results   FD = Field Duplicate Sample Results   RPD = Relative percent difference

Field Quality Control Samples

Field Duplicate and RPD Calculation

Analyte/Species	Type	Event	QC Code	FD	QC Code	Units	RPD
Dicofol	Pesticide	-0.01	ND	-0.01	ND	ug/L	NA
Dicofol	Pesticide	-0.05	ND	-0.01	ND	ug/L	NA
Dieldrin	Pesticide	-0.005	ND	-0.005	ND	ug/L	NA
Dieldrin	Pesticide	-0.025	ND	-0.005	ND	ug/L	NA
Dimethoate	Pesticide	-0.080	ND	-0.080	ND	ug/L	NA
Disulfoton	Pesticide	-0.020	ND	-0.020	ND	ug/L	NA
Diuron	Pesticide	-0.20	ND	0.20	DNQ	ug/L	NA
Endosulfan I	Pesticide	-0.005	ND	-0.005	ND	ug/L	NA
Endosulfan I	Pesticide	-0.025	ND	-0.005	ND	ug/L	NA
Endosulfan II	Pesticide	-0.004	ND	-0.004	ND	ug/L	NA
Endosulfan II	Pesticide	-0.020	ND	-0.004	ND	ug/L	NA
Endosulfan Sulfate	Pesticide	-0.005	ND	-0.005	ND	ug/L	NA
Endosulfan Sulfate	Pesticide	-0.025	ND	-0.005	ND	ug/L	NA
Endrin	Pesticide	-0.007	ND	-0.007	ND	ug/L	NA
Endrin	Pesticide	-0.035	ND	-0.007	ND	ug/L	NA
EPTC	Pesticide	-0.03	ND	-0.03	ND	ug/L	NA
HCH, alpha	Pesticide	-0.005	ND	-0.005	ND	ug/L	NA
HCH, alpha	Pesticide	-0.025	ND	-0.005	ND	ug/L	NA
HCH, beta	Pesticide	-0.008	ND	-0.008	ND	ug/L	NA
HCH, beta	Pesticide	-0.040	ND	-0.008	ND	ug/L	NA
HCH, delta	Pesticide	-0.005	ND	-0.005	ND	ug/L	NA
HCH, delta	Pesticide	-0.025	ND	-0.005	ND	ug/L	NA
HCH, gamma	Pesticide	-0.005	ND	-0.005	ND	ug/L	NA
HCH, gamma	Pesticide	-0.025	ND	-0.005	ND	ug/L	NA
Heptachlor	Pesticide	-0.008	ND	-0.008	ND	ug/L	NA
Heptachlor	Pesticide	-0.040	ND	-0.008	ND	ug/L	NA
Heptachlor epoxide	Pesticide	-0.007	ND	-0.007	ND	ug/L	NA
Heptachlor epoxide	Pesticide	-0.035	ND	-0.007	ND	ug/L	NA
Linuron	Pesticide	-0.20	ND	-0.20	ND	ug/L	NA
Malathion	Pesticide	-0.050	ND	-0.050	ND	ug/L	NA
Methamidophos	Pesticide	-0.08	ND	-0.08	ND	ug/L	NA
Methidathion	Pesticide	-0.04	ND	-0.04	ND	ug/L	NA
Methiocarb	Pesticide	-0.20	ND	-0.20	ND	ug/L	NA
Methomyl	Pesticide	-0.050	ND	-0.050	ND	ug/L	NA
Methoxychlor	Pesticide	-0.008	ND	-0.008	ND	ug/L	NA
Methoxychlor	Pesticide	-0.040	ND	-0.008	ND	ug/L	NA
Oxamyl	Pesticide	-0.20	ND	-0.20	ND	ug/L	NA
Parathion, Ethyl	Pesticide	-0.02	ND	-0.02	ND	ug/L	NA
Parathion, Methyl	Pesticide	-0.075	ND	-0.075	ND	ug/L	NA
Phorate	Pesticide	-0.072	ND	-0.072	ND	ug/L	NA
Phosmet	Pesticide	-0.06	ND	-0.06	ND	ug/L	NA
Prowl	Pesticide	-0.04	ND	-0.04	ND	ug/L	NA
Simazine	Pesticide	-0.08	ND	-0.08	ND	ug/L	NA

Event = Event Sample Results   FD = Field Duplicate Sample Results   RPD = Relative percent difference

Field Quality Control Samples

Field Duplicate and RPD Calculation

Analyte/Species	Type	Event	QC Code	FD	QC Code	Units	RPD	
Toxaphene	Pesticide	-0.380	ND	-0.380	ND	ug/L	NA	
Toxaphene	Pesticide	-1.900	ND	-0.380	ND	ug/L	NA	
Trifluralin	Pesticide	-0.036	ND	-0.036	ND	ug/L	NA	

Sample Date: 7/12/2011 Site: Salt Slough at Lander Ave

Analyte/Species	Type	Event	QC Code	FD	QC Code	Units	RPD	
Ammonia as N	General Chemistry	0.19		0.13		mg/L	38%	*
Arsenic	General Chemistry	6.4		6.9		ug/L	8%	
Boron	General Chemistry	298		297		ug/L	0%	
Bromide	General Chemistry	0.086	DNQ	0.3	DNQ	mg/L	111%	*
Cadmium	General Chemistry	-0.04	ND	0.04	DNQ	ug/L	NA	
Cadmium (Dissolved)	General Chemistry	-0.04	ND	-0.04	ND	ug/L	NA	
Copper	General Chemistry	5.3		6.2		ug/L	16%	
Copper (Dissolved)	General Chemistry	1.4		1.6		ug/L	13%	
Dissolved Organic Carbon	General Chemistry	5.3		5		mg/L	6%	
E. Coli	General Chemistry	110		190		MPN/100mL	53%	*
Hardness (as CACO3)	General Chemistry	180		160		mg/L	12%	
Lead	General Chemistry	1.6		2.1		ug/L	27%	*
Lead (Dissolved)	General Chemistry	-0.03	ND	-0.03	ND	ug/L	NA	
Nickel	General Chemistry	8.1		9.4		ug/L	15%	
Nickel (Dissolved)	General Chemistry	1.9		1.8		ug/L	5%	
Nitrate + Nitrite as N	General Chemistry	2.7		2.8		mg/L	4%	
Nitrogen, Total Kjeldahl	General Chemistry	1.3		2.2		mg/L	51%	*
OrthoPhosphate as P	General Chemistry	0.21		0.21		mg/L	0%	
Phosphate as P	General Chemistry	0.7		0.69		mg/L	1%	
Suspended Solids	General Chemistry	269		181		mg/L	39%	*
Total Organic Carbon	General Chemistry	5.1		4.8		mg/L	6%	
Turbidity	General Chemistry	120		91		NTU	27%	*
Zinc	General Chemistry	13		18		ug/L	32%	*
Zinc (Dissolved)	General Chemistry	1	DNQ	-0.7	ND	ug/L	NA	

Sample Date: 8/9/2011 Site: Salt Slough at Lander Ave

Analyte/Species	Type	Event	QC Code	FD	QC Code	Units	RPD
Ammonia as N	General Chemistry	0.066	DNQ	0.055	DNQ	mg/L	18%
Arsenic	General Chemistry	5.4		5.3		ug/L	2%
Boron	General Chemistry	326		318		ug/L	2%
Bromide	General Chemistry	0.34	DNQ	0.28	DNQ	mg/L	19%
Cadmium	General Chemistry	-0.04	ND	-0.04	ND	ug/L	NA
Cadmium (Dissolved)	General Chemistry	-0.04	ND	-0.04	ND	ug/L	NA
Copper	General Chemistry	4		4.2		ug/L	5%
Copper (Dissolved)	General Chemistry	1.1		1.1		ug/L	0%
Dissolved Organic Carbon	General Chemistry	4.7		4.7		mg/L	0%
E. Coli	General Chemistry	150		180		MPN/100mL	18%
Hardness (as CACO3)	General Chemistry	180		170		mg/L	6%
Lead	General Chemistry	1.2		1.3		ug/L	8%

Event = Event Sample Results FD = Field Duplicate Sample Results RPD = Relative percent difference

Field Quality Control Samples

Field Duplicate and RPD Calculation

Analyte/Species	Type	Event	QC Code	FD	QC Code	Units	RPD	
Lead (Dissolved)	General Chemistry	-0.03	ND	-0.03	ND	ug/L	NA	
Nickel	General Chemistry	6		6.3		ug/L	5%	
Nickel (Dissolved)	General Chemistry	1.7		1.8		ug/L	6%	
Nitrate + Nitrite as N	General Chemistry	1.6		1.6		mg/L	0%	
Nitrogen, Total Kjeldahl	General Chemistry	0.51		1.1		mg/L	73%	*
OrthoPhosphate as P	General Chemistry	0.16		0.16		mg/L	0%	
Phosphate as P	General Chemistry	0.41		0.39		mg/L	5%	
Suspended Solids	General Chemistry	85		82		mg/L	4%	
Total Organic Carbon	General Chemistry	4.4		5		mg/L	13%	
Turbidity	General Chemistry	46		39		NTU	16%	
Zinc	General Chemistry	9.4		11		ug/L	16%	
Zinc (Dissolved)	General Chemistry	-0.7	ND	-0.7	ND	ug/L	NA	
Aldicarb	Pesticide	-0.20	ND	-0.20	ND	ug/L	NA	
Aldrin	Pesticide	-0.009	ND	-0.009	ND	ug/L	NA	
Atrazine	Pesticide	-0.07	ND	-0.07	ND	ug/L	NA	
Carbaryl	Pesticide	-0.050	ND	-0.050	ND	ug/L	NA	
Carbofuran	Pesticide	-0.050	ND	-0.050	ND	ug/L	NA	
Chlorpyrifos	Pesticide	-0.0026	ND	-0.0026	ND	ug/L	NA	
Cyanazine	Pesticide	-0.09	ND	-0.09	ND	ug/L	NA	
DDD(p,p')	Pesticide	-0.003	ND	-0.003	ND	ug/L	NA	
DDE(p,p')	Pesticide	-0.004	ND	-0.004	ND	ug/L	NA	
DDT(p,p')	Pesticide	-0.007	ND	-0.007	ND	ug/L	NA	
Demeton-s	Pesticide	-0.08	ND	-0.08	ND	ug/L	NA	
Diazinon	Pesticide	-0.004	ND	-0.004	ND	ug/L	NA	
Dichlorvos	Pesticide	-0.02	ND	-0.02	ND	ug/L	NA	
Dicofol	Pesticide	-0.01	ND	-0.01	ND	ug/L	NA	
Dieldrin	Pesticide	-0.005	ND	-0.005	ND	ug/L	NA	
Dimethoate	Pesticide	-0.080	ND	-0.080	ND	ug/L	NA	
Disulfoton	Pesticide	-0.020	ND	-0.020	ND	ug/L	NA	
Diuron	Pesticide	-0.20	ND	-0.20	ND	ug/L	NA	
Endosulfan I	Pesticide	-0.005	ND	-0.005	ND	ug/L	NA	
Endosulfan II	Pesticide	-0.004	ND	-0.004	ND	ug/L	NA	
Endosulfan Sulfate	Pesticide	-0.005	ND	-0.005	ND	ug/L	NA	
Endrin	Pesticide	-0.007	ND	-0.007	ND	ug/L	NA	
EPTC	Pesticide	-0.03	ND	-0.03	ND	ug/L	NA	
HCH, alpha	Pesticide	-0.005	ND	-0.005	ND	ug/L	NA	
HCH, beta	Pesticide	-0.008	ND	-0.008	ND	ug/L	NA	
HCH, delta	Pesticide	-0.005	ND	-0.005	ND	ug/L	NA	
HCH, gamma	Pesticide	-0.005	ND	-0.005	ND	ug/L	NA	
Heptachlor	Pesticide	-0.008	ND	-0.008	ND	ug/L	NA	
Heptachlor epoxide	Pesticide	-0.007	ND	-0.007	ND	ug/L	NA	
Linuron	Pesticide	-0.20	ND	-0.20	ND	ug/L	NA	
Malathion	Pesticide	-0.050	ND	-0.050	ND	ug/L	NA	

Event = Event Sample Results   FD = Field Duplicate Sample Results   RPD = Relative percent difference

Field Quality Control Samples

Field Duplicate and RPD Calculation

Analyte/Species	Type	Event	QC Code	FD	QC Code	Units	RPD
Methamidophos	Pesticide	-0.08	ND	-0.08	ND	ug/L	NA
Methidathion	Pesticide	-0.04	ND	-0.04	ND	ug/L	NA
Methiocarb	Pesticide	-0.20	ND	-0.20	ND	ug/L	NA
Methomyl	Pesticide	0.14	=	0.16	=	ug/L	13%
Methoxychlor	Pesticide	-0.008	ND	-0.008	ND	ug/L	NA
Oxamyl	Pesticide	-0.20	ND	-0.20	ND	ug/L	NA
Parathion, Ethyl	Pesticide	-0.02	ND	-0.02	ND	ug/L	NA
Parathion, Methyl	Pesticide	-0.075	ND	-0.075	ND	ug/L	NA
Phorate	Pesticide	-0.072	ND	-0.072	ND	ug/L	NA
Phosmet	Pesticide	-0.06	ND	-0.06	ND	ug/L	NA
Prowl	Pesticide	-0.04	ND	-0.04	ND	ug/L	NA
Simazine	Pesticide	-0.08	ND	-0.08	ND	ug/L	NA
Toxaphene	Pesticide	-0.380	ND	-0.380	ND	ug/L	NA
Trifluralin	Pesticide	-0.036	ND	-0.036	ND	ug/L	NA

Event = Event Sample Results FD = Field Duplicate Sample Results RPD = Relative percent difference

Field Quality Control Samples

Field Blank

Analyte/Species	Type	Event	QC Code	FB	QC Code	Units	% Difference
Sample Date:	**3/8/2011**	**Site: Salt Slough at Lander Ave**					
Ammonia as N	General Chemistry	0.22		-0.04	ND	mg/L	NA
Arsenic	General Chemistry	5.8		-0.008	ND	ug/L	NA
Boron	General Chemistry	584		2.6	DNQ	ug/L	0%
Bromide	General Chemistry	0.09	DNQ	-0.01	ND	mg/L	NA
Cadmium	General Chemistry	0.03	DNQ	-0.011	ND	ug/L	NA
Cadmium (Dissolved)	General Chemistry	0.02	DNQ	-0.011	ND	ug/L	NA
Copper	General Chemistry	3		0.17	DNQ	ug/L	6%
Copper (Dissolved)	General Chemistry	1.9		0.26	DNQ	ug/L	14%
Dissolved Organic Carbon	General Chemistry	7		0.26	DNQ	mg/L	4%
Dissolved Solids	General Chemistry	690		-4	ND	mg/L	NA
E. Coli	General Chemistry	34		-1	ND	MPN/100mL	NA
Hardness (as CACO3)	General Chemistry	270		-1.7	ND	mg/L	NA
Lead	General Chemistry	0.46		-0.071	ND	ug/L	NA
Lead (Dissolved)	General Chemistry	-0.071	ND	-0.071	ND	ug/L	NA
Nickel	General Chemistry	4		0.02	DNQ	ug/L	1%
Nickel (Dissolved)	General Chemistry	2.5		0.05	DNQ	ug/L	2%
Nitrate + Nitrite as N	General Chemistry	4.2		0.02	DNQ	mg/L	0%
Nitrogen, Total Kjeldahl	General Chemistry	0.44		0.077	DNQ	mg/L	18%
OrthoPhosphate as P	General Chemistry	0.31		-0.006	ND	mg/L	NA
Phosphate as P	General Chemistry	0.38		0.009	DNQ	mg/L	2%
Suspended Solids	General Chemistry	48		-2	ND	mg/L	NA
Total Organic Carbon	General Chemistry	6.9		0.15	DNQ	mg/L	2%
Turbidity	General Chemistry	13		-0.03	ND	NTU	NA
Zinc	General Chemistry	3.4		-0.8	ND	ug/L	NA
Zinc (Dissolved)	General Chemistry	-0.8	ND	-0.8	ND	ug/L	NA
Aldicarb	Pesticide	-0.20	ND	-0.20	ND	ug/L	NA
Aldrin	Pesticide	-0.009	ND	-0.009	ND	ug/L	NA
Atrazine	Pesticide	-0.07	ND	-0.07	ND	ug/L	NA
Azinphos methyl	Pesticide	-0.02	ND	-0.02	ND	ug/L	NA
Carbaryl	Pesticide	-0.050	ND	-0.050	ND	ug/L	NA
Carbofuran	Pesticide	-0.050	ND	-0.050	ND	ug/L	NA
Chlordane, Alpha-	Pesticide	-0.007	ND	-0.007	ND	ug/L	NA
Chlordane, gamma-	Pesticide	-0.006	ND	-0.006	ND	ug/L	NA
Chlorpyrifos	Pesticide	-0.0026	ND	-0.0026	ND	ug/L	NA
Cyanazine	Pesticide	-0.09	ND	-0.09	ND	ug/L	NA
DDD(p,p')	Pesticide	-0.003	ND	-0.003	ND	ug/L	NA
DDE(p,p')	Pesticide	-0.004	ND	-0.004	ND	ug/L	NA
DDT(p,p')	Pesticide	-0.007	ND	-0.007	ND	ug/L	NA
Demeton-s	Pesticide	-0.08	ND	-0.08	ND	ug/L	NA
Diazinon	Pesticide	-0.004	ND	-0.004	ND	ug/L	NA
Dichlorvos	Pesticide	-0.02	ND	-0.02	ND	ug/L	NA
Dicofol	Pesticide	-0.01	ND	-0.01	ND	ug/L	NA
Dieldrin	Pesticide	-0.005	ND	-0.005	ND	ug/L	NA

Event = Event Sample Result FB = Field Blank Sample Result

Field Quality Control Samples

Field Blank

Analyte/Species	Type	Event	QC Code	FB	QC Code	Units	% Difference
Dimethoate	Pesticide	-0.080	ND	-0.080	ND	ug/L	NA
Disulfoton	Pesticide	-0.020	ND	-0.020	ND	ug/L	NA
Diuron	Pesticide	3.5		-0.20	ND	ug/L	NA
Endosulfan I	Pesticide	-0.005	ND	-0.005	ND	ug/L	NA
Endosulfan II	Pesticide	-0.004	ND	-0.004	ND	ug/L	NA
Endosulfan Sulfate	Pesticide	-0.005	ND	-0.005	ND	ug/L	NA
Endrin	Pesticide	-0.007	ND	-0.007	ND	ug/L	NA
EPTC	Pesticide	-0.03	ND	-0.03	ND	ug/L	NA
HCH, alpha	Pesticide	-0.005	ND	-0.005	ND	ug/L	NA
HCH, beta	Pesticide	-0.008	ND	-0.008	ND	ug/L	NA
HCH, delta	Pesticide	-0.005	ND	-0.005	ND	ug/L	NA
HCH, gamma	Pesticide	-0.005	ND	-0.005	ND	ug/L	NA
Heptachlor	Pesticide	-0.008	ND	-0.008	ND	ug/L	NA
Heptachlor epoxide	Pesticide	-0.007	ND	-0.007	ND	ug/L	NA
Linuron	Pesticide	-0.20	ND	-0.20	ND	ug/L	NA
Malathion	Pesticide	-0.050	ND	-0.050	ND	ug/L	NA
Methamidophos	Pesticide	-0.08	ND	-0.08	ND	ug/L	NA
Methidathion	Pesticide	-0.04	ND	-0.04	ND	ug/L	NA
Methiocarb	Pesticide	-0.20	ND	-0.20	ND	ug/L	NA
Methomyl	Pesticide	-0.050	ND	-0.050	ND	ug/L	NA
Methoxychlor	Pesticide	-0.008	ND	-0.008	ND	ug/L	NA
Oxamyl	Pesticide	-0.20	ND	-0.20	ND	ug/L	NA
Parathion, Ethyl	Pesticide	-0.02	ND	-0.02	ND	ug/L	NA
Parathion, Methyl	Pesticide	-0.075	ND	-0.075	ND	ug/L	NA
Phorate	Pesticide	-0.072	ND	-0.072	ND	ug/L	NA
Phosmet	Pesticide	-0.06	ND	-0.06	ND	ug/L	NA
Prowl	Pesticide	0.20		-0.04	ND	ug/L	NA
Simazine	Pesticide	-0.08	ND	-0.08	ND	ug/L	NA
Toxaphene	Pesticide	-0.380	ND	-0.380	ND	ug/L	NA
Trifluralin	Pesticide	-0.036	ND	-0.036	ND	ug/L	NA

Sample Date: 4/12/2011 Site: Salt Slough at Lander Ave

Analyte/Species	Type	Event	QC Code	FB	QC Code	Units	% Difference
Ammonia as N	General Chemistry	0.19		-0.04	ND	mg/L	NA
Arsenic	General Chemistry	4.8		-0.02	ND	ug/L	NA
Boron	General Chemistry	829		2.1	DNQ	ug/L	0%
Bromide	General Chemistry	-0.01	ND	-0.01	ND	mg/L	NA
Cadmium	General Chemistry	-0.04	ND	-0.04	ND	ug/L	NA
Cadmium (Dissolved)	General Chemistry	-0.04	ND	-0.04	ND	ug/L	NA
Copper	General Chemistry	2.3		-0.07	ND	ug/L	NA
Copper (Dissolved)	General Chemistry	0.85		-0.07	ND	ug/L	NA
Dissolved Organic Carbon	General Chemistry	7.7		0.28	DNQ	mg/L	4%
Dissolved Solids	General Chemistry	1000		-4	ND	mg/L	NA
E. Coli	General Chemistry	200		-1	ND	MPN/100mL	NA
Hardness (as CACO3)	General Chemistry	360		-1.7	ND	mg/L	NA
Lead	General Chemistry	0.65		-0.03	ND	ug/L	NA

Event = Event Sample Result   FB = Field Blank Sample Result

Field Quality Control Samples

Field Blank

Analyte/Species	Type	Event	QC Code	FB	QC Code	Units	% Difference
Lead (Dissolved)	General Chemistry	-0.03	ND	-0.03	ND	ug/L	NA
Nickel	General Chemistry	4.5		-0.04	ND	ug/L	NA
Nickel (Dissolved)	General Chemistry	2		-0.04	ND	ug/L	NA
Nitrate + Nitrite as N	General Chemistry	1.3		-0.02	ND	mg/L	NA
Nitrogen, Total Kjeldahl	General Chemistry	1.2		-0.07	ND	mg/L	NA
OrthoPhosphate as P	General Chemistry	0.22		-0.006	ND	mg/L	NA
Phosphate as P	General Chemistry	0.39		-0.007	ND	mg/L	NA
Suspended Solids	General Chemistry	51		-2	ND	mg/L	NA
Total Organic Carbon	General Chemistry	8		0.37	DNQ	mg/L	5%
Turbidity	General Chemistry	29		-0.03	ND	NTU	NA
Zinc	General Chemistry	5.7		-0.7	ND	ug/L	NA
Zinc (Dissolved)	General Chemistry	-0.7	ND	-0.7	ND	ug/L	NA
Aldicarb	Pesticide	-0.20	ND	-0.20	ND	ug/L	NA
Aldrin	Pesticide	-0.009	ND	-0.009	ND	ug/L	NA
Atrazine	Pesticide	-0.07	ND	-0.07	ND	ug/L	NA
Azinphos methyl	Pesticide	-0.02	ND	-0.02	ND	ug/L	NA
Carbaryl	Pesticide	-0.050	ND	-0.050	ND	ug/L	NA
Carbofuran	Pesticide	-0.050	ND	-0.050	ND	ug/L	NA
Chlordane, Alpha-	Pesticide	-0.007	ND	-0.007	ND	ug/L	NA
Chlordane, gamma-	Pesticide	-0.006	ND	-0.006	ND	ug/L	NA
Chlorpyrifos	Pesticide	-0.0026	ND	-0.0026	ND	ug/L	NA
Cyanazine	Pesticide	-0.09	ND	-0.09	ND	ug/L	NA
DDD(p,p')	Pesticide	-0.003	ND	-0.003	ND	ug/L	NA
DDE(p,p')	Pesticide	-0.004	ND	-0.004	ND	ug/L	NA
DDT(p,p')	Pesticide	-0.007	ND	-0.007	ND	ug/L	NA
Demeton-s	Pesticide	-0.08	ND	-0.08	ND	ug/L	NA
Diazinon	Pesticide	-0.004	ND	-0.004	ND	ug/L	NA
Dichlorvos	Pesticide	-0.02	ND	-0.02	ND	ug/L	NA
Dicofol	Pesticide	-0.01	ND	-0.01	ND	ug/L	NA
Dieldrin	Pesticide	-0.005	ND	-0.005	ND	ug/L	NA
Dimethoate	Pesticide	-0.080	ND	-0.080	ND	ug/L	NA
Disulfoton	Pesticide	-0.020	ND	-0.020	ND	ug/L	NA
Diuron	Pesticide	0.29	DNQ	-0.20	ND	ug/L	NA
Endosulfan I	Pesticide	-0.005	ND	-0.005	ND	ug/L	NA
Endosulfan II	Pesticide	-0.004	ND	-0.004	ND	ug/L	NA
Endosulfan Sulfate	Pesticide	-0.005	ND	-0.005	ND	ug/L	NA
Endrin	Pesticide	-0.007	ND	-0.007	ND	ug/L	NA
EPTC	Pesticide	-0.03	ND	-0.03	ND	ug/L	NA
HCH, alpha	Pesticide	-0.005	ND	-0.005	ND	ug/L	NA
HCH, beta	Pesticide	-0.008	ND	-0.008	ND	ug/L	NA
HCH, delta	Pesticide	-0.005	ND	-0.005	ND	ug/L	NA
HCH, gamma	Pesticide	-0.005	ND	-0.005	ND	ug/L	NA
Heptachlor	Pesticide	-0.008	ND	-0.008	ND	ug/L	NA
Heptachlor epoxide	Pesticide	-0.007	ND	-0.007	ND	ug/L	NA
Linuron	Pesticide	-0.20	ND	-0.20	ND	ug/L	NA

Event = Event Sample Result FB = Field Blank Sample Result

Field Quality Control Samples

Field Blank

Analyte/Species	Type	Event	QC Code	FB	QC Code	Units	% Difference
Malathion	Pesticide	0.076	DNQ	-0.050	ND	ug/L	NA
Methamidophos	Pesticide	-0.08	ND	-0.08	ND	ug/L	NA
Methidathion	Pesticide	-0.04	ND	-0.04	ND	ug/L	NA
Methiocarb	Pesticide	-0.20	ND	-0.20	ND	ug/L	NA
Methomyl	Pesticide	-0.050	ND	-0.050	ND	ug/L	NA
Methoxychlor	Pesticide	-0.008	ND	-0.008	ND	ug/L	NA
Oxamyl	Pesticide	-0.20	ND	-0.20	ND	ug/L	NA
Parathion, Ethyl	Pesticide	-0.02	ND	-0.02	ND	ug/L	NA
Parathion, Methyl	Pesticide	-0.075	ND	-0.075	ND	ug/L	NA
Phorate	Pesticide	-0.072	ND	-0.072	ND	ug/L	NA
Phosmet	Pesticide	-0.06	ND	-0.06	ND	ug/L	NA
Prowl	Pesticide	-0.04	ND	-0.04	ND	ug/L	NA
Simazine	Pesticide	-0.08	ND	-0.08	ND	ug/L	NA
Toxaphene	Pesticide	-0.380	ND	-0.380	ND	ug/L	NA
Trifluralin	Pesticide	-0.036	ND	-0.036	ND	ug/L	NA

Sample Date: 5/10/2011 Site: Salt Slough at Lander Ave

Analyte/Species	Type	Event	QC Code	FB	QC Code	Units	% Difference
Ammonia as N	General Chemistry	0.16		-0.04	ND	mg/L	NA
Arsenic	General Chemistry	5.6		-0.02	ND	ug/L	NA
Boron	General Chemistry	355		4.9	DNQ	ug/L	1%
Bromide	General Chemistry	-0.01	ND	-0.01	ND	mg/L	NA
Cadmium	General Chemistry	-0.04	ND	-0.04	ND	ug/L	NA
Cadmium (Dissolved)	General Chemistry	-0.04	ND	-0.04	ND	ug/L	NA
Copper	General Chemistry	3.1		-0.07	ND	ug/L	NA
Copper (Dissolved)	General Chemistry	1.1		-0.07	ND	ug/L	NA
Dissolved Organic Carbon	General Chemistry	5.1		0.55		mg/L	11%
Dissolved Solids	General Chemistry	620		-4	ND	mg/L	NA
E. Coli	General Chemistry	160		-1	ND	MPN/100mL	NA
Hardness (as CACO3)	General Chemistry	230		-1.7	ND	mg/L	NA
Lead	General Chemistry	0.85		-0.03	ND	ug/L	NA
Lead (Dissolved)	General Chemistry	-0.03	ND	-0.03	ND	ug/L	NA
Nickel	General Chemistry	4.8		-0.04	ND	ug/L	NA
Nickel (Dissolved)	General Chemistry	1.7		-0.04	ND	ug/L	NA
Nitrate + Nitrite as N	General Chemistry	1.4		0.02	DNQ	mg/L	1%
Nitrogen, Total Kjeldahl	General Chemistry	1.1		-0.07	ND	mg/L	NA
OrthoPhosphate as P	General Chemistry	0.26		-0.006	ND	mg/L	NA
Phosphate as P	General Chemistry	0.4		-0.007	ND	mg/L	NA
Suspended Solids	General Chemistry	46		-2	ND	mg/L	NA
Total Organic Carbon	General Chemistry	5		0.46	DNQ	mg/L	9%
Turbidity	General Chemistry	37		-0.03	ND	NTU	NA
Zinc	General Chemistry	7.9		-0.7	ND	ug/L	NA
Zinc (Dissolved)	General Chemistry	-0.7	ND	-0.7	ND	ug/L	NA
Aldicarb	Pesticide	-0.20	ND	-0.20	ND	ug/L	NA
Aldrin	Pesticide	-0.009	ND	-0.009	ND	ug/L	NA
Atrazine	Pesticide	-0.07	ND	-0.07	ND	ug/L	NA

Event = Event Sample Result FB = Field Blank Sample Result

Field Quality Control Samples

Field Blank

Analyte/Species	Type	Event	QC Code	FB	QC Code	Units	% Difference
Azinphos methyl	Pesticide	-0.02	ND	-0.02	ND	ug/L	NA
Carbaryl	Pesticide	-0.050	ND	-0.050	ND	ug/L	NA
Carbofuran	Pesticide	-0.050	ND	-0.050	ND	ug/L	NA
Chlordane, Alpha-	Pesticide	-0.007	ND	-0.007	ND	ug/L	NA
Chlordane, gamma-	Pesticide	-0.006	ND	-0.006	ND	ug/L	NA
Chlorpyrifos	Pesticide	-0.0026	ND	-0.0026	ND	ug/L	NA
Cyanazine	Pesticide	-0.09	ND	-0.09	ND	ug/L	NA
DDD(p,p')	Pesticide	-0.003	ND	-0.003	ND	ug/L	NA
DDE(p,p')	Pesticide	-0.004	ND	-0.004	ND	ug/L	NA
DDT(p,p')	Pesticide	-0.007	ND	-0.007	ND	ug/L	NA
Demeton-s	Pesticide	-0.08	ND	-0.08	ND	ug/L	NA
Diazinon	Pesticide	-0.004	ND	-0.004	ND	ug/L	NA
Dichlorvos	Pesticide	-0.02	ND	-0.02	ND	ug/L	NA
Dicofol	Pesticide	-0.01	ND	-0.01	ND	ug/L	NA
Dieldrin	Pesticide	-0.005	ND	-0.005	ND	ug/L	NA
Dimethoate	Pesticide	-0.080	ND	-0.080	ND	ug/L	NA
Disulfoton	Pesticide	-0.020	ND	-0.020	ND	ug/L	NA
Diuron	Pesticide	0.58		-0.20	ND	ug/L	NA
Endosulfan I	Pesticide	-0.005	ND	-0.005	ND	ug/L	NA
Endosulfan II	Pesticide	-0.004	ND	-0.004	ND	ug/L	NA
Endosulfan Sulfate	Pesticide	-0.005	ND	-0.005	ND	ug/L	NA
Endrin	Pesticide	-0.007	ND	-0.007	ND	ug/L	NA
EPTC	Pesticide	-0.03	ND	-0.03	ND	ug/L	NA
HCH, alpha	Pesticide	-0.005	ND	-0.005	ND	ug/L	NA
HCH, beta	Pesticide	-0.008	ND	-0.008	ND	ug/L	NA
HCH, delta	Pesticide	-0.005	ND	-0.005	ND	ug/L	NA
HCH, gamma	Pesticide	-0.005	ND	-0.005	ND	ug/L	NA
Heptachlor	Pesticide	-0.008	ND	-0.008	ND	ug/L	NA
Heptachlor epoxide	Pesticide	-0.007	ND	-0.007	ND	ug/L	NA
Linuron	Pesticide	-0.20	ND	-0.20	ND	ug/L	NA
Malathion	Pesticide	-0.050	ND	-0.050	ND	ug/L	NA
Methamidophos	Pesticide	-0.08	ND	-0.08	ND	ug/L	NA
Methidathion	Pesticide	-0.04	ND	-0.04	ND	ug/L	NA
Methiocarb	Pesticide	-0.20	ND	-0.20	ND	ug/L	NA
Methomyl	Pesticide	-0.050	ND	-0.050	ND	ug/L	NA
Methoxychlor	Pesticide	-0.008	ND	-0.008	ND	ug/L	NA
Oxamyl	Pesticide	-0.20	ND	-0.20	ND	ug/L	NA
Parathion, Ethyl	Pesticide	-0.02	ND	-0.02	ND	ug/L	NA
Parathion, Methyl	Pesticide	-0.075	ND	-0.075	ND	ug/L	NA
Phorate	Pesticide	-0.072	ND	-0.072	ND	ug/L	NA
Phosmet	Pesticide	-0.06	ND	-0.06	ND	ug/L	NA
Prowl	Pesticide	-0.04	ND	-0.04	ND	ug/L	NA
Simazine	Pesticide	-0.08	ND	-0.08	ND	ug/L	NA
Toxaphene	Pesticide	-0.380	ND	-0.380	ND	ug/L	NA
Trifluralin	Pesticide	-0.036	ND	-0.036	ND	ug/L	NA

Event = Event Sample Result FB = Field Blank Sample Result

Field Quality Control Samples

Field Blank

Analyte/Species	Type	Event	QC Code	FB	QC Code	Units	% Difference
Sample Date:	**6/14/2011**	**Site:**	**Salt Slough at Lander Ave**				
Ammonia as N	General Chemistry	0.2		-0.04	ND	mg/L	NA
Arsenic	General Chemistry	6.2		-0.02	ND	ug/L	NA
Boron	General Chemistry	380		-0.7	ND	ug/L	NA
Bromide	General Chemistry	0.21	DNQ	-0.01	ND	mg/L	NA
Cadmium	General Chemistry	-0.04	ND	-0.04	ND	ug/L	NA
Cadmium (Dissolved)	General Chemistry	-0.04	ND	-0.04	ND	ug/L	NA
Copper	General Chemistry	4.5		0.29	DNQ	ug/L	6%
Copper (Dissolved)	General Chemistry	1.6		0.24	DNQ	ug/L	15%
Dissolved Organic Carbon	General Chemistry	5.9		0.28	DNQ	mg/L	5%
Dissolved Solids	General Chemistry	670		-4	ND	mg/L	NA
E. Coli	General Chemistry	130		-1	ND	MPN/100mL	NA
Hardness (as CACO3)	General Chemistry	240		-1.7	ND	mg/L	NA
Lead	General Chemistry	1.3		-0.03	ND	ug/L	NA
Lead (Dissolved)	General Chemistry	-0.03	ND	-0.03	ND	ug/L	NA
Nickel	General Chemistry	7.1		-0.04	ND	ug/L	NA
Nickel (Dissolved)	General Chemistry	2		-0.04	ND	ug/L	NA
Nitrate + Nitrite as N	General Chemistry	4.6		-0.02	ND	mg/L	NA
Nitrogen, Total Kjeldahl	General Chemistry	0.56		-0.07	ND	mg/L	NA
OrthoPhosphate as P	General Chemistry	0.2		-0.006	ND	mg/L	NA
Phosphate as P	General Chemistry	0.41		-0.007	ND	mg/L	NA
Suspended Solids	General Chemistry	93		-2	ND	mg/L	NA
Total Organic Carbon	General Chemistry	5.8		0.29	DNQ	mg/L	5%
Turbidity	General Chemistry	59		-0.03	ND	NTU	NA
Zinc	General Chemistry	11		-0.7	ND	ug/L	NA
Zinc (Dissolved)	General Chemistry	-0.7	ND	-0.7	ND	ug/L	NA
Aldicarb	Pesticide	-0.20	ND	-0.20	ND	ug/L	NA
Aldrin	Pesticide	-0.009	ND	-0.009	ND	ug/L	NA
Aldrin	Pesticide	-0.045	ND	-0.009	ND	ug/L	NA
Atrazine	Pesticide	-0.07	ND	-0.07	ND	ug/L	NA
Azinphos methyl	Pesticide	-0.02	ND	-0.02	ND	ug/L	NA
Carbaryl	Pesticide	-0.050	ND	-0.050	ND	ug/L	NA
Carbofuran	Pesticide	-0.050	ND	-0.050	ND	ug/L	NA
Chlordane, Alpha-	Pesticide	-0.035	ND	-0.007	ND	ug/L	NA
Chlordane, Alpha-	Pesticide	-0.007	ND	-0.007	ND	ug/L	NA
Chlordane, gamma-	Pesticide	-0.030	ND	-0.006	ND	ug/L	NA
Chlordane, gamma-	Pesticide	-0.006	ND	-0.006	ND	ug/L	NA
Chlorpyrifos	Pesticide	-0.0026	ND	-0.0026	ND	ug/L	NA
Cyanazine	Pesticide	-0.09	ND	-0.09	ND	ug/L	NA
DDD(p,p')	Pesticide	-0.003	ND	-0.003	ND	ug/L	NA
DDD(p,p')	Pesticide	-0.015	ND	-0.003	ND	ug/L	NA
DDE(p,p')	Pesticide	-0.020	ND	-0.004	ND	ug/L	NA
DDE(p,p')	Pesticide	-0.004	ND	-0.004	ND	ug/L	NA
DDT(p,p')	Pesticide	-0.007	ND	-0.007	ND	ug/L	NA

Event = Event Sample Result FB = Field Blank Sample Result

Field Quality Control Samples

Field Blank

Analyte/Species	Type	Event	QC Code	FB	QC Code	Units	% Difference
DDT(p,p')	Pesticide	-0.035	ND	-0.007	ND	ug/L	NA
Demeton-s	Pesticide	-0.08	ND	-0.08	ND	ug/L	NA
Diazinon	Pesticide	-0.004	ND	-0.004	ND	ug/L	NA
Dichlorvos	Pesticide	-0.02	ND	-0.02	ND	ug/L	NA
Dicofol	Pesticide	-0.01	ND	-0.01	ND	ug/L	NA
Dicofol	Pesticide	-0.05	ND	-0.01	ND	ug/L	NA
Dieldrin	Pesticide	-0.025	ND	-0.005	ND	ug/L	NA
Dieldrin	Pesticide	-0.005	ND	-0.005	ND	ug/L	NA
Dimethoate	Pesticide	-0.080	ND	-0.080	ND	ug/L	NA
Disulfoton	Pesticide	-0.020	ND	-0.020	ND	ug/L	NA
Diuron	Pesticide	-0.20	ND	-0.20	ND	ug/L	NA
Endosulfan I	Pesticide	-0.005	ND	-0.005	ND	ug/L	NA
Endosulfan I	Pesticide	-0.025	ND	-0.005	ND	ug/L	NA
Endosulfan II	Pesticide	-0.004	ND	-0.004	ND	ug/L	NA
Endosulfan II	Pesticide	-0.020	ND	-0.004	ND	ug/L	NA
Endosulfan Sulfate	Pesticide	-0.025	ND	-0.005	ND	ug/L	NA
Endosulfan Sulfate	Pesticide	-0.005	ND	-0.005	ND	ug/L	NA
Endrin	Pesticide	-0.035	ND	-0.007	ND	ug/L	NA
Endrin	Pesticide	-0.007	ND	-0.007	ND	ug/L	NA
EPTC	Pesticide	-0.03	ND	-0.03	ND	ug/L	NA
HCH, alpha	Pesticide	-0.005	ND	-0.005	ND	ug/L	NA
HCH, alpha	Pesticide	-0.025	ND	-0.005	ND	ug/L	NA
HCH, beta	Pesticide	-0.040	ND	-0.008	ND	ug/L	NA
HCH, beta	Pesticide	-0.008	ND	-0.008	ND	ug/L	NA
HCH, delta	Pesticide	-0.025	ND	-0.005	ND	ug/L	NA
HCH, delta	Pesticide	-0.005	ND	-0.005	ND	ug/L	NA
HCH, gamma	Pesticide	-0.025	ND	-0.005	ND	ug/L	NA
HCH, gamma	Pesticide	-0.005	ND	-0.005	ND	ug/L	NA
Heptachlor	Pesticide	-0.040	ND	-0.008	ND	ug/L	NA
Heptachlor	Pesticide	-0.008	ND	-0.008	ND	ug/L	NA
Heptachlor epoxide	Pesticide	-0.035	ND	-0.007	ND	ug/L	NA
Heptachlor epoxide	Pesticide	-0.007	ND	-0.007	ND	ug/L	NA
Linuron	Pesticide	-0.20	ND	-0.20	ND	ug/L	NA
Malathion	Pesticide	-0.050	ND	-0.050	ND	ug/L	NA
Methamidophos	Pesticide	-0.08	ND	-0.08	ND	ug/L	NA
Methidathion	Pesticide	-0.04	ND	-0.04	ND	ug/L	NA
Methiocarb	Pesticide	-0.20	ND	-0.20	ND	ug/L	NA
Methomyl	Pesticide	-0.050	ND	-0.050	ND	ug/L	NA
Methoxychlor	Pesticide	-0.008	ND	-0.008	ND	ug/L	NA
Methoxychlor	Pesticide	-0.040	ND	-0.008	ND	ug/L	NA
Oxamyl	Pesticide	-0.20	ND	-0.20	ND	ug/L	NA
Parathion, Ethyl	Pesticide	-0.02	ND	-0.02	ND	ug/L	NA
Parathion, Methyl	Pesticide	-0.075	ND	-0.075	ND	ug/L	NA
Phorate	Pesticide	-0.072	ND	-0.072	ND	ug/L	NA
Phosmet	Pesticide	-0.06	ND	-0.06	ND	ug/L	NA

Event = Event Sample Result FB = Field Blank Sample Result

Field Quality Control Samples

Field Blank

Analyte/Species	Type	Event	QC Code	FB	QC Code	Units	% Difference
Prowl	Pesticide	-0.04	ND	-0.04	ND	ug/L	NA
Simazine	Pesticide	-0.08	ND	-0.08	ND	ug/L	NA
Toxaphene	Pesticide	-0.380	ND	-0.380	ND	ug/L	NA
Toxaphene	Pesticide	-1.900	ND	-0.380	ND	ug/L	NA
Trifluralin	Pesticide	-0.036	ND	-0.036	ND	ug/L	NA
Sample Date: 7/12/2011 Site: Salt Slough at Lander Ave							
Ammonia as N	General Chemistry	0.19		-0.04	ND	mg/L	NA
Arsenic	General Chemistry	6.4		-0.02	ND	ug/L	NA
Boron	General Chemistry	298		2.6	DNQ	ug/L	1%
Bromide	General Chemistry	0.086	DNQ	-0.01	ND	mg/L	NA
Cadmium	General Chemistry	-0.04	ND	-0.04	ND	ug/L	NA
Cadmium (Dissolved)	General Chemistry	-0.04	ND	-0.04	ND	ug/L	NA
Copper	General Chemistry	5.3		-0.07	ND	ug/L	NA
Copper (Dissolved)	General Chemistry	1.4		-0.07	ND	ug/L	NA
Dissolved Organic Carbon	General Chemistry	5.3		0.35	DNQ	mg/L	7%
Dissolved Solids	General Chemistry	490		-4	ND	mg/L	NA
E. Coli	General Chemistry	110		-1	ND	MPN/100mL	NA
Hardness (as CACO3)	General Chemistry	180		-1.7	ND	mg/L	NA
Lead	General Chemistry	1.6		-0.03	ND	ug/L	NA
Lead (Dissolved)	General Chemistry	-0.03	ND	-0.03	ND	ug/L	NA
Nickel	General Chemistry	8.1		-0.04	ND	ug/L	NA
Nickel (Dissolved)	General Chemistry	1.9		-0.04	ND	ug/L	NA
Nitrate + Nitrite as N	General Chemistry	2.7		0.19		mg/L	7%
Nitrogen, Total Kjeldahl	General Chemistry	1.3		-0.07	ND	mg/L	NA
OrthoPhosphate as P	General Chemistry	0.21		-0.006	ND	mg/L	NA
Phosphate as P	General Chemistry	0.7		-0.007	ND	mg/L	NA
Suspended Solids	General Chemistry	269		-2	ND	mg/L	NA
Total Organic Carbon	General Chemistry	5.1		0.25	DNQ	mg/L	5%
Turbidity	General Chemistry	120		-0.03	ND	NTU	NA
Zinc	General Chemistry	13		-0.7	ND	ug/L	NA
Zinc (Dissolved)	General Chemistry	1	DNQ	-0.7	ND	ug/L	NA
Sample Date: 8/9/2011 Site: Salt Slough at Lander Ave							
Ammonia as N	General Chemistry	0.066	DNQ	-0.04	ND	mg/L	NA
Arsenic	General Chemistry	5.4		0.03	DNQ	ug/L	1%
Boron	General Chemistry	326		0.7	DNQ	ug/L	0%
Bromide	General Chemistry	0.34	DNQ	0.015	DNQ	mg/L	4%
Cadmium	General Chemistry	-0.04	ND	-0.04	ND	ug/L	NA
Cadmium (Dissolved)	General Chemistry	-0.04	ND	-0.04	ND	ug/L	NA
Copper	General Chemistry	4		-0.07	ND	ug/L	NA
Copper (Dissolved)	General Chemistry	1.1		-0.07	ND	ug/L	NA
Dissolved Organic Carbon	General Chemistry	4.7		0.28	DNQ	mg/L	6%
Dissolved Solids	General Chemistry	460		-4	ND	mg/L	NA
E. Coli	General Chemistry	150		-1	ND	MPN/100mL	NA
Hardness (as CACO3)	General Chemistry	180		-1.7	ND	mg/L	NA

Event = Event Sample Result FB = Field Blank Sample Result

Field Quality Control Samples

Field Blank

Analyte/Species	Type	Event	QC Code	FB	QC Code	Units	% Difference
Lead	General Chemistry	1.2		-0.03	ND	ug/L	NA
Lead (Dissolved)	General Chemistry	-0.03	ND	-0.03	ND	ug/L	NA
Nickel	General Chemistry	6		-0.04	ND	ug/L	NA
Nickel (Dissolved)	General Chemistry	1.7		-0.04	ND	ug/L	NA
Nitrate + Nitrite as N	General Chemistry	1.6		0.021	DNQ	mg/L	1%
Nitrogen, Total Kjeldahl	General Chemistry	0.51		-0.07	ND	mg/L	NA
OrthoPhosphate as P	General Chemistry	0.16		-0.006	ND	mg/L	NA
Phosphate as P	General Chemistry	0.41		-0.007	ND	mg/L	NA
Suspended Solids	General Chemistry	85		1	DNQ	mg/L	1%
Total Organic Carbon	General Chemistry	4.4		0.22	DNQ	mg/L	5%
Turbidity	General Chemistry	46		-0.03	ND	NTU	NA
Zinc	General Chemistry	9.4		-0.7	ND	ug/L	NA
Zinc (Dissolved)	General Chemistry	-0.7	ND	-0.7	ND	ug/L	NA
Aldicarb	Pesticide	-0.20	ND	-0.20	ND	ug/L	NA
Aldrin	Pesticide	-0.009	ND	-0.009	ND	ug/L	NA
Atrazine	Pesticide	-0.07	ND	-0.07	ND	ug/L	NA
Azinphos methyl	Pesticide	-0.02	ND	-0.02	ND	ug/L	NA
Carbaryl	Pesticide	-0.050	ND	-0.050	ND	ug/L	NA
Carbofuran	Pesticide	-0.050	ND	-0.050	ND	ug/L	NA
Chlordane, Alpha-	Pesticide	-0.007	ND	-0.007	ND	ug/L	NA
Chlordane, gamma-	Pesticide	-0.006	ND	-0.006	ND	ug/L	NA
Chlorpyrifos	Pesticide	-0.0026	ND	-0.0026	ND	ug/L	NA
Cyanazine	Pesticide	-0.09	ND	-0.09	ND	ug/L	NA
DDD(p,p')	Pesticide	-0.003	ND	-0.003	ND	ug/L	NA
DDE(p,p')	Pesticide	-0.004	ND	-0.004	ND	ug/L	NA
DDT(p,p')	Pesticide	-0.007	ND	-0.007	ND	ug/L	NA
Demeton-s	Pesticide	-0.08	ND	-0.08	ND	ug/L	NA
Diazinon	Pesticide	-0.004	ND	-0.004	ND	ug/L	NA
Dichlorvos	Pesticide	-0.02	ND	-0.02	ND	ug/L	NA
Dicofol	Pesticide	-0.01	ND	-0.01	ND	ug/L	NA
Dieldrin	Pesticide	-0.005	ND	-0.005	ND	ug/L	NA
Dimethoate	Pesticide	-0.080	ND	-0.080	ND	ug/L	NA
Disulfoton	Pesticide	-0.020	ND	-0.020	ND	ug/L	NA
Diuron	Pesticide	-0.20	ND	-0.20	ND	ug/L	NA
Endosulfan I	Pesticide	-0.005	ND	-0.005	ND	ug/L	NA
Endosulfan II	Pesticide	-0.004	ND	-0.004	ND	ug/L	NA
Endosulfan Sulfate	Pesticide	-0.005	ND	-0.005	ND	ug/L	NA
Endrin	Pesticide	-0.007	ND	-0.007	ND	ug/L	NA
EPTC	Pesticide	-0.03	ND	-0.03	ND	ug/L	NA
HCH, alpha	Pesticide	-0.005	ND	-0.005	ND	ug/L	NA
HCH, beta	Pesticide	-0.008	ND	-0.008	ND	ug/L	NA
HCH, delta	Pesticide	-0.005	ND	-0.005	ND	ug/L	NA
HCH, gamma	Pesticide	-0.005	ND	-0.005	ND	ug/L	NA
Heptachlor	Pesticide	-0.008	ND	-0.008	ND	ug/L	NA
Heptachlor epoxide	Pesticide	-0.007	ND	-0.007	ND	ug/L	NA

Event = Event Sample Result FB = Field Blank Sample Result

Field Quality Control Samples

Field Blank

Analyte/Species	Type	Event	QC Code	FB	QC Code	Units	% Difference
Linuron	Pesticide	-0.20	ND	-0.20	ND	ug/L	NA
Malathion	Pesticide	-0.050	ND	-0.050	ND	ug/L	NA
Methamidophos	Pesticide	-0.08	ND	-0.08	ND	ug/L	NA
Methidathion	Pesticide	-0.04	ND	-0.04	ND	ug/L	NA
Methiocarb	Pesticide	-0.20	ND	-0.20	ND	ug/L	NA
Methomyl	Pesticide	0.14	=	-0.050	ND	ug/L	NA
Methoxychlor	Pesticide	-0.008	ND	-0.008	ND	ug/L	NA
Oxamyl	Pesticide	-0.20	ND	-0.20	ND	ug/L	NA
Parathion, Ethyl	Pesticide	-0.02	ND	-0.02	ND	ug/L	NA
Parathion, Methyl	Pesticide	-0.075	ND	-0.075	ND	ug/L	NA
Phorate	Pesticide	-0.072	ND	-0.072	ND	ug/L	NA
Phosmet	Pesticide	-0.06	ND	-0.06	ND	ug/L	NA
Prowl	Pesticide	-0.04	ND	-0.04	ND	ug/L	NA
Simazine	Pesticide	-0.08	ND	-0.08	ND	ug/L	NA
Toxaphene	Pesticide	-0.380	ND	-0.380	ND	ug/L	NA
Trifluralin	Pesticide	-0.036	ND	-0.036	ND	ug/L	NA

Event = Event Sample Result   FB = Field Blank Sample Result

Attachment 4
Sediment Toxicity Follow-up Analyses

Sediment Toxicity Follow-up Analysis

Hospital Creek at River Road **Toxicity Results** Hyalella azteca 8.75 %

Sample Event: 79 5/24/2011

Pesticide	Results	Units
Allethrin	ND	ug/kg
Bifenthrin	2	ug/kg
Chlorpyrifos	4.1	ug/kg
Cyfluthrin, total	ND	ug/kg
Cyhalothrin, lambda, total	0.85	ug/kg
Cypermethrin, total	ND	ug/kg
Deltamethrin:Tralomethrin	ND	ug/kg
Diazinon	ND	ug/kg
Esfenvalerate:Fenvalerate	24.5	ug/kg
Fenpropathrin	ND	ug/kg
Permethrin, total	ND	ug/kg
Tau-Fluvalinate	ND	ug/kg
Tetramethrin	ND	ug/kg

DNQ: Result is below the report limit and is estimated

Sediment Toxicity Follow-up Analysis

Ingram Creek at River Road

Toxicity Results Hyalella azteca 16.25 %

Sample Event: 79 5/24/2011

Pesticide	Results	Units
Allethrin	ND	ug/kg
Bifenthrin	3.3	ug/kg
Chlorpyrifos	ND	ug/kg
Cyfluthrin, total	ND	ug/kg
Cyhalothrin, lambda, total	3.5	ug/kg
Cypermethrin, total	ND	ug/kg
Deltamethrin:Tralomethrin	ND	ug/kg
Diazinon	ND	ug/kg
Esfenvalerate:Fenvalerate	0.81	ug/kg
Fenpropathrin	ND	ug/kg
Permethrin, total	0.43	ug/kg
Tau-Fluvalinate	ND	ug/kg
Tetramethrin	ND	ug/kg

DNQ: Result is below the report limit and is estimated

Sediment Toxicity Follow-up Analysis

Salt Slough at Sand Dam **Toxicity Results** Hyalella azteca 78.75 %

Sample Event: 79 5/24/2011

Pesticide	Results	Units
Allethrin	ND	ug/kg
Bifenthrin	3.2	ug/kg
Chlorpyrifos	2.2	ug/kg
Cyfluthrin, total	0.51	ug/kg
Cyhalothrin, lambda, total	3.2	ug/kg
Cypermethrin, total	ND	ug/kg
Deltamethrin:Tralomethrin	ND	ug/kg
Diazinon	ND	ug/kg
Esfenvalerate:Fenvalerate	ND	ug/kg
Fenpropathrin	ND	ug/kg
Permethrin, total	ND	ug/kg
Tau-Fluvalinate	ND	ug/kg
Tetramethrin	ND	ug/kg

DNQ: Result is below the report limit and is estimated

Attachment 5
Exceedance of Recommended Water Quality Values

Westside San Joaquin River Watershed Coalition

Number of Water Quality Value Exceedances for the period of 3/1/2011 to 8/31/2011

Type	Constituent	# of Exceedances	# of Tests
Aquatic Toxicity	Ceriodaphnia dubia	7	106
Aquatic Toxicity	Selenastrum capricornutum	1	106
Field Data	DO	14	138
Field Data	EC	54	138
Field Data	Flow	28	115
Field Data	pH	10	138
General Chemistry	Arsenic	3	103
General Chemistry	Boron	27	122
General Chemistry	E. Coli	40	121
General Chemistry	Total Dissolved Solids	53	122
Pesticide	Aldrin	1	107
Pesticide	Chlorpyrifos	9	124
Pesticide	DDE(p,p')	35	107
Pesticide	DDT(p,p')	6	107
Pesticide	Diuron	5	105
Pesticide	Malathion	5	124
Pesticide	Toxaphene	2	107
Sediment Toxicity	Hyalella azteca	5	14

Westside San Joaquin River Watershed Coalition

Number of Water Quality Value Exceedances for the period of 3/1/2011 to 8/31/2011

Blewett Drain at Highway 132

Type	Constituent	# of Exceedances	# of Tests
Field Data	DO	1	6
Field Data	pH	1	6
General Chemistry	E. Coli	4	5
Pesticide	DDE(p,p')	1	5

Del Puerto Creek at Hwy 33

Type	Constituent	# of Exceedances	# of Tests
General Chemistry	Total Dissolved Solids	1	2

Del Puerto Creek near Cox Road

Type	Constituent	# of Exceedances	# of Tests
Field Data	EC	2	6
General Chemistry	E. Coli	1	5
General Chemistry	Total Dissolved Solids	3	5
Pesticide	Chlorpyrifos	2	5
Pesticide	DDE(p,p')	4	5

Delta Mendota Canal at DPWD

Type	Constituent	# of Exceedances	# of Tests
Field Data	pH	1	6

Hospital Creek at River Road

Type	Constituent	# of Exceedances	# of Tests
Field Data	pH	1	4
General Chemistry	E. Coli	3	3
Pesticide	DDE(p,p')	3	3
Pesticide	Toxaphene	1	3
Sediment Toxicity	Hyalella azteca	1	1

Ingram Creek at River Road

Type	Constituent	# of Exceedances	# of Tests
Field Data	EC	1	6
Field Data	pH	1	6
General Chemistry	E. Coli	3	5
General Chemistry	Total Dissolved Solids	1	5
Pesticide	Chlorpyrifos	1	5
Pesticide	DDE(p,p')	5	5
Pesticide	DDT(p,p')	2	5
Pesticide	Diuron	1	5
Pesticide	Malathion	1	5

Westside San Joaquin River Watershed Coalition

Number of Water Quality Value Exceedances for the period of 3/1/2011 to 8/31/2011

Sediment Toxicity	Hyalella azteca	1	1

Little Panoche Creek at W. Boundary

Type	Constituent	# of Exceedances	# of Tests
Aquatic Toxicity	Ceriodaphnia dubia	1	1
Aquatic Toxicity	Selenastrum capricornutum	1	1
Field Data	EC	1	1
Field Data	pH	1	1
General Chemistry	Boron	1	1
General Chemistry	E. Coli	1	1
General Chemistry	Total Dissolved Solids	1	1
Pesticide	DDE(p,p')	1	1

Los Banos Creek at China Camp Road

Type	Constituent	# of Exceedances	# of Tests
Field Data	DO	2	7
Field Data	EC	6	7
Field Data	pH	1	7
General Chemistry	Arsenic	1	6
General Chemistry	Boron	6	6
General Chemistry	E. Coli	2	6
General Chemistry	Total Dissolved Solids	6	6
Pesticide	Aldrin	1	6

Los Banos Creek at Hwy 140

Type	Constituent	# of Exceedances	# of Tests
Aquatic Toxicity	Ceriodaphnia dubia	1	6
Field Data	DO	1	6
Field Data	EC	6	6
General Chemistry	Arsenic	1	6
General Chemistry	Boron	6	6
General Chemistry	E. Coli	2	6
General Chemistry	Total Dissolved Solids	6	6

Marshall Road Drain near River Road

Type	Constituent	# of Exceedances	# of Tests
Field Data	EC	1	5
General Chemistry	E. Coli	2	5
General Chemistry	Total Dissolved Solids	2	5
Pesticide	Chlorpyrifos	1	5
Pesticide	DDE(p,p')	4	5
Pesticide	DDT(p,p')	1	5
Pesticide	Malathion	2	5

Westside San Joaquin River Watershed Coalition

Number of Water Quality Value Exceedances for the period of 3/1/2011 to 8/31/2011

Mud Slough Upstream of San Luis Drain

Type	Constituent	# of Exceedances	# of Tests
Field Data	EC	7	7
Field Data	pH	2	7
General Chemistry	Boron	6	6
General Chemistry	E. Coli	1	6
General Chemistry	Total Dissolved Solids	6	6
Pesticide	Malathion	1	6

Newman Wasteway near Hills Ferry Road

Type	Constituent	# of Exceedances	# of Tests
Aquatic Toxicity	Ceriodaphnia dubia	1	6
Field Data	DO	2	6
Field Data	EC	5	6
Field Data	pH	1	6
General Chemistry	Boron	3	6
General Chemistry	Total Dissolved Solids	5	6

Orestimba Creek at Hwy 33

Type	Constituent	# of Exceedances	# of Tests
Field Data	DO	2	7
General Chemistry	E. Coli	4	6
Pesticide	DDE(p,p')	6	6
Pesticide	DDT(p,p')	2	6
Pesticide	Toxaphene	1	6

Orestimba Creek at River Road

Type	Constituent	# of Exceedances	# of Tests
Aquatic Toxicity	Ceriodaphnia dubia	1	6
Field Data	EC	2	7
General Chemistry	E. Coli	4	6
General Chemistry	Total Dissolved Solids	1	6
Pesticide	Chlorpyrifos	2	6
Pesticide	DDE(p,p')	5	6
Pesticide	DDT(p,p')	1	6

Poso Slough at Indiana Ave

Type	Constituent	# of Exceedances	# of Tests
Aquatic Toxicity	Ceriodaphnia dubia	1	7
Field Data	EC	4	7
General Chemistry	Arsenic	1	6
General Chemistry	E. Coli	4	6
General Chemistry	Total Dissolved Solids	3	6

Westside San Joaquin River Watershed Coalition

Number of Water Quality Value Exceedances for the period of 3/1/2011 to 8/31/2011

Pesticide	Chlorpyrifos	1	6
Pesticide	DDE(p,p')	1	6
Pesticide	Diuron	1	6
Sediment Toxicity	Hyalella azteca	1	1

Ramona Lake near Fig Avenue

Type	Constituent	# of Exceedances	# of Tests
Field Data	DO	1	7
Field Data	EC	7	7
General Chemistry	Boron	4	6
General Chemistry	E. Coli	2	6
General Chemistry	Total Dissolved Solids	6	6
Pesticide	Chlorpyrifos	1	6
Sediment Toxicity	Hyalella azteca	1	1

Salt Slough at Lander Ave

Type	Constituent	# of Exceedances	# of Tests
Field Data	EC	5	6
General Chemistry	Boron	1	6
General Chemistry	Total Dissolved Solids	6	6
Pesticide	Diuron	1	8
Pesticide	Malathion	1	8

Salt Slough at Sand Dam

Type	Constituent	# of Exceedances	# of Tests
Field Data	DO	1	7
Field Data	EC	5	7
General Chemistry	Total Dissolved Solids	4	6
Pesticide	Diuron	1	6
Sediment Toxicity	Hyalella azteca	1	1

San Joaquin River at Lander Ave

Type	Constituent	# of Exceedances	# of Tests
Aquatic Toxicity	Ceriodaphnia dubia	1	6

San Joaquin River at PID Pumps

Type	Constituent	# of Exceedances	# of Tests
Field Data	EC	1	6
General Chemistry	Total Dissolved Solids	1	6

Turner Slough at Edminster Road

Type	Constituent	# of Exceedances	# of Tests
Aquatic Toxicity	Ceriodaphnia dubia	1	6

Westside San Joaquin River Watershed Coalition

Number of Water Quality Value Exceedances for the period of 3/1/2011 to 8/31/2011

Field Data	DO	4	7
Field Data	EC	1	7
General Chemistry	E. Coli	2	6
General Chemistry	Total Dissolved Solids	1	6

Westley Wasteway near Cox Road

Type	Constituent	# of Exceedances	# of Tests
Field Data	pH	1	7
General Chemistry	E. Coli	5	6
Pesticide	Chlorpyrifos	1	6
Pesticide	DDE(p,p')	5	6
Pesticide	Diuron	1	5

Westside San Joaquin River Watershed Coalition

Water Quality Value Exceedances for the period of 3/1/2011 to 8/31/2011

Blewett Drain at Highway 132

Analyte/Species	Event	Sample Date	Result		Units	Significant Toxicity	WQV Max	WQV Min
Flow	77	3/8/2011	0		cfs			0.01
Flow	78	4/12/2011	0		cfs			0.01
DO	79	5/10/2011	2.7		mg/l			5
E. Coli	79	5/10/2011	2400	>=	MPN/100mL		235	
E. Coli	80	6/14/2011	2400		MPN/100mL		235	
pH	80	6/14/2011	6.49				8.5	6.5
DDE(p,p')	81	7/12/2011	0.011	=	ug/L		0.00059	
E. Coli	81	7/12/2011	730		MPN/100mL		235	
E. Coli	82	8/9/2011	2400	>	MPN/100mL		235	

Del Puerto Creek at Hwy 33

Analyte/Species	Event	Sample Date	Result		Units	Significant Toxicity	WQV Max	WQV Min
Total Dissolved Solids	77	3/8/2011	530		mg/L		450	

Del Puerto Creek near Cox Road

Analyte/Species	Event	Sample Date	Result		Units	Significant Toxicity	WQV Max	WQV Min
Flow	77	3/8/2011	0		cfs			0.01
DDE(p,p')	78	4/12/2011	0.0043	DNQ	ug/L		0.00059	
Flow	78	4/12/2011	0		cfs			0.01
Chlorpyrifos	79	5/10/2011	0.018		ug/L		0.015	
DDE(p,p')	79	5/10/2011	0.0044	DNQ	ug/L		0.00059	
Flow	79	5/10/2011	0		cfs			0.01
Chlorpyrifos	80	6/14/2011	0.38		ug/L		0.015	
DDE(p,p')	80	6/14/2011	0.0086	DNQ	ug/L		0.00059	
EC	80	6/14/2011	759		µmhos/cm		700	
Total Dissolved Solids	80	6/14/2011	540		mg/L		450	
DDE(p,p')	81	7/12/2011	0.011	=	ug/L		0.00059	
E. Coli	81	7/12/2011	2000		MPN/100mL		235	
Total Dissolved Solids	81	7/12/2011	500		mg/L		450	
EC	82	8/9/2011	971		µmhos/cm		700	
Total Dissolved Solids	82	8/9/2011	700		mg/L		450	

Delta Mendota Canal at DPWD

Analyte/Species	Event	Sample Date	Result		Units	Significant Toxicity	WQV Max	WQV Min
pH	81	7/12/2011	6.23				8.5	6.5

WQV = Water Quality Value as established by the Central Valley Regional Water Quality Control Board

DNQ = Detected, Not Quantifiable

Westside San Joaquin River Watershed Coalition

Water Quality Value Exceedances for the period of 3/1/2011 to 8/31/2011

Hospital Creek at River Road

Analyte/Species	Event	Sample Date	Result		Units	Significant Toxicity	WQV Max	WQV Min
Flow	77	3/8/2011	0		cfs			0.01
DDE(p,p')	78	4/12/2011	0.0051	DNQ	ug/L		0.00059	
E. Coli	78	4/12/2011	240		MPN/100mL		235	
Flow	79	5/10/2011	0		cfs			0.01
Hyalella azteca	79	5/24/2011	8.75		%	yes		
DDE(p,p')	81	7/12/2011	0.018	=	ug/L		0.00059	
E. Coli	81	7/12/2011	580		MPN/100mL		235	
pH	81	7/12/2011	6.44				8.5	6.5
DDE(p,p')	82	8/9/2011	0.10	=	ug/L		0.00059	
E. Coli	82	8/9/2011	270		MPN/100mL		235	
Toxaphene	82	8/9/2011	0.77	=	ug/L		0.0002	

Ingram Creek at River Road

Analyte/Species	Event	Sample Date	Result		Units	Significant Toxicity	WQV Max	WQV Min
Flow	77	3/8/2011	0		cfs			0.01
DDE(p,p')	78	4/12/2011	0.01		ug/L		0.00059	
Chlorpyrifos	79	5/10/2011	0.067		ug/L		0.015	
DDE(p,p')	79	5/10/2011	0.035		ug/L		0.00059	
DDT(p,p')	79	5/10/2011	0.012		ug/L		0.00059	
Diuron	79	5/10/2011	2.9		ug/L		2	
E. Coli	79	5/10/2011	2400	>=	MPN/100mL		235	
Malathion	79	5/10/2011	0.067	DNQ	ug/L		5E-07	
Hyalella azteca	79	5/24/2011	16.25		%	yes		
DDE(p,p')	80	6/14/2011	0.023		ug/L		0.00059	
E. Coli	80	6/14/2011	2400		MPN/100mL		235	
DDE(p,p')	81	7/12/2011	0.044	=	ug/L		0.00059	
DDT(p,p')	81	7/12/2011	0.011	=	ug/L		0.00059	
E. Coli	81	7/12/2011	2000		MPN/100mL		235	
pH	81	7/12/2011	6.45				8.5	6.5
DDE(p,p')	82	8/9/2011	0.027	=	ug/L		0.00059	
EC	82	8/9/2011	815		µmhos/cm		700	
Total Dissolved Solids	82	8/9/2011	570		mg/L		450	

WQV = Water Quality Value as established by the Central Valley Regional Water Quality Control Board

DNQ = Detected, Not Quantifiable

Westside San Joaquin River Watershed Coalition

Water Quality Value Exceedances for the period of 3/1/2011 to 8/31/2011

Little Panoche Creek at W. Boundary

Analyte/Species	Event	Sample Date	Result		Units	Significant Toxicity	WQV Max	WQV Min
Boron	77	3/23/2011	31000		ug/L		700	
Ceriodaphnia dubia	77	3/23/2011	0		%	yes		
DDE(p,p')	77	3/23/2011	0.0042	DNQ	ug/L		0.00059	
E. Coli	77	3/23/2011	650		MPN/100mL		235	
EC	77	3/23/2011	10211		µmhos/cm		700	
pH	77	3/23/2011	8.92				8.5	6.5
Selenastrum capricornutum	77	3/23/2011	1240000		cells/ml	yes		
Total Dissolved Solids	77	3/23/2011	6500		mg/L		450	

WQV = Water Quality Value as established by the Central Valley Regional Water Quality Control Board

DNQ = Detected, Not Quantifiable

Westside San Joaquin River Watershed Coalition

Water Quality Value Exceedances for the period of 3/1/2011 to 8/31/2011

Los Banos Creek at China Camp Road

Analyte/Species	Event	Sample Date	Result		Units	Significant Toxicity	WQV Max	WQV Min
Boron	77	3/8/2011	1140		ug/L		700	
EC	77	3/8/2011	1426		µmhos/cm		700	
Total Dissolved Solids	77	3/8/2011	900		mg/L		450	
Boron	78	4/12/2011	1500		ug/L		700	
EC	78	4/12/2011	1782		µmhos/cm		700	
Flow	78	4/12/2011	0		cfs			0.01
Total Dissolved Solids	78	4/12/2011	1100		mg/L		450	
Boron	79	5/10/2011	1330		ug/L		700	
DO	79	5/10/2011	0.72		mg/l			5
EC	79	5/10/2011	2065		µmhos/cm		700	
Flow	79	5/10/2011	0		cfs			0.01
Total Dissolved Solids	79	5/10/2011	1200		mg/L		450	
Boron	80	6/14/2011	1440		ug/L		700	
EC	80	6/14/2011	1630		µmhos/cm		700	
Flow	80	6/14/2011	0		cfs			0.01
Total Dissolved Solids	80	6/14/2011	1000		mg/L		450	
Aldrin	81	7/12/2011	0.067	=	ug/L		0.00013	
Boron	81	7/12/2011	1160		ug/L		700	
DO	81	7/12/2011	4.43		mg/l			5
E. Coli	81	7/12/2011	920		MPN/100mL		235	
EC	81	7/12/2011	1278		µmhos/cm		700	
Flow	81	7/12/2011	0		cfs			0.01
Total Dissolved Solids	81	7/12/2011	810		mg/L		450	
Arsenic	82	8/9/2011	11		ug/L		10	
Boron	82	8/9/2011	1370		ug/L		700	
E. Coli	82	8/9/2011	920		MPN/100mL		235	
EC	82	8/9/2011	1467		µmhos/cm		700	
Flow	82	8/9/2011	0		cfs			0.01
pH	82	8/9/2011	8.56				8.5	6.5
Total Dissolved Solids	82	8/9/2011	920		mg/L		450	

WQV = Water Quality Value as established by the Central Valley Regional Water Quality Control Board

DNQ = Detected, Not Quantifiable

Westside San Joaquin River Watershed Coalition

Water Quality Value Exceedances for the period of 3/1/2011 to 8/31/2011

Los Banos Creek at Hwy 140

Analyte/Species	Event	Sample Date	Result		Units	Significant Toxicity	WQV Max	WQV Min
Boron	77	3/8/2011	1670		ug/L		700	
E. Coli	77	3/8/2011	2400		MPN/100mL		235	
EC	77	3/8/2011	1794		µmhos/cm		700	
Total Dissolved Solids	77	3/8/2011	1200		mg/L		450	
Arsenic	78	4/12/2011	11		ug/L		10	
Boron	78	4/12/2011	2210		ug/L		700	
EC	78	4/12/2011	2301		µmhos/cm		700	
Total Dissolved Solids	78	4/12/2011	1400		mg/L		450	
Boron	79	5/10/2011	1360		ug/L		700	
EC	79	5/10/2011	2136		µmhos/cm		700	
Total Dissolved Solids	79	5/10/2011	1200		mg/L		450	
EC	79	5/24/2011	1846		µmhos/cm		700	
Boron	80	6/14/2011	1190		ug/L		700	
DO	80	6/14/2011	4.1		mg/l			5
EC	80	6/14/2011	1320		µmhos/cm		700	
Total Dissolved Solids	80	6/14/2011	810		mg/L		450	
Boron	81	7/12/2011	1230		ug/L		700	
E. Coli	81	7/12/2011	2400	>	MPN/100mL		235	
EC	81	7/12/2011	1473		µmhos/cm		700	
Total Dissolved Solids	81	7/12/2011	950		mg/L		450	
Boron	82	8/9/2011	985		ug/L		700	
Ceriodaphnia dubia	82	8/9/2011	70		%	yes		
Total Dissolved Solids	82	8/9/2011	720		mg/L		450	

Marshall Road Drain near River Road

Analyte/Species	Event	Sample Date	Result		Units	Significant Toxicity	WQV Max	WQV Min
Flow	77	3/8/2011	0		cfs			0.01
DDE(p,p')	78	4/12/2011	0.014		ug/L		0.00059	
E. Coli	78	4/12/2011	460		MPN/100mL		235	
Malathion	78	4/12/2011	0.071	DNQ	ug/L		5E-07	
Total Dissolved Solids	78	4/12/2011	560		mg/L		450	
Chlorpyrifos	79	5/10/2011	0.09		ug/L		0.015	
DDE(p,p')	79	5/10/2011	0.014		ug/L		0.00059	
Malathion	79	5/10/2011	0.09	DNQ	ug/L		5E-07	
E. Coli	80	6/14/2011	820		MPN/100mL		235	
DDE(p,p')	81	7/12/2011	0.03	=	ug/L		0.00059	
DDT(p,p')	81	7/12/2011	0.014	=	ug/L		0.00059	
DDE(p,p')	82	8/9/2011	0.014	=	ug/L		0.00059	
EC	82	8/9/2011	802		µmhos/cm		700	
Total Dissolved Solids	82	8/9/2011	500		mg/L		450	

WQV = Water Quality Value as established by the Central Valley Regional Water Quality Control Board

DNQ = Detected, Not Quantifiable

Westside San Joaquin River Watershed Coalition

Water Quality Value Exceedances for the period of 3/1/2011 to 8/31/2011

Mud Slough Upstream of San Luis Drain

Analyte/Species	Event	Sample Date	Result	Units	Significant Toxicity	WQV Max	WQV Min
Boron	77	3/8/2011	1450	ug/L		700	
EC	77	3/8/2011	1740	µmhos/cm		700	
Total Dissolved Solids	77	3/8/2011	1100	mg/L		450	
Boron	78	4/12/2011	2190	ug/L		700	
EC	78	4/12/2011	2122	µmhos/cm		700	
Malathion	78	4/12/2011	0.60	ug/L		5E-07	
Total Dissolved Solids	78	4/12/2011	1300	mg/L		450	
Boron	79	5/10/2011	1080	ug/L		700	
EC	79	5/10/2011	1408	µmhos/cm		700	
Total Dissolved Solids	79	5/10/2011	740	mg/L		450	
EC	79	5/24/2011	1173	µmhos/cm		700	
Boron	80	6/14/2011	1610	ug/L		700	
EC	80	6/14/2011	1662	µmhos/cm		700	
Total Dissolved Solids	80	6/14/2011	1100	mg/L		450	
Boron	81	7/12/2011	953	ug/L		700	
E. Coli	81	7/12/2011	330	MPN/100mL		235	
EC	81	7/12/2011	993	µmhos/cm		700	
pH	81	7/12/2011	8.58			8.5	6.5
Total Dissolved Solids	81	7/12/2011	620	mg/L		450	
Boron	82	8/9/2011	793	ug/L		700	
EC	82	8/9/2011	750	µmhos/cm		700	
pH	82	8/9/2011	8.72			8.5	6.5
Total Dissolved Solids	82	8/9/2011	480	mg/L		450	

WQV = Water Quality Value as established by the Central Valley Regional Water Quality Control Board

DNQ = Detected, Not Quantifiable

Westside San Joaquin River Watershed Coalition

Water Quality Value Exceedances for the period of 3/1/2011 to 8/31/2011

Newman Wasteway near Hills Ferry Road

Analyte/Species	Event	Sample Date	Result	Units	Significant Toxicity	WQV Max	WQV Min
Boron	77	3/8/2011	728	ug/L		700	
DO	77	3/8/2011	1.22	mg/l			5
EC	77	3/8/2011	1331	µmhos/cm		700	
Flow	77	3/8/2011	0	cfs			0.01
Total Dissolved Solids	77	3/8/2011	800	mg/L		450	
Flow	78	4/12/2011	0	cfs			0.01
EC	79	5/10/2011	1189	µmhos/cm		700	
Flow	79	5/10/2011	0	cfs			0.01
Total Dissolved Solids	79	5/10/2011	650	mg/L		450	
Boron	80	6/14/2011	1010	ug/L		700	
DO	80	6/14/2011	3.28	mg/l			5
EC	80	6/14/2011	1611	µmhos/cm		700	
Flow	80	6/14/2011	0	cfs			0.01
Total Dissolved Solids	80	6/14/2011	1000	mg/L		450	
EC	81	7/12/2011	725	µmhos/cm		700	
pH	81	7/12/2011	8.68			8.5	6.5
Total Dissolved Solids	81	7/12/2011	470	mg/L		450	
Boron	82	8/9/2011	735	ug/L		700	
Ceriodaphnia dubia	82	8/9/2011	70	%	yes		
EC	82	8/9/2011	1220	µmhos/cm		700	
Total Dissolved Solids	82	8/9/2011	740	mg/L		450	

WQV = Water Quality Value as established by the Central Valley Regional Water Quality Control Board

DNQ = Detected, Not Quantifiable

Westside San Joaquin River Watershed Coalition

Water Quality Value Exceedances for the period of 3/1/2011 to 8/31/2011

Orestimba Creek at Hwy 33

Analyte/Species	Event	Sample Date	Result		Units	Significant Toxicity	WQV Max	WQV Min
DDE(p,p')	77	3/8/2011	0.0076	DNQ	ug/L		0.00059	
DDE(p,p')	78	4/12/2011	0.0063	DNQ	ug/L		0.00059	
DDE(p,p')	79	5/10/2011	0.021		ug/L		0.00059	
DO	79	5/10/2011	2.1		mg/l			5
E. Coli	79	5/10/2011	580		MPN/100mL		235	
Flow	79	5/10/2011	0		cfs			0.01
DDE(p,p')	80	6/14/2011	0.015		ug/L		0.00059	
E. Coli	80	6/14/2011	1000		MPN/100mL		235	
DDE(p,p')	81	7/12/2011	0.02	=	ug/L		0.00059	
DDT(p,p')	81	7/12/2011	0.0093	DNQ	ug/L		0.00059	
E. Coli	81	7/12/2011	490		MPN/100mL		235	
DDE(p,p')	82	8/9/2011	0.086	=	ug/L		0.00059	
DDT(p,p')	82	8/9/2011	0.041	=	ug/L		0.00059	
DO	82	8/9/2011	4.29		mg/l			5
E. Coli	82	8/9/2011	2400	>	MPN/100mL		235	
Flow	82	8/9/2011	0		cfs			0.01
Toxaphene	82	8/9/2011	0.50	=	ug/L		0.0002	

Orestimba Creek at River Road

Analyte/Species	Event	Sample Date	Result		Units	Significant Toxicity	WQV Max	WQV Min
Ceriodaphnia dubia	77	3/8/2011	80		%	yes		
DDE(p,p')	77	3/8/2011	0.0053	DNQ	ug/L		0.00059	
E. Coli	77	3/8/2011	460		MPN/100mL		235	
Chlorpyrifos	78	4/12/2011	0.068		ug/L		0.015	
DDE(p,p')	78	4/12/2011	0.0073	DNQ	ug/L		0.00059	
Chlorpyrifos	79	5/10/2011	0.054		ug/L		0.015	
DDE(p,p')	79	5/10/2011	0.022		ug/L		0.00059	
E. Coli	79	5/10/2011	390		MPN/100mL		235	
EC	79	5/24/2011	758		µmhos/cm		700	
E. Coli	80	6/14/2011	520		MPN/100mL		235	
EC	80	6/14/2011	752		µmhos/cm		700	
Total Dissolved Solids	80	6/14/2011	520		mg/L		450	
DDE(p,p')	81	7/12/2011	0.013	=	ug/L		0.00059	
E. Coli	81	7/12/2011	1400		MPN/100mL		235	
DDE(p,p')	82	8/9/2011	0.024	=	ug/L		0.00059	
DDT(p,p')	82	8/9/2011	0.0098	DNQ	ug/L		0.00059	

WQV = Water Quality Value as established by the Central Valley Regional Water Quality Control Board

DNQ = Detected, Not Quantifiable

Westside San Joaquin River Watershed Coalition

Water Quality Value Exceedances for the period of 3/1/2011 to 8/31/2011

Poso Slough at Indiana Ave

Analyte/Species	Event	Sample Date	Result		Units	Significant Toxicity	WQV Max	WQV Min
Diuron	77	3/8/2011	3.8		ug/L		2	
EC	77	3/8/2011	846		µmhos/cm		700	
Total Dissolved Solids	77	3/8/2011	540		mg/L		450	
E. Coli	78	4/12/2011	260		MPN/100mL		235	
EC	78	4/12/2011	1617		µmhos/cm		700	
Total Dissolved Solids	78	4/12/2011	1100		mg/L		450	
E. Coli	79	5/10/2011	2400	>=	MPN/100mL		235	
EC	79	5/10/2011	1051		µmhos/cm		700	
Total Dissolved Solids	79	5/10/2011	510		mg/L		450	
EC	79	5/24/2011	1021		µmhos/cm		700	
Hyalella azteca	79	5/24/2011	87.5		%	yes		
Arsenic	80	6/14/2011	13		ug/L		10	
DDE(p,p')	80	6/14/2011	0.0044	DNQ	ug/L		0.00059	
E. Coli	80	6/14/2011	520		MPN/100mL		235	
E. Coli	81	7/12/2011	520		MPN/100mL		235	
Ceriodaphnia dubia	82	8/9/2011	0		%	yes		
Chlorpyrifos	82	8/9/2011	1.3	=	ug/L		0.015	

WQV = Water Quality Value as established by the Central Valley Regional Water Quality Control Board

DNQ = Detected, Not Quantifiable

Westside San Joaquin River Watershed Coalition

Water Quality Value Exceedances for the period of 3/1/2011 to 8/31/2011

Ramona Lake near Fig Avenue

Analyte/Species	Event	Sample Date	Result		Units	Significant Toxicity	WQV Max	WQV Min
Boron	77	3/8/2011	802		ug/L		700	
EC	77	3/8/2011	1268		µmhos/cm		700	
Flow	77	3/8/2011	0		cfs			0.01
Total Dissolved Solids	77	3/8/2011	1000		mg/L		450	
Boron	78	4/12/2011	1240		ug/L		700	
EC	78	4/12/2011	2114		µmhos/cm		700	
Total Dissolved Solids	78	4/12/2011	1800		mg/L		450	
Boron	79	5/10/2011	825		ug/L		700	
Chlorpyrifos	79	5/10/2011	0.065		ug/L		0.015	
E. Coli	79	5/10/2011	2400	>=	MPN/100mL		235	
EC	79	5/10/2011	1441		µmhos/cm		700	
Total Dissolved Solids	79	5/10/2011	1100		mg/L		450	
EC	79	5/24/2011	1436		µmhos/cm		700	
Flow	79	5/24/2011	0		cfs			0.01
Hyalella azteca	79	5/24/2011	92.5		%	yes		
E. Coli	80	6/14/2011	330		MPN/100mL		235	
EC	80	6/14/2011	995		µmhos/cm		700	
Total Dissolved Solids	80	6/14/2011	630		mg/L		450	
DO	81	7/12/2011	4.31		mg/l			5
EC	81	7/12/2011	870		µmhos/cm		700	
Total Dissolved Solids	81	7/12/2011	630		mg/L		450	
Boron	82	8/9/2011	877		ug/L		700	
EC	82	8/9/2011	1491		µmhos/cm		700	
Total Dissolved Solids	82	8/9/2011	1000		mg/L		450	

WQV = Water Quality Value as established by the Central Valley Regional Water Quality Control Board

DNQ = Detected, Not Quantifiable

Westside San Joaquin River Watershed Coalition

Water Quality Value Exceedances for the period of 3/1/2011 to 8/31/2011

Salt Slough at Lander Ave

Analyte/Species	Event	Sample Date	Result		Units	Significant Toxicity	WQV Max	WQV Min
Diuron	77	3/8/2011	3.5		ug/L		2	
EC	77	3/8/2011	1124		µmhos/cm		700	
Total Dissolved Solids	77	3/8/2011	690		mg/L		450	
Boron	78	4/12/2011	829		ug/L		700	
EC	78	4/12/2011	1657		µmhos/cm		700	
Malathion	78	4/12/2011	0.076	DNQ	ug/L		5E-07	
Total Dissolved Solids	78	4/12/2011	1000		mg/L		450	
EC	79	5/10/2011	1209		µmhos/cm		700	
Total Dissolved Solids	79	5/10/2011	620		mg/L		450	
EC	80	6/14/2011	1068		µmhos/cm		700	
Total Dissolved Solids	80	6/14/2011	670		mg/L		450	
Total Dissolved Solids	81	7/12/2011	490		mg/L		450	
EC	82	8/9/2011	731		µmhos/cm		700	
Total Dissolved Solids	82	8/9/2011	460		mg/L		450	

Salt Slough at Sand Dam

Analyte/Species	Event	Sample Date	Result	Units	Significant Toxicity	WQV Max	WQV Min
Diuron	77	3/8/2011	5.6	ug/L		2	
EC	77	3/8/2011	811	µmhos/cm		700	
Total Dissolved Solids	77	3/8/2011	480	mg/L		450	
EC	78	4/12/2011	1138	µmhos/cm		700	
Total Dissolved Solids	78	4/12/2011	680	mg/L		450	
EC	79	5/10/2011	901	µmhos/cm		700	
Total Dissolved Solids	79	5/10/2011	470	mg/L		450	
EC	79	5/24/2011	993	µmhos/cm		700	
Hyalella azteca	79	5/24/2011	78.75	%	yes		
EC	80	6/14/2011	744	µmhos/cm		700	
Total Dissolved Solids	80	6/14/2011	470	mg/L		450	
DO	82	8/9/2011	4.64	mg/l			5

San Joaquin River at Lander Ave

Analyte/Species	Event	Sample Date	Result	Units	Significant Toxicity	WQV Max	WQV Min
Ceriodaphnia dubia	80	6/14/2011	20	%	yes		

San Joaquin River at PID Pumps

Analyte/Species	Event	Sample Date	Result	Units	Significant Toxicity	WQV Max	WQV Min
EC	82	8/9/2011	988	µmhos/cm		700	
Total Dissolved Solids	82	8/9/2011	600	mg/L		450	

WQV = Water Quality Value as established by the Central Valley Regional Water Quality Control Board

DNQ = Detected, Not Quantifiable

Westside San Joaquin River Watershed Coalition

Water Quality Value Exceedances for the period of 3/1/2011 to 8/31/2011

Turner Slough at Edminster Road

Analyte/Species	Event	Sample Date	Result		Units	Significant Toxicity	WQV Max	WQV Min
DO	77	3/8/2011	3.8		mg/l			5
EC	77	3/8/2011	1320		µmhos/cm		700	
Flow	77	3/8/2011	0		cfs			0.01
Total Dissolved Solids	77	3/8/2011	730		mg/L		450	
DO	78	4/12/2011	3.11		mg/l			5
DO	79	5/10/2011	2.8		mg/l			5
Flow	79	5/10/2011	0		cfs			0.01
Flow	79	5/24/2011	0		cfs			0.01
DO	80	6/14/2011	4.69		mg/l			5
E. Coli	80	6/14/2011	340		MPN/100mL		235	
Flow	80	6/14/2011	0		cfs			0.01
E. Coli	81	7/12/2011	440		MPN/100mL		235	
Flow	81	7/12/2011	0		cfs			0.01
Ceriodaphnia dubia	82	8/9/2011	55		%	yes		

Westley Wasteway near Cox Road

Analyte/Species	Event	Sample Date	Result		Units	Significant Toxicity	WQV Max	WQV Min
DDE(p,p')	77	3/8/2011	0.0056	DNQ	ug/L		0.00059	
E. Coli	77	3/8/2011	330		MPN/100mL		235	
DDE(p,p')	78	4/12/2011	0.006	DNQ	ug/L		0.00059	
E. Coli	78	4/12/2011	240		MPN/100mL		235	
Flow	78	4/12/2011	0		cfs			0.01
DDE(p,p')	79	5/10/2011	0.0052	DNQ	ug/L		0.00059	
Diuron	79	5/10/2011	3.1		ug/L		2	
E. Coli	79	5/10/2011	2400	>=	MPN/100mL		235	
Chlorpyrifos	80	6/14/2011	0.072		ug/L		0.015	
E. Coli	80	6/14/2011	650		MPN/100mL		235	
DDE(p,p')	81	7/12/2011	0.0044	DNQ	ug/L		0.00059	
E. Coli	81	7/12/2011	440		MPN/100mL		235	
pH	81	7/12/2011	6.34				8.5	6.5
DDE(p,p')	82	8/9/2011	0.0086	DNQ	ug/L		0.00059	

WQV = Water Quality Value as established by the Central Valley Regional Water Quality Control Board

DNQ = Detected, Not Quantifiable

Attachment 6
Management Plan Activities

San Joaquin Valley Drainage Authority

Westside San Joaquin River Watershed Coalition

Hospital and Ingram Creek Focused Watershed Plan
Westley Wasteway, Del Puerto Creek, and Orestimba Creek Focused Watershed Plan
Salt Slough Focused Watershed Plan (Draft)

Status Report
November 30, 2011

Prepared by:
Summers Engineering, Inc.
Consulting Engineers
Hanford California

Introduction and Background

In October, 2008, the San Joaquin Valley Drainage Authority (SJVDA) submitted a Focused Watershed Management Plan (Focused Plan I) for Ingram and Hospital Creeks for the Westside San Joaquin River Watershed Coalition (Westside Coalition). A Focused Watershed Plan (Focused Plan II) for Westley Wasteway, Del Puerto Creek, and Orestimba Creek was finalized in February 2011. Both of these plans outline management practice performance goals and schedules. A draft Focused Plan for the Salt Slough watershed (including discharges into Poso Slough) was submitted in September 2011 is in the process of being finalized.

The long term goals addressed in Section 5 of the Focused Plan I for Ingram and Hospital Creeks are as follows (in order of priority):

- Construct sediment basins to intercept direct tailwater discharges into Hospital and Ingram Creeks.
- Install high-efficiency irrigation systems such as sprinkler or drip irrigation, tailwater recirculation, gated pipes, shorter runs, etc., where warranted by the crops that are grown.
- Implement additional use of PAM to address sedimentation discharge.
- Reduce use of pesticides, or incorporate use of pesticides that are less likely to be transported to the waters of the State, or which breakdown quickly and are less likely to impact water quality.
- Calibrate ground spray rigs utilized on farmed acres to address possible overspray.
- Address potential aerial overspray by identifying the sensitive regions for all aerial applicators, or elimination of this as an acceptable application procedure for Ingram and Hospital Creeks.
- Increase size of vegetated buffer zones along the perimeters of Ingram and Hospital Creeks.

For the Focused Plan II for Westley Wasteway, and Del Puerto and Orestimba Creeks, the long term goals are listed as:

- Implement additional use of PAM to address sediment discharge
- Reduce use of pesticides, or incorporate use of pesticides that are less likely to be transported to the waters of the State, or which breakdown quickly and are less likely to impact water quality.
- Calibrate ground spray rigs utilized on farmed acres to address possible overspray.
- Address potential aerial overspray by identifying the sensitive regions for all aerial applicators, or elimination of this as an acceptable application procedure for these subwatersheds.
- Increase size of vegetated buffer zones along the perimeters of Westley Wasteway, Del Puerto Creek, and Orestimba Creek.
- Install high-efficiency irrigation systems such as sprinkler or drip irrigation, tailwater recirculation, gated pipes, shorter runs, etc., where warranted by the crops that are grown.

The draft long term goals for the Focused Plan III for the Salt Slough watershed are listed as:

- Reduce use of pesticides, or incorporate use of pesticides that are less likely to be transported to the waters of the State, or which breakdown quickly and are less likely to impact water quality.
- Calibrate spray rigs utilized on farmed acres to address possible overspray.
- Address potential aerial overspray by identifying the sensitive regions for all aerial applicators.
- Construct tailwater ponds to intercept and hold direct tailwater discharges.
- Install high-efficiency irrigation systems such as sprinkler or drip irrigation, tailwater recirculation, gated pipes, shorter runs, etc, where warranted by the crops that are grown.

This report summarizes the status of each of these goals for both of the focused plans.

Sediment Basins.
Sediment and tailwater basins collect and detain surface irrigation runoff prior to discharge into regional drains and creeks. Detention time provided by these ponds allows suspended sediment to settle out of the water column, reducing the sediment load discharged as well as a portion of the hydrophobic pesticides (such as pyrethroids). Since 2008, the Westside Coalition has provided funding assistance to growers who want to install new sedimentation ponds or clean out existing ponds. Typically, sediment ponds are cleaned and constructed during the non-irrigation season and no applications for funding assistance were received during this reporting period. Past activities are described below.

- Past Activities:
  - Funding Assistance. Approximately $10,000 in grant funding has been provided by the Westside Coalition for the installation and cleanout of sedimentation ponds affecting approximately 2600 acres both within and outside of the focused plans' subwatersheds. Approximately 900 acres were affected by ponds within the Ingram Creek subwatershed, 960 in Orestimba, and 240 in Del Puerto.
  - Sedimentation Pond Mapping. The Westside Coalition has mapped the location of known sedimentation pond within the focused plans' subwatersheds. Subwatershed maps of the Hospital, Ingram, Del Puerto, and Orestimba creeks and Westley Wasteway showing the information gathered to date are included.
  - A recirculation system has been installed on a tailwater pond that discharges into Orestimba Creek (just upstream of the River Road Bridge). Discharges from this pond were frequently turbid and the new recirculation system should significantly reduce future discharges. The field served by this pond is planned to be upgraded to a high efficiency irrigation system in the future.

High-efficiency irrigation systems.
High-efficiency irrigation systems have evolved significantly in recent years and now can replace conventional surface irrigation methods on practically every crop (with alfalfa and pasture as the largest exceptions). There are a several benefits to high-efficiency irrigation systems, however, in terms of drainage, the primary benefit is the virtual elimination of tailwater discharge. These advanced systems are designed to deliver water directly to each individual plant at a rate that is both uniform throughout the irrigated field and slow enough for soil to

absorb, resulting in almost no surface runoff. Additionally, these systems allow for the direct application of fertilizer and other chemicals through the drip hoses (a process called fertigation). High-efficiency irrigation systems require a significant financial investment on the part of the grower (generally $1,000 to $2,000 per acre).

The acreage of high-efficiency irrigation systems continues to increase within the Westside Coalition. The Coalition is in the process of mapping the fields with these systems within the focused plans' subwatersheds.

Management Practice Surveys have provided some detail on the usage of high efficiency irrigation systems. **Table A6-1** shows the acreage (and percent of irrigated acreage) of these irrigation systems by watershed, based on the most recent management practice surveys within each watershed.

Table A6-1: High Efficiency Irrigation Systems by Subwatershed.

Subwatershed	Acreage	Percent of Irrigated Acreage
Hospital Creek	3515	68%
Ingram Creek	927	17%
Westley Wasteway	2891	63%
Del Puerto Creek	3934	50%
Orestimba Creek	5821	50%

Based on information provided by individual districts, the acreage of high efficiency irrigation systems has increased by approximately 6000 acres. Because this increase was reported on a district scale, the geographic distribution is not known. However, based on the location of these districts, the approximate breakdown between subwatershed can be estimated:

- Hospital/Ingram: 600 acres
- Westley/Del Puerto/Orestimba: 1100 acres
- Salt Slough (including Poso Slough): 4200 acres

PAM Usage.

PAM is a flocculating agent added to irrigation or drain water. When added to drain water with high suspended solids, PAM binds the suspended sediment materials together into larger particles which then settle out of the water column. When added to the irrigation water, PAM prevents the suspension of soil as the water travels down the furrow.

Tailwater with high suspended solids (no PAM useage)

Tailwater with PAM

In addition to the removal of suspended solids, PAM also helps to control the discharge of pyrethroids, which tend to adhere to the sediment particles which should result in a reduction of sediment toxicity within the subwatersheds.

PAM usage is difficult to track. Typically, PAM is added to irrigation or drain water on an “as needed” basis, which could be every third or fourth irrigation, depending on the soil, field slope, and crop. Additionally, PAM is not a material for which growers are required to report usage (as they must do for most pesticides), so there is no “clearinghouse” through which usage can be easily tracked. The only available mechanism for tracking PAM usage is through direct contact with the growers. **Table A6-2** shows the acreage that reported PAM usage through management practice surveys, and the associated percent of surface irrigation acreage.

Table A6-2: PAM by Subwatershed.

Subwatershed	Acreage	Percent of Irrigated Acreage
Hospital Creek	488	29%
Ingram Creek	4375	95%
Westley Wasteway	3346	73%
Del Puerto Creek	2955	37%
Orestimba Creek	3408	29%

Applications of PAM is only appropriate on fields that are surface irrigated (such as furrow or gated pipe) and produce tailwater. As a result, as more fields within the coalition are converted to drip irrigation systems, PAM usage will decrease.

Pesticide Use Activities.

Pesticide use activities vary depending on the crop planted, time of year, current and anticipated pest pressures, and available materials. Most growers utilize a pest control advisor (PCA) who is trained to identify insect, weed, and disease threats, and make recommendations on what material(s) should be applied and what cultural practices should be implemented. It should be noted that pesticides are applied in reaction to actual pest pressures and the material selected to target specific pests. During the irrigation season, pesticide applications include herbicides and pesticides to control pest pressures. Applications can be made with conventional ground sprayers on booms, air-blast spray rigs, and aerial applications according to specific need of the field being treated. See Section 4 of the June 15, 2011 Semi-Annual Monitoring Report.

During July of 2010, 12 exceedance of chlorpyrifos were measured throughout the Westside Coalition (see the November 2010 SAMR). Although none of these exceedances were associated with aquatic toxicity, the Westside Coalition is working aggressively to increase awareness and encourage growers to implement management practices to avoid future exceedances. These activities included a number meeting and workshops (addressed both to growers and PCAs) and a newsletter distributed throughout the coalition. In May of 2011, five chlorpyrifos exceedances were measured in the northerly region of the coalition, prompting additional outreach activities. A letter was circulated in June and July to coalition members to highlight the exceedances and individual "tailgate" visits were made with growers within the watersheds that measured exceedances in May. The tailgate visits included a discussion of the water quality issues and a review of the individual growers management practices. Over 140 parcels were reviewed during the tailgate visits.

Pesticide Use Reports

The Westside Coalition gathers data from pesticide use reports (PUR) on a quarterly basis from the Agricultural Commissioner's office in Fresno, Merced, Madera, Stanislaus, and San Joaquin counties. This data is imported into a relational database for analysis. As a tool for general review and trend tracking, the PUR data can provide useful insight. This data will indicate which pesticides are being applied and on what crops. When compared to previous PUR data, pesticide use trends can be evaluated for increase/decrease in use, crop use trends, or time of year of application. As of the submittal date of this report, PUR data for Fresno, Merced, and Stanislaus counties was available through June 2011.

Calibrate Ground Spray Rigs to Address Overspray

In addition to stressing proper spray applications near waterways in group and individual grower meetings, the Westside Coalition has contracted with CURES to provide a trained sprayer calibration technician and a high-tech instrument for calibrating orchard sprayers for members operating near priority waterways. Members targeted for the calibrations are being identified using mapping of priority watersheds and identification of orchard crops adjacent to the waterways.

The calibration instrument is composed of two separate devices: one device connects to each spray nozzle to measure nozzle output; the other device is a 12 foot tall simulated tree that collects spray as the sprayer is operated and measures the spray deposition pattern.

The calibration instrument and technician will work to optimize sprayer efficiency with landowners and their sprayer operators who are located adjacent to priority watersheds. This will be accomplished through:

- Measuring the output of each nozzle and comparing the output to manufacturer's specifications;
- Identify and help the grower clean or replace worn or clogged nozzles as needed;
- Measure uniformity of discharge;
- Help customize the spray pattern based on the grower's tree shape and size;
- Identify problems, if they exist, with pump capacity;
- Provide growers with a computer printout indicating total output, individual nozzle output, uniformity across the spray boom and spray distribution on the tree canopy.

Materials published by CURES with information on appropriate management practices for addressing spray drift in orchards will also be made available to growers participating in the sprayer calibrations.

The chlorpyrifos exceedances measured in May caused the Westside Coalition to focus it's efforts on an aggressive outreach campaign and sprayer calibration appointments were postponed to the non-irrigation season.

Address Potential Aerial Overspray and Identify Sensitive Regions
In May of 2009, the Westside Coalition circulated a subwatershed map of Ingram and Hospital Creeks along with a memo to aerial applicators, PCAs, and growers. The memo discussed the pesticide water quality issues for both creeks. Some feedback from aerial applicators was received in response to the memo. The feedback included some of the management practices both aerial and ground applicators should implement to reduce drift. Similar maps and information for Westley Wasteway, Del Puerto Creek, and Orestimba Creek have been developed and are being circulated.

Vegetated Buffer Zones along Creek Perimeters.
Vegetated buffer zones are intended to provide unfarmed space between the edge of a field and the creek. Conceptually, the buffer zone would reduce the amount of pesticides drifting into the creeks. The Westside Coalition is in the process of identifying buffer zones along the focused plans' targeted water ways.

<u>Ingram Creek.</u> Along most of its length, a field road (approximately 20 feet wide) separated the farmed fields from Ingram Creek but there are no apparent vegetated buffers.

<u>Hospital Creek.</u> Hospital Creek transitions from an open channel into a buried pipe a Highway 33, and remains a buried pipe until River Road. For this portion of the creek, a vegetated buffer is not an applicable management practice. There were no vegetated buffers encountered upstream of Highway 33, however a significant buffer exists on the north side of Hospital Creek approximately 0.6 miles downstream of River Road.

<u>Westley Wasteway.</u> There is an un-farmed buffer zone approximately 75 feet wide on the north side of the Westley Wasteway for its entire length and is covered by native vegetation. This zone is created by a high-voltage transmission line the parallels the alignment. The south side of the wasteway is border by an un-farmed zone that ranges from 50 feet to 150 feet.

Del Puerto Creek. An aerial reconnaissance of Del Puerto Creek (via Google Earth) indicates that the creek has several segments bounded by vegetated buffers or other unfarmed zones. The Westside Coalition is in the process of mapping these buffers and will provided updated maps when they are available.

Orestimba Creek. An aerial reconnaissance of Orestimba Creek (via Google Earth) indicates that the creek has several segments bounded by vegetated buffers or other unfarmed zones. The Westside Coalition is in the process of mapping these buffers and will provided updated maps when they are available.

Management Practice Surveys.

Management practice surveys (surveys) were circulated throughout the Ingram and Hospital Creek subwatersheds (Focused Plan I Surveys) in 2009 and in the Focused Plan II subwatersheds during the summer of 2010. The Focused Plan I surveys were completed and submitted by 100% of the growers within these subwatersheds and the results were reported to the Regional Board on October 5, 2009 and in the November 2009 SAMR. Surveys for the Focused Plan II subwatersheds began circulation in the Fall of 2010, the last of which were received in June of 2011 (more than 500 parcels were surveyed). In total, these surveys represent management and cultural practices on more than 44,000 acres. The Focused Plan III surveys are in the process of being circulated.

The surveys provided a detailed snapshot of the activities growers were implementing at the time of the survey. The ability to correlate management practice changes to water quality changes will be dependant upon the specific management activities implemented and their breadth of implementation. For example, increases in the acreage of high efficiency irrigation systems would be expected to result in an overall decrease in runoff and increased use of PAM would be expected to result in an improvement in turbidity and reduction in sediment discharge, as well as possibly an improvement in sediment toxicity. In contrast, an increase in high efficiency irrigation systems may result in a reduction in PAM usage since these two practices are exclusive of each other. It should be noted that a variety of management practices with overlapping impacts are likely to be implemented in any give subwatershed. This reality will complicate the evaluation of management practice implementation and make it virtually impossible to correlate any single practice with a given change in water quality. The Westside Coalition intends to correlate water quality improvements to implemented management practices as a group.

A summary of the survey results for the Focused Plan 2 watersheds are provided in **Table A6-3**. These were originally presented in the June 2011 SAMR.

Table A6-3: Summary of Focused Plan 2 Management Practice Surveys.

	Westley Wasteway		Del Puerto Creek		Orestimba Creek	
	Acres	%	Acres	%	Acres	%
Survey Area (APN Acreage)	5248		9195		12851	
Surveys Collected	70	100%	270	100%	160	100%
Irrigated Acreage	4565	87%	7898	86%	11714	91%
Furrow/Flood (% Irrigated Acreage)	1489	33%	3210	41%	4491	38%
Drip/Micro/Sprinkler (% Irrigated Ac.)	2891	63%	3934	50%	5821	50%
Fallow/Non-irrigated (% Irrigated Ac.)	0	0%	230	3%	1354	12%
Mixed Irrigation Methods (% Irrig. Ac.)	185	4%	525	7%	48	0%
Tree Crops (% Irrigated Ac.)	2891	63%	4209	53%	5481	47%
Field Crops (% Irrigated Ac.)	1670	37%	3678	47%	5626	48%
Open/Other (% Irrigated Ac.)	662	15%	285	4%	847	7%
Sedimentation Ponds (% Irrigated Ac.)	1092	65%	3331	36%	5019	89%
Return Systems (% Irrigated Ac.)	150	9%	402	4%	2154	38%
PAM usage (% Irrigated Ac.)	3346	73%	2955	37%	3408	29%
Tailwater leaves field (% Irrigated Ac.)	2234	49%	3461	44%	4134	35%
Stormwater leaves field (% Irrigated Ac.)	2517	55%	5050	64%	6384	55%
Dormant Spray Usage (% of Tree crops)	905	31%	1147	27%	400	7%
Horticultural Oil Usage (% of Tree crops)	905	31%	748	18%	806	15%
Manure Usage (% Irrigated Ac.)	0	0%	275	3%	221	2%

Outreach and Grower Education.

The Westside Coalition organizes outreach meetings throughout the year to inform growers and PCA about the materials that have been detected at the monitoring sites and to suggest possible practices that may prevent future detections. Additionally, the exceedance reports that are submitted to the Central Valley Regional Water Quality Control Board are also sent to the Westside Coalition member districts. A list of the meetings is included in **Table A6-4.**

Table A6-4: Outreach Meetings.

Date	Group	Location	Description	Attended	By
3/29/11	CCID Landowners Meeting	Firebaugh	Dos Palos Area Update	85	Dave Cory gave presentation
3/30/11	CCID Landowners Meeting	Los Banos	Los Banos Area Update	160	Dave Cory gave presentation
3/31/11	CCID Landowners Meeting	Gustine	Patterson Area Update	160	Dave Cory gave presentation
May 2011	Del Puerto Creek Growers	Field	BMPs	1	Rich Peltzer
6/1/2011	Westley Spring Outreach Meeting	Westley	Districts mailed invitations	30	JCM, Parry, RWQCB gave present.
6/10/11	Exceedance Notice	Notice	Districts distributed	40	Notice
July 2011	Ingram Creek Growers	Field	BMPs	2	Rich Peltzer
July 2011	Hospital Creek Growers	Field	BMPs	5	Rich Peltzer

Table A6-4: Outreach Meetings (Continued).

Date	Group	Location	Description	Attended	By
7/18/11	Certified Letter to northerly watersheds	Letter	Chlorpyrifos exceedances	80	Letter
7/20/11	Patterson Westside Farms	Field	Discussion of Chlorpyrifos exceedances	1	Rich Peltzer
7/20/11	Crowe Farms	Field	Discussion of Chlorpyrifos exceedances	1	Rich Peltzer
August 2011	Hospital Creek Growers	Field	BMPs	5	Rich Peltzer
August 2011	Ingram Creek Growers	Field	BMPs	2	Rich Peltzer
August 2011	Marshall Road Drain Growers	Field	BMPs	16	Rich Peltzer
August 2011	Orestimba Creek Growers	Field	BMPs	5	Rich Peltzer
August 2011	Del Puerto Creek Growers	Field	BMPs	11	Rich Peltzer
August 2011	Ramona Lake Growers	Field	BMPs	4	Rich Peltzer
8/8/2011	Orestimba Creek Watershed	Field	Sediment Exceedances	6	Rich Peltzer
8/10/2011	Salt Slough Outreach Meeting	Dos Palos	SLCC and CCID sent invitations	25	JCM, Rich Peltzer gave present.
8/23/2011	Ingram/Hospital Creek Watersheds	Field	Discussion of Chlorpyrifos exceedances	5	Rich Peltzer

The Coalition began conducting individual meetings with growers in March of 2010. These meetings targeted parcels adjacent to the creeks and major drains in the Focused Plan watersheds with the intent of increasing awareness of the water quality concerns related to agricultural practices. The individual contacts also help to gain parcel-specific information in regards to agricultural discharges and management practices currently implemented on the properties adjacent to the priority watersheds. In the individual grower visits the Coalition offer resources (i.e. management practice handbooks, information to obtain NRCS-EQIP funds) to aid them in implementing additional management practices if it is determined that additional practices are needed. This determination is made after the discussion and a review of the property by a Coalition representative.

<u>Overview of decision tree for adopting management practices</u>

1. Management practice surveys mailed to landowners
2. Landowners reporting irrigation drainage are contacted for follow-up visits
3. Individual meeting held to discuss current/potential practices
4. Options reviewed with landowner
5. Landowner makes decision on implementing practice

Overview of Outreach Procedure resulting from Pesticide Exceedances.
Pesticide results are typically available to the Westside Coalition approximately 6 weeks after the sample collection. Upon receipt of this data, it is imported into the Coalition's database and reviewed for exceedances. When a pesticide detection is determined to have exceeded the recommended water quality value, the Westside Coalition begins a review procedure.

1. Determine the material, time of year, and subwatershed in which the material was applied.
2. Identify the crops that are registered for the subject material.
3. Review the subwatershed for the identified crops.

These steps can usually be performed within a week of the exceedance determination and will generally reduce the pool of growers who are likely to have contributed to the exceedance. With that information, the Coalition can target outreach efforts directly to those growers.

Grant Program Outreach.
Information on grant funding availability has been communicated to landowners and operators through direct mailings, grower group meetings and individual contacts with landowners. A letter was sent in April 2011 to landowners with property along the Westside Coalitions priority watersheds (Ingram, Hospital, Orestimba and Del Puerto Creeks) regarding availability of Proposition 84 grant funds, a program managed by CURES and funded by the State Water Resources Control Board. The letters were mailed or hand delivered by irrigation districts encompassing the four watersheds.

The Proposition 84 program provides funding for projects in the Central Valley. Outreach by CURES was focused on landowners with fields along waterways with management plans in place by the local watershed coalition and located in the northern San Joaquin Valley, San Joaquin County/Sacramento Rivers Delta and southern Sacramento Valley. Applications were accepted until the July 1, 2011 deadline. Of the 41 applications received by CURES, 12 were submitted by members of the Westside Coalitions and had irrigation drainage into one of the following waterways: Hospital Creek, Ingram Creek, Orestimba Creek or the San Joaquin River. The payment rate is 50% of the total cost of the project and is paid at project completion (reimbursement of expenses). Several projects are in combination with NRCS funding. Priority for the funding was be given to fields located in watersheds with existing Management Plans (those listed above) that have frequent irrigation or storm water drainage. The projects selected for funding are for installing drip or micro sprinkler irrigation systems in row crops or orchards. Most project construction is expected to be completed in winter 2011 or spring 2012.

Exceedance Tally

Westside San Joaquin River Watershed Coalition

Number of Water Quality Value Exceedances for the period of 9/1/2008 to 9/1/2011

Blewett Drain at Highway 132

Type	Constituent	# of Exceedances	# of Tests
Aquatic Toxicity	Ceriodaphnia dubia	1	6
Field Data	DO	1	24
Field Data	EC	6	24
Field Data	pH	4	24
General Chemistry	Ammonia (as N)	1	5
General Chemistry	E. Coli	10	23
General Chemistry	Fecal Coliform	2	3
General Chemistry	Total Dissolved Solids	7	23
Pesticide	Chlorpyrifos	2	7
Pesticide	DDE(p,p')	3	7
Sediment Toxicity	Hyalella azteca	2	3

Del Puerto Creek at Hwy 33

Type	Constituent	# of Exceedances	# of Tests
Aquatic Toxicity	Ceriodaphnia dubia	1	8
Field Data	DO	1	15
Field Data	EC	3	15
Field Data	pH	2	15
General Chemistry	Boron	1	8
General Chemistry	E. Coli	2	8
General Chemistry	Fecal Coliform	3	3
General Chemistry	Total Dissolved Solids	5	8
Pesticide	DDD(p,p')	1	8
Pesticide	DDE(p,p')	1	8
Pesticide	DDT(p,p')	1	8
Sediment Toxicity	Hyalella azteca	1	4

Del Puerto Creek near Cox Road

Type	Constituent	# of Exceedances	# of Tests
Field Data	EC	16	35
Field Data	pH	3	35
General Chemistry	Ammonia as N	1	24
General Chemistry	Boron	3	20
General Chemistry	E. Coli	15	30
General Chemistry	Fecal Coliform	2	4
General Chemistry	Total Dissolved Solids	22	30
Pesticide	Chlorpyrifos	5	20
Pesticide	DDE(p,p')	12	20
Pesticide	Diuron	1	20
Pesticide	Endrin	1	20
Pesticide	Malathion	1	20
Pesticide	Methamidophos	1	21

Westside San Joaquin River Watershed Coalition

Number of Water Quality Value Exceedances for the period of 9/1/2008 to 9/1/2011

Sediment Toxicity	Hyalella azteca	4	6

Delta Mendota Canal at DPWD

Type	Constituent	# of Exceedances	# of Tests
Aquatic Toxicity	Ceriodaphnia dubia	1	4
Field Data	DO	1	38
Field Data	pH	6	38
General Chemistry	Total Dissolved Solids	2	38
Pesticide	Chlorpyrifos	2	38

Hospital Creek at River Road

Type	Constituent	# of Exceedances	# of Tests
Aquatic Toxicity	Ceriodaphnia dubia	5	16
Aquatic Toxicity	Selenastrum capricornutum	1	7
Field Data	DO	1	21
Field Data	EC	7	22
Field Data	pH	3	22
General Chemistry	Arsenic	1	16
General Chemistry	E. Coli	8	8
General Chemistry	Fecal Coliform	2	2
General Chemistry	Total Dissolved Solids	2	8
Pesticide	Chlorpyrifos	8	16
Pesticide	DDE(p,p')	15	16
Pesticide	DDT(p,p')	2	16
Pesticide	Diuron	3	16
Pesticide	g-Chlordane	1	16
Pesticide	Malathion	1	16
Pesticide	Toxaphene	1	16
Sediment Toxicity	Hyalella azteca	6	6

Ingram Creek at River Road

Type	Constituent	# of Exceedances	# of Tests
Aquatic Toxicity	Ceriodaphnia dubia	1	20
Aquatic Toxicity	Selenastrum capricornutum	1	9
Field Data	DO	3	33
Field Data	EC	22	33
Field Data	pH	4	33
General Chemistry	Arsenic	2	20
General Chemistry	Boron	7	20
General Chemistry	E. Coli	14	29
General Chemistry	Fecal Coliform	2	4
General Chemistry	Total Dissolved Solids	24	29
Pesticide	Chlorpyrifos	5	20
Pesticide	DDE(p,p')	19	20
Pesticide	DDT(p,p')	4	20

Westside San Joaquin River Watershed Coalition

Number of Water Quality Value Exceedances for the period of 9/1/2008 to 9/1/2011

Pesticide	Dimethoate	3	20
Pesticide	Diuron	4	20
Pesticide	g-Chlordane	1	20
Pesticide	Malathion	1	20
Sediment Toxicity	Hyalella azteca	6	6

Little Panoche Creek at W. Boundary

Type	Constituent	# of Exceedances	# of Tests
Aquatic Toxicity	Ceriodaphnia dubia	1	1
Aquatic Toxicity	Selenastrum capricornutum	1	1
Field Data	EC	1	1
Field Data	pH	1	1
General Chemistry	Boron	1	1
General Chemistry	E. Coli	1	1
General Chemistry	Total Dissolved Solids	1	1
Pesticide	DDE(p,p')	1	1

Los Banos Creek at China Camp Road

Type	Constituent	# of Exceedances	# of Tests
Aquatic Toxicity	Pimephales promelas	1	24
Field Data	DO	10	44
Field Data	EC	36	44
Field Data	pH	5	43
General Chemistry	Arsenic	1	11
General Chemistry	Boron	9	11
General Chemistry	E. Coli	13	38
General Chemistry	Fecal Coliform	4	5
General Chemistry	Total Dissolved Solids	28	38
Pesticide	Aldrin	1	11
Pesticide	Chlorpyrifos	2	23
Sediment Toxicity	Hyalella azteca	1	5

Los Banos Creek at Hwy 140

Type	Constituent	# of Exceedances	# of Tests
Aquatic Toxicity	Ceriodaphnia dubia	3	39
Field Data	DO	9	40
Field Data	EC	40	40
Field Data	pH	5	38
General Chemistry	Arsenic	1	17
General Chemistry	Boron	12	16
General Chemistry	E. Coli	19	39
General Chemistry	Fecal Coliform	5	6
General Chemistry	Total Dissolved Solids	38	39
Pesticide	Diuron	1	38

Westside San Joaquin River Watershed Coalition

Number of Water Quality Value Exceedances for the period of 9/1/2008 to 9/1/2011

Los Banos Creek at Sunset Ave.

Type	Constituent	# of Exceedances	# of Tests
General Chemistry	Boron	1	2

Marshall Road Drain near River Road

Type	Constituent	# of Exceedances	# of Tests
Aquatic Toxicity	Ceriodaphnia dubia	2	16
Field Data	DO	3	22
Field Data	EC	12	22
Field Data	pH	3	22
General Chemistry	Ammonia as N	1	18
General Chemistry	Boron	3	17
General Chemistry	E. Coli	7	21
General Chemistry	Total Dissolved Solids	16	21
Pesticide	Chlorpyrifos	6	17
Pesticide	DDE(p,p')	11	17
Pesticide	DDT(p,p')	4	17
Pesticide	Diuron	2	17
Pesticide	g-Chlordane	3	17
Pesticide	Malathion	3	17

Mud Slough Upstream of San Luis Drain

Type	Constituent	# of Exceedances	# of Tests
Aquatic Toxicity	Ceriodaphnia dubia	1	40
Field Data	DO	2	41
Field Data	EC	40	41
Field Data	pH	7	39
General Chemistry	Boron	17	17
General Chemistry	E. Coli	8	39
General Chemistry	Total Dissolved Solids	39	39
Pesticide	Chlorpyrifos	1	39
Pesticide	DDE(p,p')	1	39
Pesticide	Heptachlor	1	39
Pesticide	Malathion	1	39

Newman Wasteway near Hills Ferry Road

Type	Constituent	# of Exceedances	# of Tests
Aquatic Toxicity	Ceriodaphnia dubia	2	22
Field Data	DO	17	43
Field Data	EC	39	43
Field Data	pH	4	41
General Chemistry	Boron	10	22
General Chemistry	E. Coli	18	37

Westside San Joaquin River Watershed Coalition

Number of Water Quality Value Exceedances for the period of 9/1/2008 to 9/1/2011

General Chemistry	Fecal Coliform	3	6
General Chemistry	Total Dissolved Solids	35	37
Pesticide	DDE(p,p')	5	22

Orestimba Creek at Hwy 33

Type	Constituent	# of Exceedances	# of Tests
Field Data	DO	5	33
Field Data	EC	7	33
Field Data	pH	2	33
General Chemistry	E. Coli	9	15
General Chemistry	Fecal Coliform	4	5
General Chemistry	Selenium	2	13
General Chemistry	Total Dissolved Solids	2	15
Pesticide	Chlorpyrifos	2	23
Pesticide	DDD(p,p')	1	23
Pesticide	DDE(p,p')	18	23
Pesticide	DDT(p,p')	4	23
Pesticide	Diazinon	1	23
Pesticide	g-Chlordane	1	23
Pesticide	Methamidophos	1	25
Pesticide	Toxaphene	1	23
Sediment Toxicity	Hyalella azteca	1	7

Orestimba Creek at River Road

Type	Constituent	# of Exceedances	# of Tests
Aquatic Toxicity	Ceriodaphnia dubia	3	22
Field Data	DO	3	34
Field Data	EC	12	34
General Chemistry	E. Coli	18	30
General Chemistry	Fecal Coliform	3	3
General Chemistry	Total Dissolved Solids	11	30
Pesticide	Chlorpyrifos	6	22
Pesticide	DDE(p,p')	17	22
Pesticide	DDT(p,p')	1	22
Pesticide	Malathion	1	22
Sediment Toxicity	Hyalella azteca	1	5

Poso Slough at Indiana Ave

Type	Constituent	# of Exceedances	# of Tests
Aquatic Toxicity	Ceriodaphnia dubia	1	12
Aquatic Toxicity	Selenastrum capricornutum	2	12
Field Data	DO	4	41
Field Data	EC	32	40
Field Data	pH	4	39
General Chemistry	Ammonia (as N)	2	10

Westside San Joaquin River Watershed Coalition

Number of Water Quality Value Exceedances for the period of 9/1/2008 to 9/1/2011

General Chemistry	Ammonia as N	1	30
General Chemistry	Arsenic	3	11
General Chemistry	E. Coli	28	39
General Chemistry	Fecal Coliform	4	6
General Chemistry	Total Dissolved Solids	28	39
Pesticide	Chlorpyrifos	2	11
Pesticide	DDE(p,p')	1	11
Pesticide	Diuron	3	11
Sediment Toxicity	Hyalella azteca	2	2

Ramona Lake near Fig Avenue

Type	Constituent	# of Exceedances	# of Tests
Aquatic Toxicity	Ceriodaphnia dubia	1	20
Field Data	DO	7	34
Field Data	EC	33	34
Field Data	pH	5	34
General Chemistry	Boron	14	20
General Chemistry	E. Coli	4	29
General Chemistry	Total Dissolved Solids	29	29
Pesticide	Chlorpyrifos	1	20
Pesticide	DDE(p,p')	1	20
Pesticide	Diuron	1	20
Sediment Toxicity	Hyalella azteca	1	6

Salt Slough at Lander Ave

Type	Constituent	# of Exceedances	# of Tests
Aquatic Toxicity	Ceriodaphnia dubia	2	41
Field Data	DO	3	41
Field Data	EC	40	41
Field Data	pH	2	39
General Chemistry	Boron	13	33
General Chemistry	E. Coli	6	39
General Chemistry	Total Dissolved Solids	39	39
Pesticide	Chlorpyrifos	5	41
Pesticide	DDT(p,p')	1	42
Pesticide	Diuron	2	41
Pesticide	g-Chlordane	1	42
Pesticide	Malathion	2	41

Salt Slough at Sand Dam

Type	Constituent	# of Exceedances	# of Tests
Field Data	DO	6	30
Field Data	EC	26	30
Field Data	pH	4	28
General Chemistry	Arsenic	1	11

Westside San Joaquin River Watershed Coalition

Number of Water Quality Value Exceedances for the period of 9/1/2008 to 9/1/2011

General Chemistry	Total Dissolved Solids	14	16
Pesticide	Chlorpyrifos	4	23
Pesticide	Diuron	7	23
Pesticide	Malathion	1	23
Sediment Toxicity	Hyalella azteca	1	1

San Joaquin River at Lander Ave

Type	Constituent	# of Exceedances	# of Tests
Aquatic Toxicity	Ceriodaphnia dubia	1	39
Field Data	DO	2	41
Field Data	EC	20	41
Field Data	pH	2	39
General Chemistry	Ammonia (as N)	1	10
General Chemistry	Arsenic	1	16
General Chemistry	E. Coli	5	39
General Chemistry	Total Dissolved Solids	17	39
Pesticide	Malathion	1	39

San Joaquin River at PID Pumps

Type	Constituent	# of Exceedances	# of Tests
Field Data	DO	1	38
Field Data	EC	23	38
Field Data	pH	3	38
General Chemistry	Boron	8	39
General Chemistry	E. Coli	4	38
General Chemistry	Fecal Coliform	1	6
General Chemistry	Total Dissolved Solids	26	38
Pesticide	Chlorpyrifos	5	38
Pesticide	Malathion	1	38

San Joaquin River at Sack Dam

Type	Constituent	# of Exceedances	# of Tests
Aquatic Toxicity	Ceriodaphnia dubia	2	4
Field Data	DO	2	40
Field Data	EC	6	39
Field Data	pH	4	39
General Chemistry	E. Coli	1	37
General Chemistry	Total Dissolved Solids	4	38
Pesticide	Chlorpyrifos	2	37
Pesticide	Diuron	1	4
Pesticide	Malathion	1	37

Westside San Joaquin River Watershed Coalition

Number of Water Quality Value Exceedances for the period of 9/1/2008 to 9/1/2011

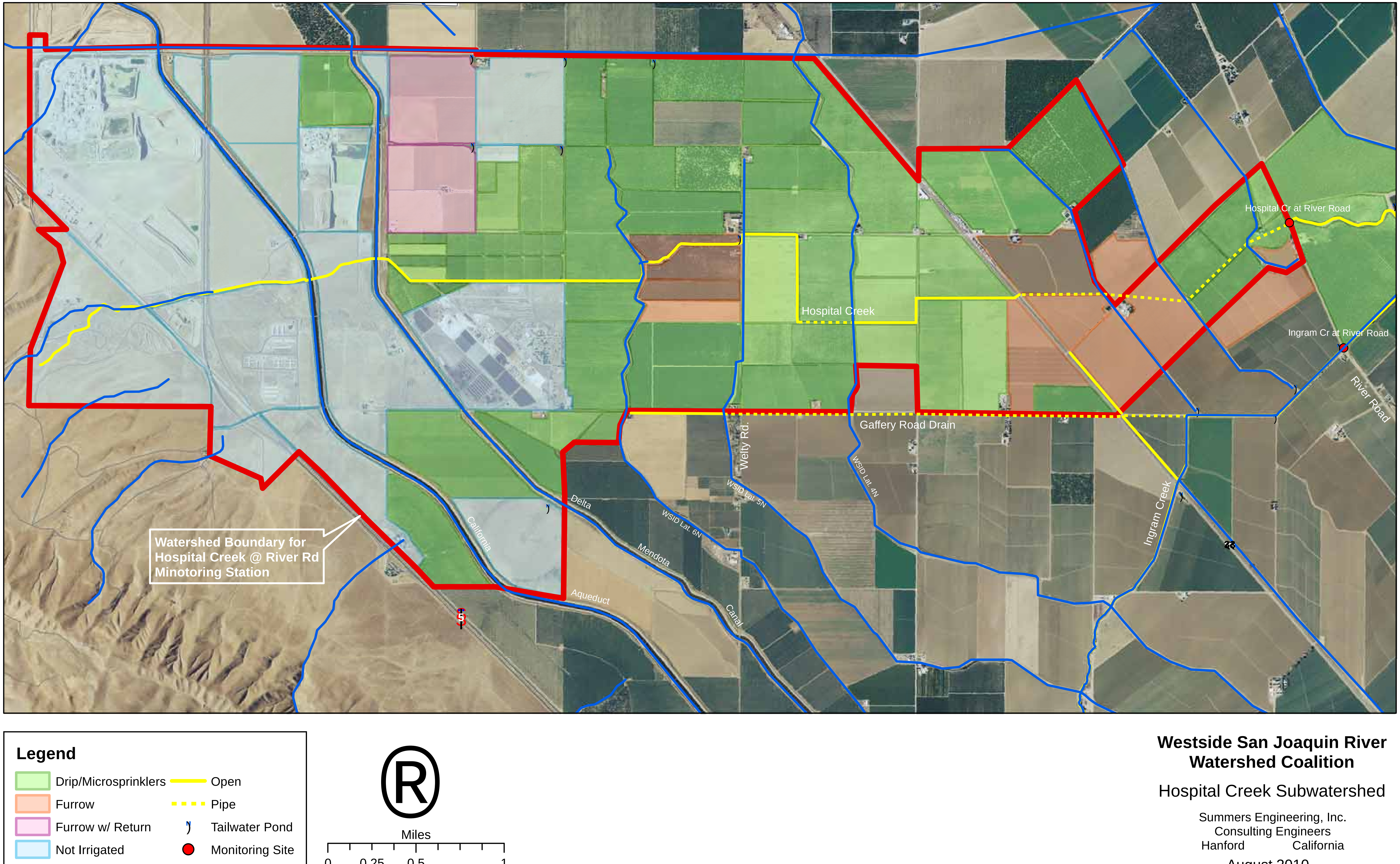
Turner Slough at Edminster Road

Type	Constituent	# of Exceedances	# of Tests
Aquatic Toxicity	Ceriodaphnia dubia	3	21
Field Data	DO	12	31
Field Data	EC	14	31
Field Data	pH	1	29
General Chemistry	Ammonia as N	1	26
General Chemistry	E. Coli	16	30
General Chemistry	Total Dissolved Solids	13	30

Westley Wasteway near Cox Road

Type	Constituent	# of Exceedances	# of Tests
Aquatic Toxicity	Selenastrum capricornutum	2	15
Field Data	EC	8	27
Field Data	pH	2	27
General Chemistry	Boron	1	15
General Chemistry	E. Coli	13	23
General Chemistry	Fecal Coliform	1	2
General Chemistry	Total Dissolved Solids	9	23
Pesticide	a-Chlordane	1	15
Pesticide	Chlorpyrifos	2	15
Pesticide	DDE(p,p')	13	15
Pesticide	DDT(p,p')	1	15
Pesticide	Diuron	3	14
Sediment Toxicity	Hyalella azteca	3	5

Subwatershed Maps

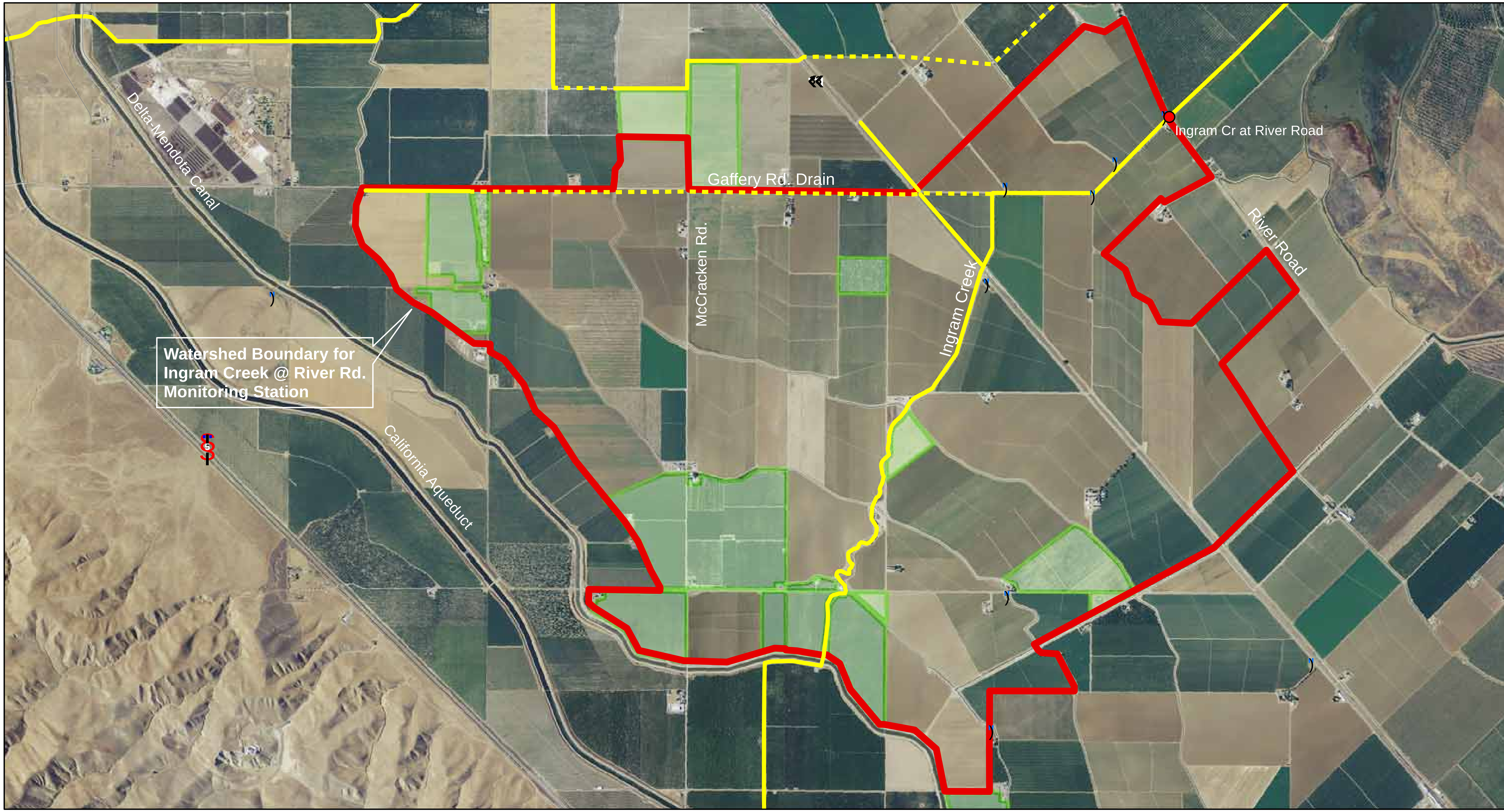


Westside San Joaquin River Watershed Coalition

Hospital Creek Subwatershed

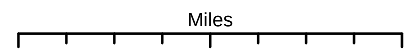
Summers Engineering, Inc.
Consulting Engineers
Hanford California

August 2010



Legend

- Drip
- Drain - Open Channel
- Drain - Piped
- Tailwater Ponds
- Monitoring Site

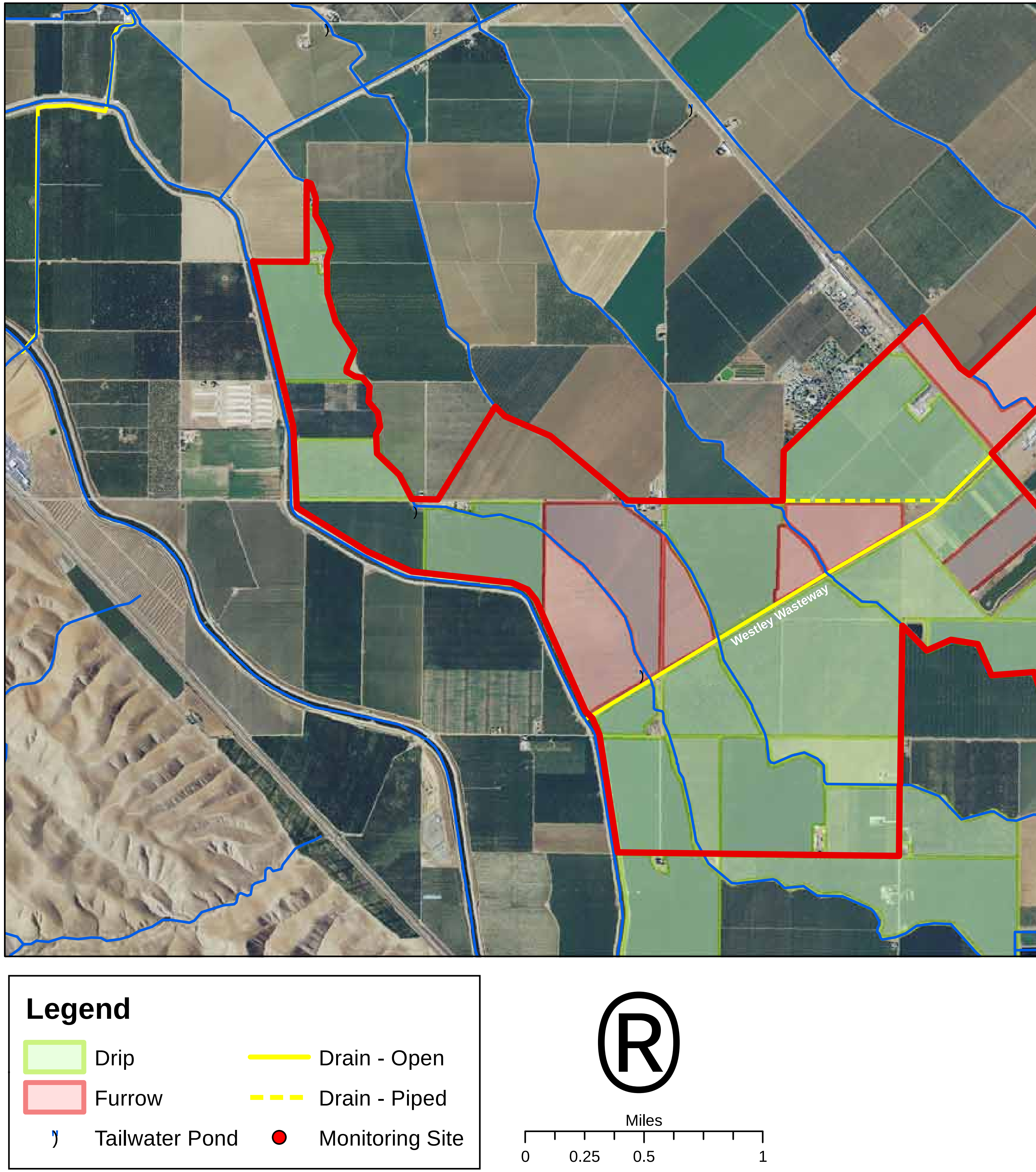


Westside San Joaquin River Watershed Coalition

Ingram Creek Subwatershed

Summers Engineering, Inc.
Consulting Engineers
Hanford California

August 2010

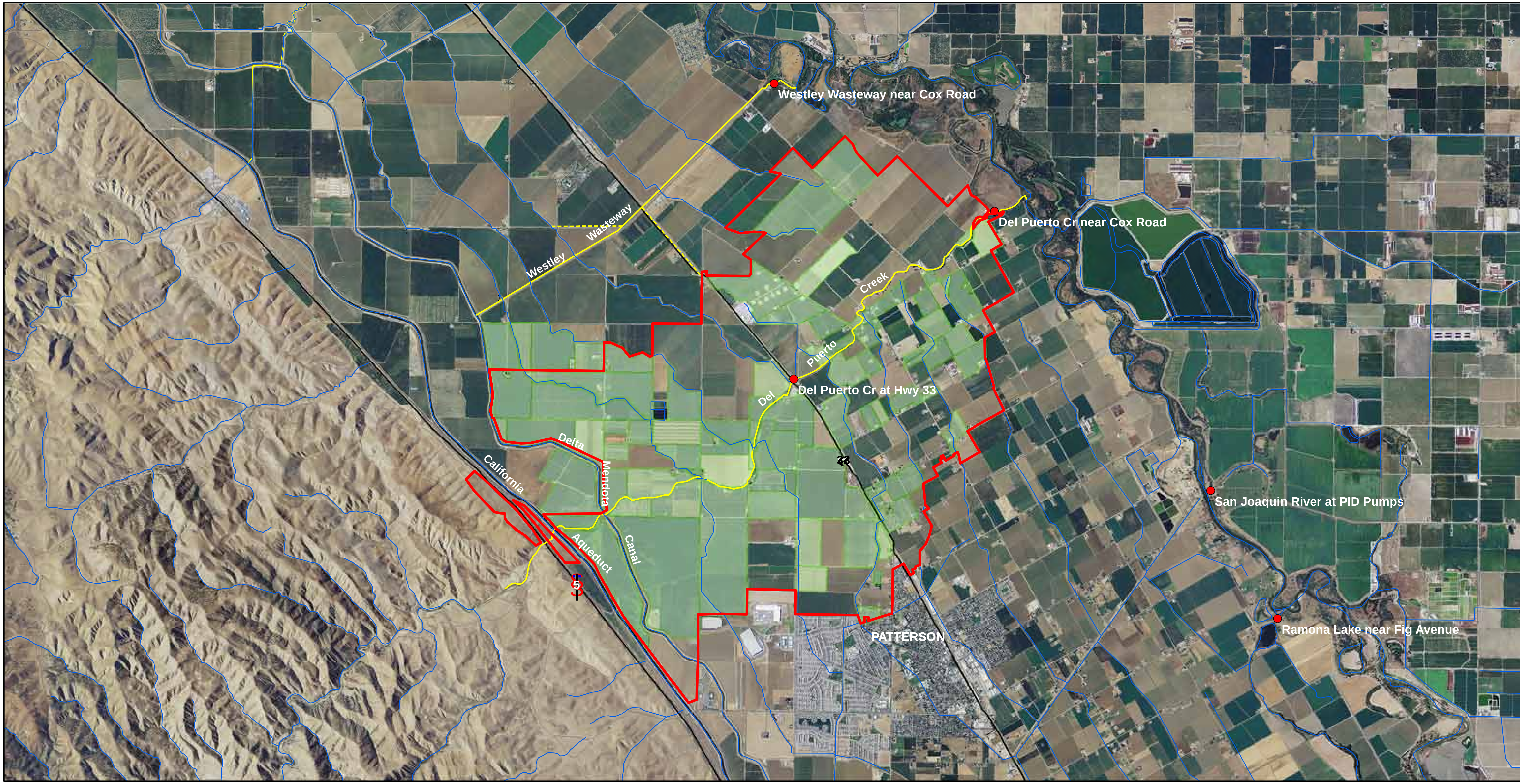


Westside San Joaquin River Watershed Coalition

Westley Wasteway Subwatershed

Summers Engineering, Inc.
Consulting Engineers
Hanford California

August 2010



Legend

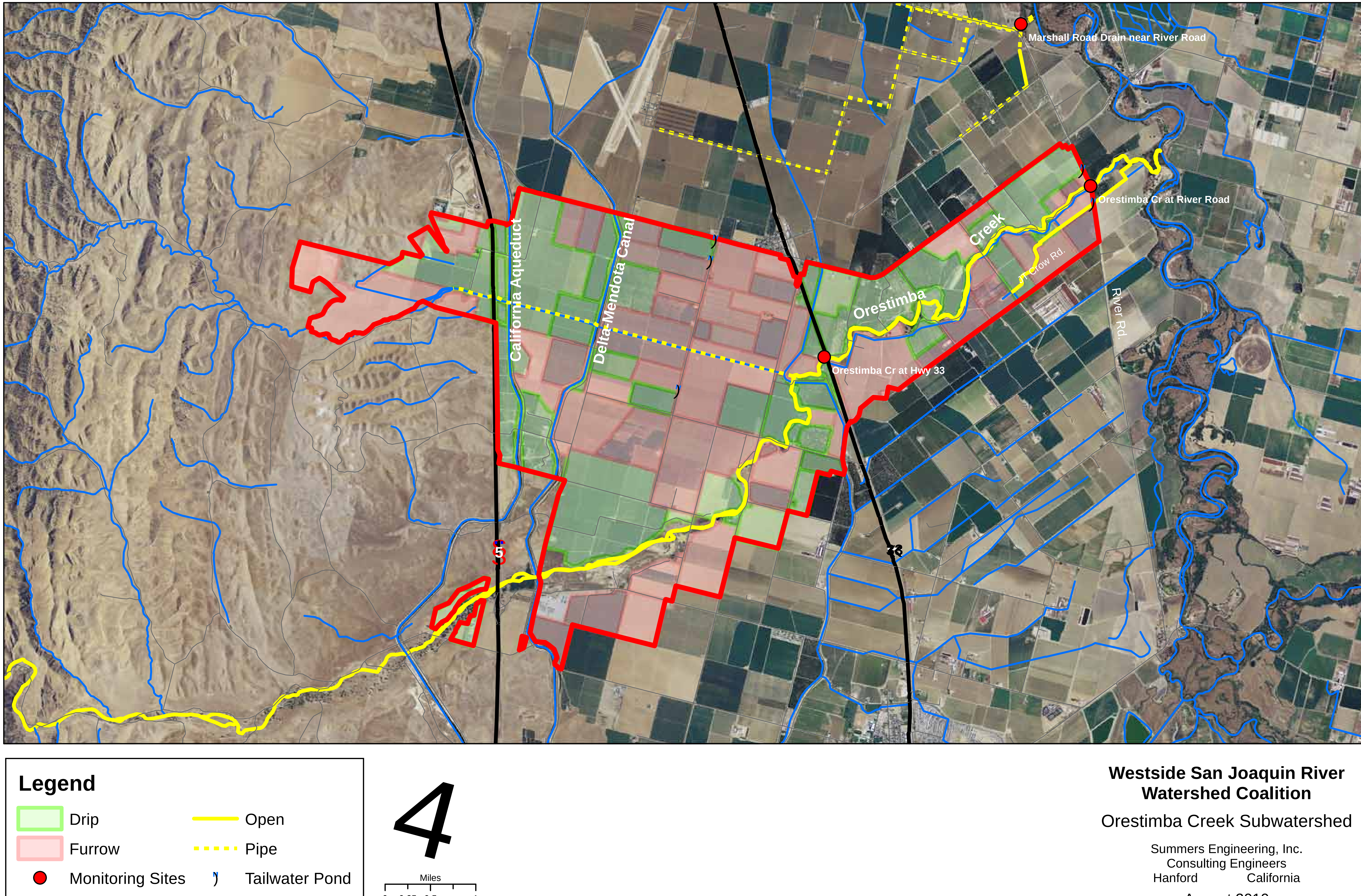
- Open
- Pipe
- Drip
- Tailwater Ponds
- Monitoring Site

Miles
0 0.25 0.5 1

Westside San Joaquin River Watershed Coalition

Del Puerto Creek Subwatershed

Summers Engineering, Inc.
Consulting Engineers
Hanford California
August 2010

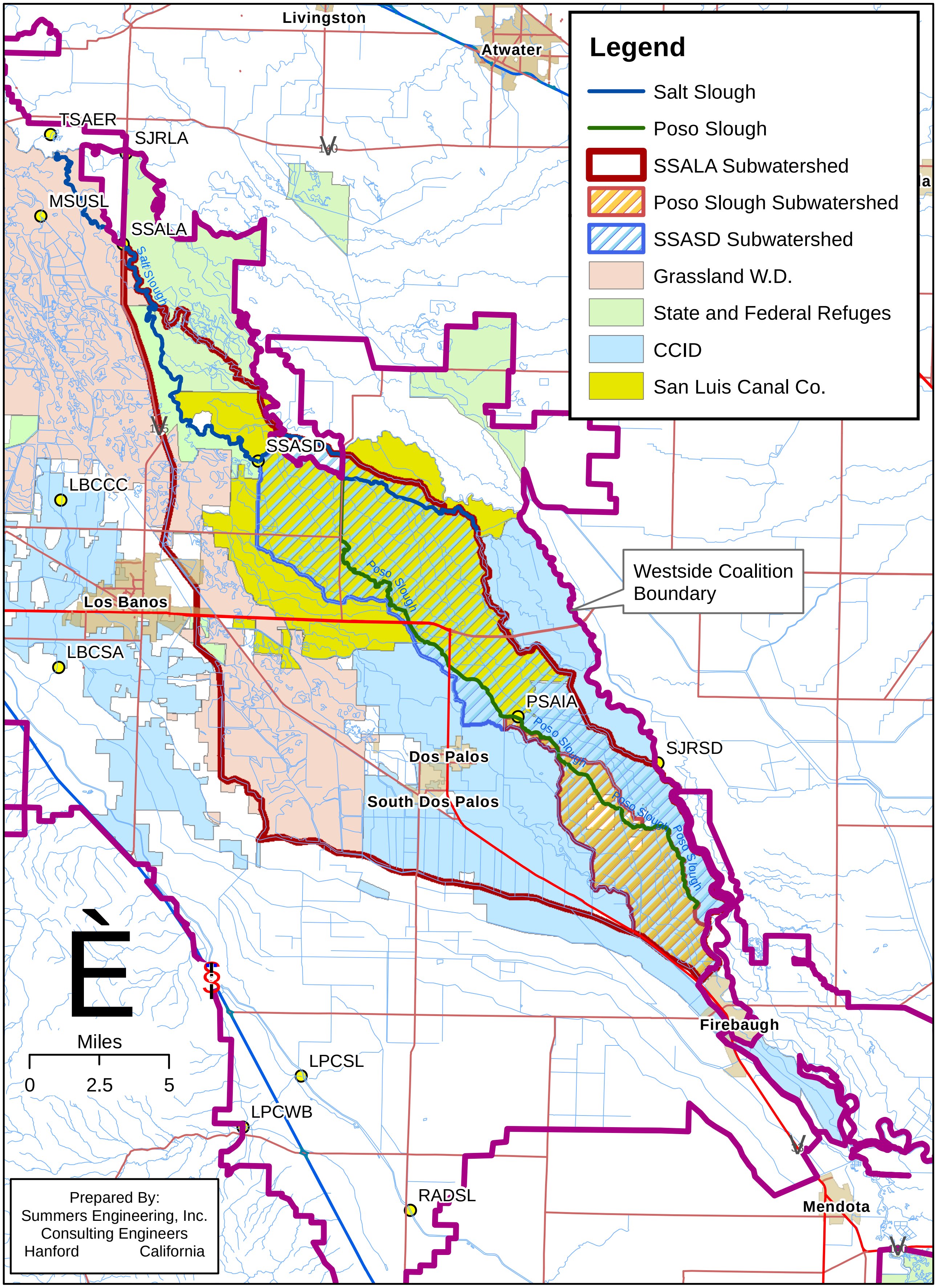


Westside San Joaquin River Watershed Coalition

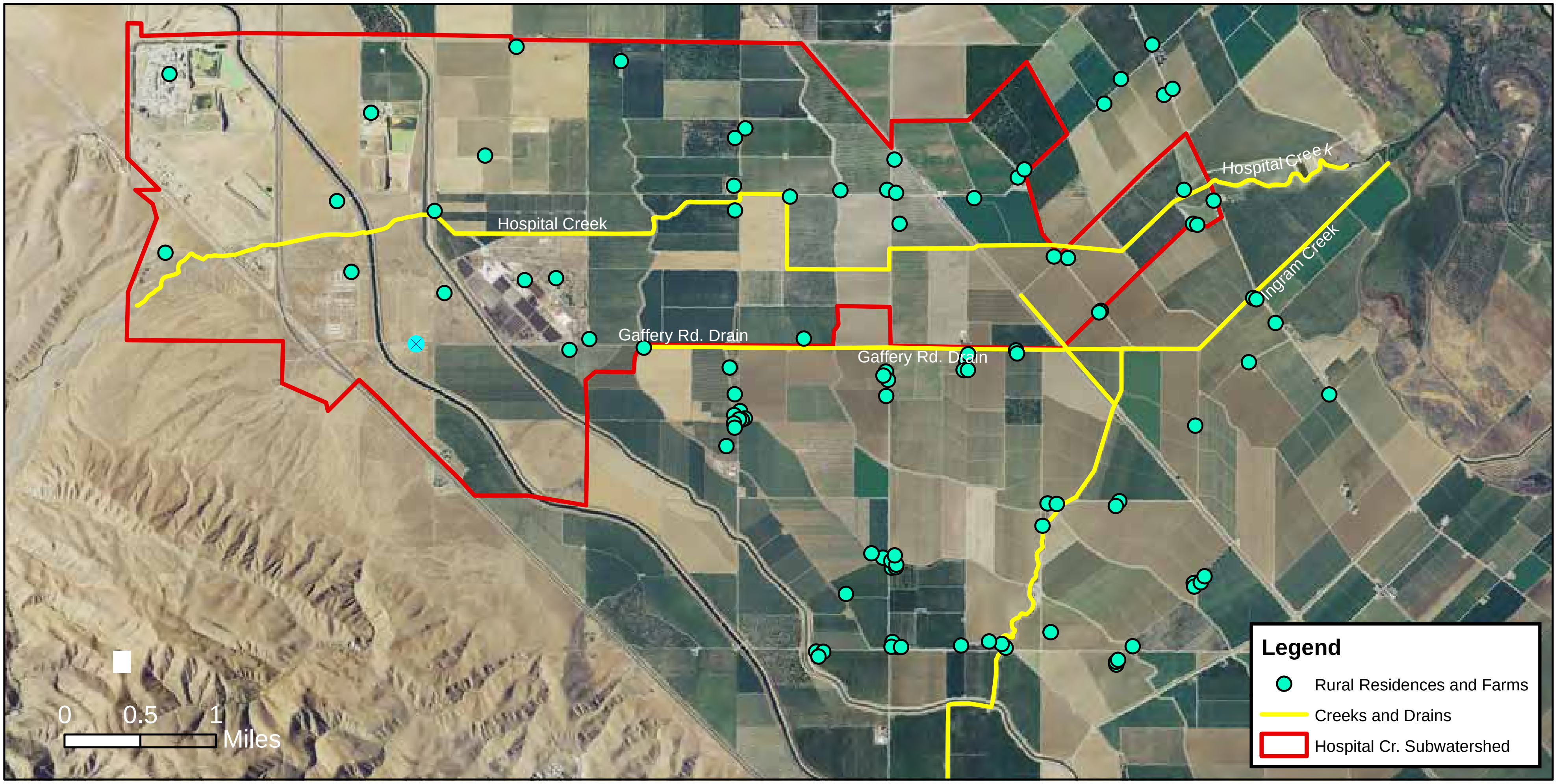
Orestimba Creek Subwatershed

Summers Engineering, Inc.
Consulting Engineers
Hanford California

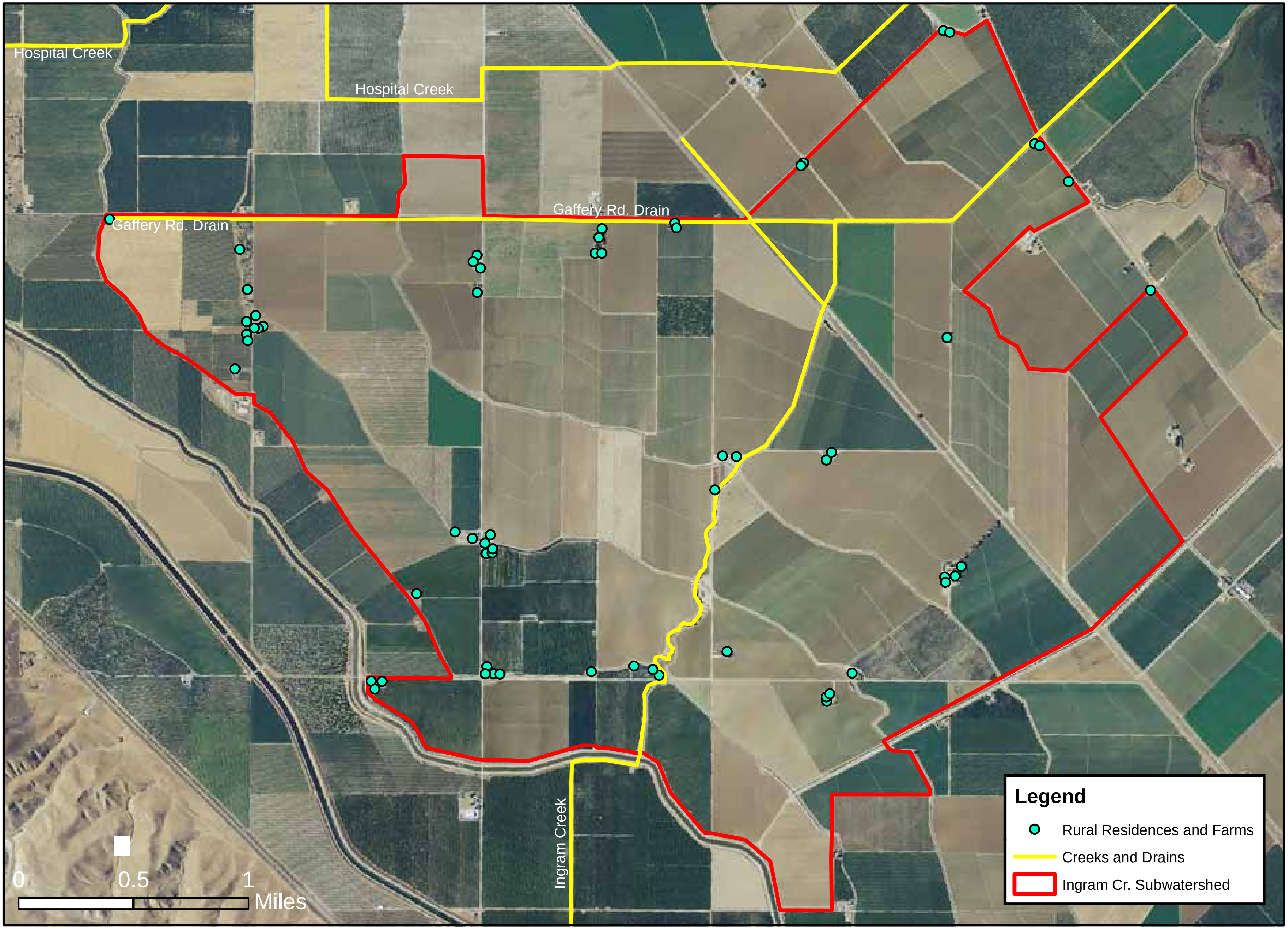
August 2010



Westside San Joaquin River Watershed Coalition
Salt Slough Watershed Upstream of Lander Avenue

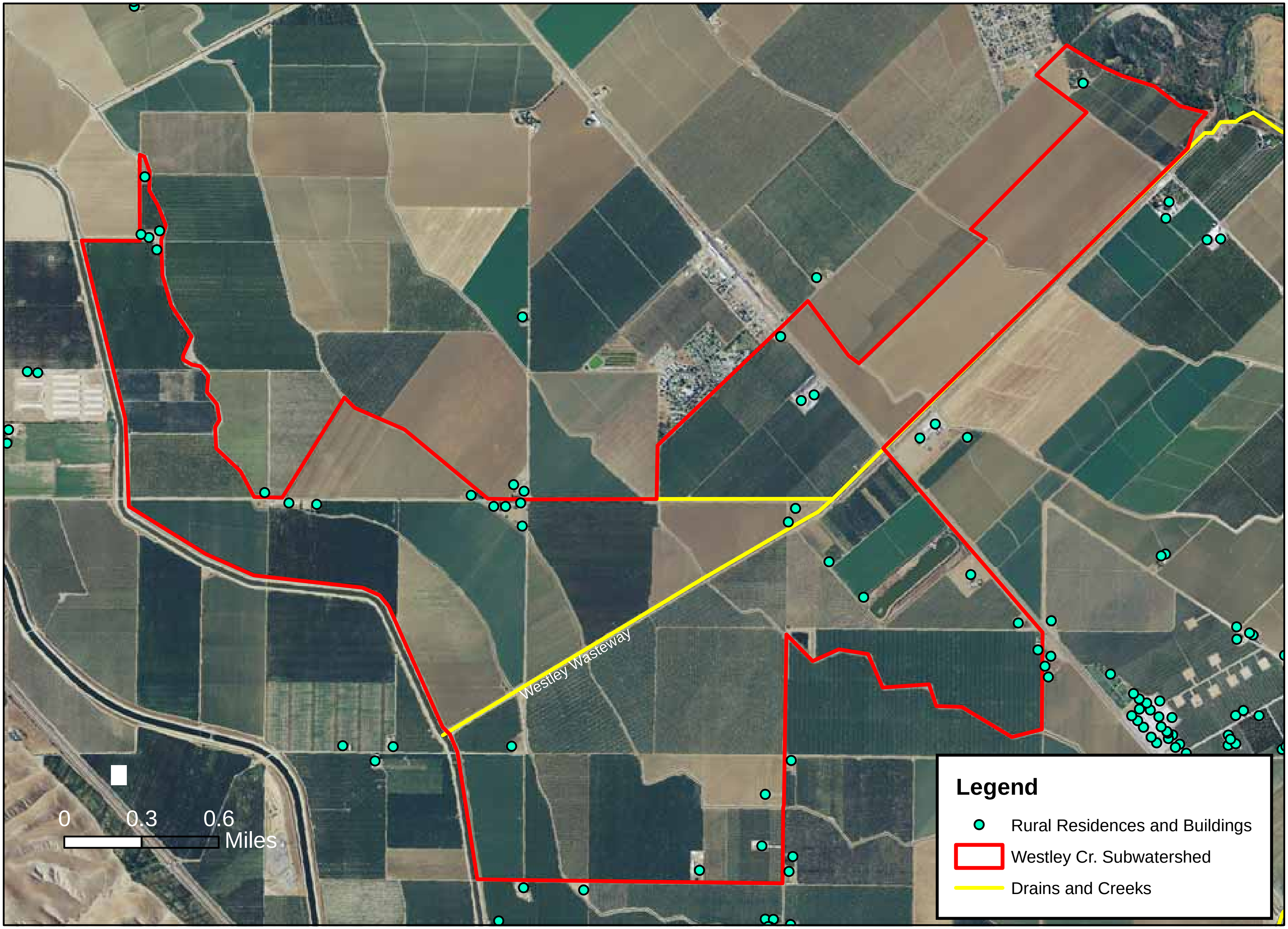


Hospital Creek Subwatershed

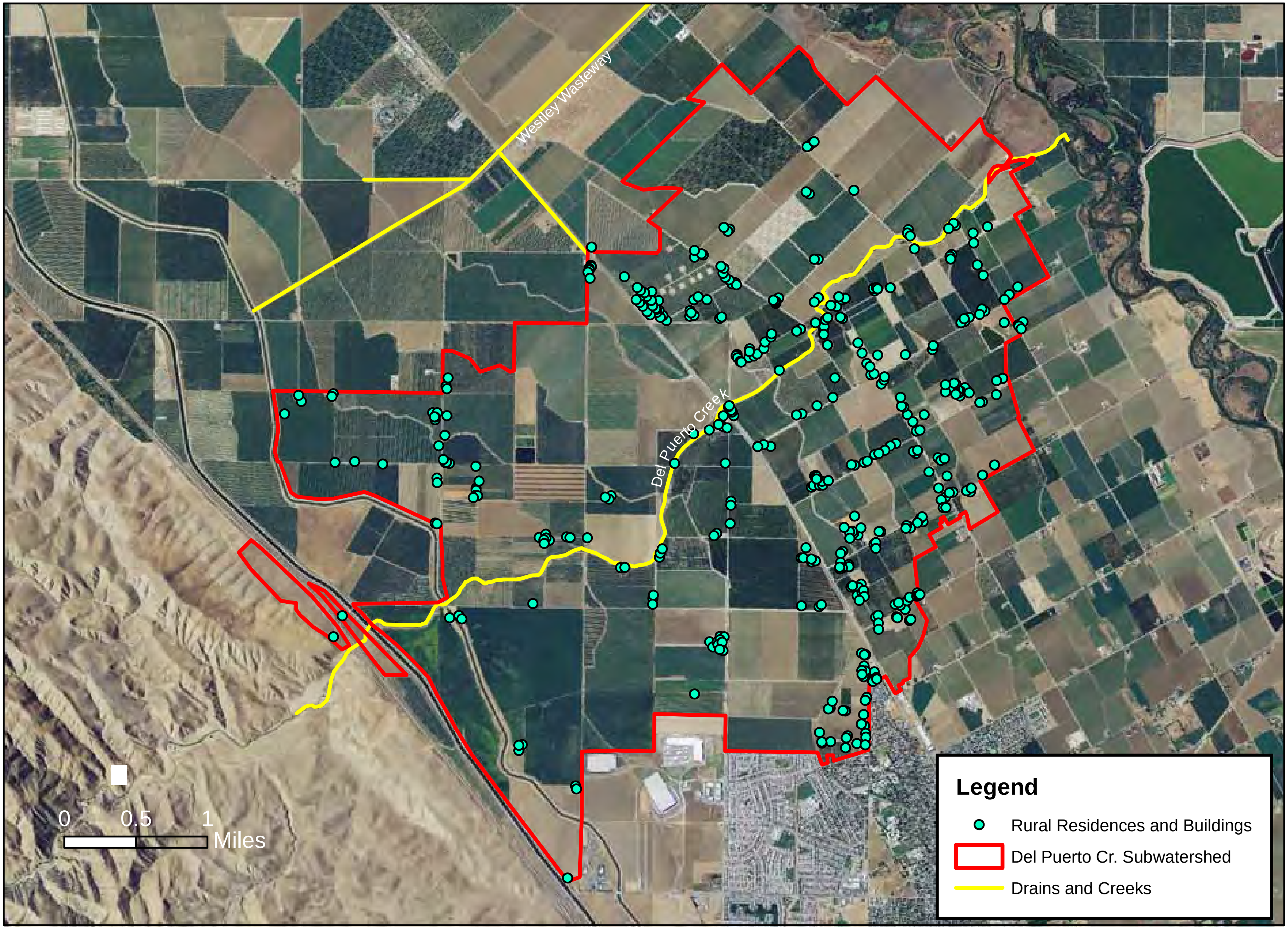


Ingram Creek Subwatershed

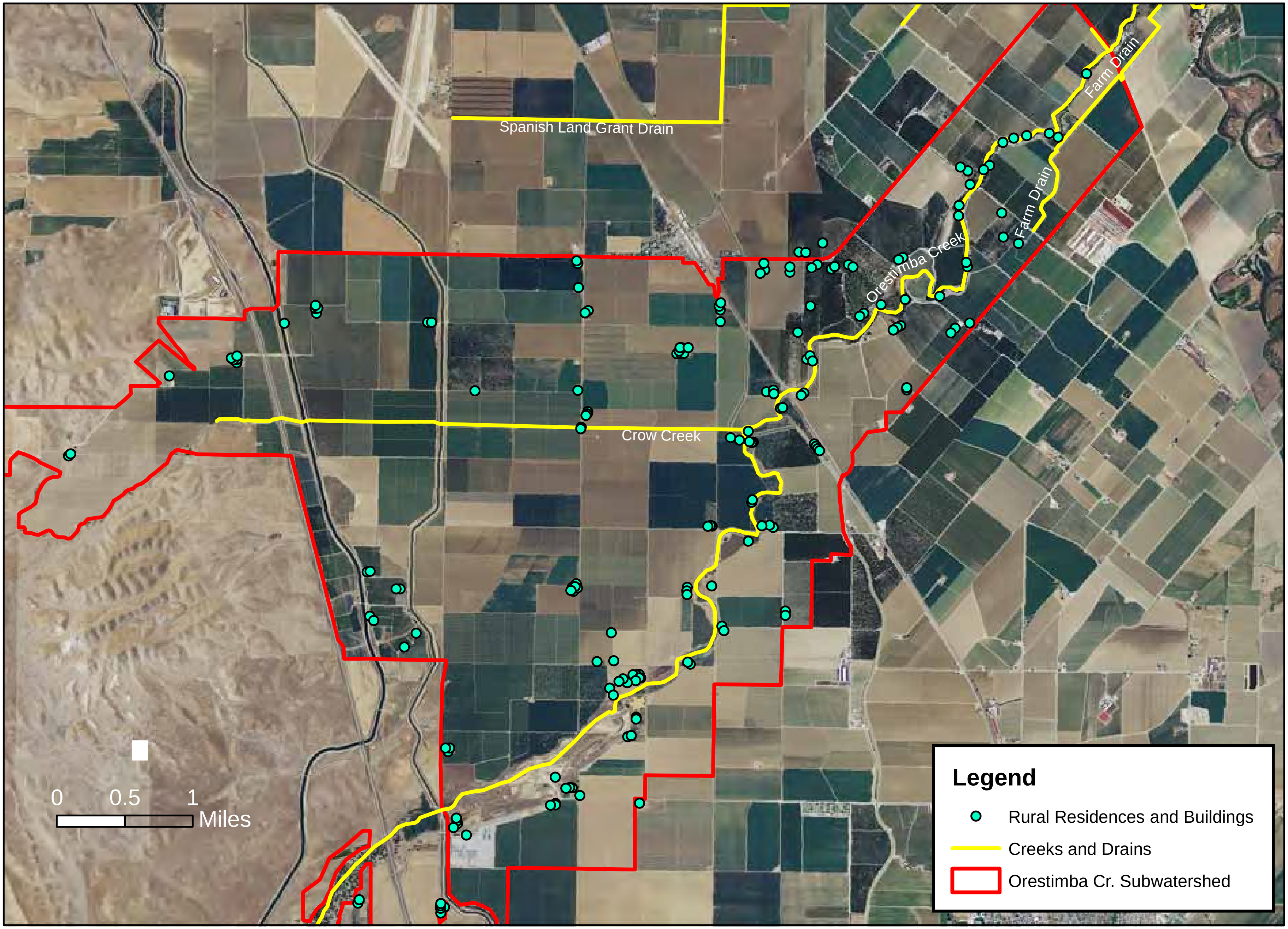
Westley Creek Subwatershed



Del Puerto Creek Subwatershed



Orestimba Creek Subwatershed



Outreach Handouts

Westside San Joaquin River Watershed Coalition
PO Box 2157
Los Banos, CA 93635

July 18, 2011

EXCEEDANCE NOTICE

- **Del Puerto Creek**
- **Ingram Creek**
- **Orestimba Creek**
- **Marshall Road Drain**
- **Ramona Lake**

Enclosures

-Advisory Notice of Exceedances
-Water monitoring results (see reverse)
-Chlorpyrifos BMP brochure

Water from creeks listed above was sampled by the coalition in May 2011. Analysis of samples from each waterway found levels exceeding state standards for the insecticides chlorpyrifos (Lorsban, Lock-On, NuPhos, Govern, Chlorpyrifos, etc.) and malathion (Ingram Creek and Marshall Road Drain only).

Conversations with growers and crop advisors lead us to believe that the exceedances were likely caused by two factors: spray drift and irrigation runoff into waterways after an application. The most frequent chlorpyrifos uses in May are for peach twig borer (PTB) in almonds, codling moth in walnuts and alfalfa weevil in alfalfa. Malathion is used in alfalfa for the same pest.

The chlorpyrifos exceedances are not good news: they come after finding 12 waterways with chlorpyrifos exceedances in July 2010 in the Westside Coalition region. All the above waterways are under Management Plans to address these problems. If the exceedances continue, we can expect increased scrutiny by Water Board regulators focused on individual growers. Already this year, Regional Water Board staff has contacted several landowners about irrigation drainage seen from county roads in the region. A Westside Coalition representative may be contacting you soon to discuss the management plans as they relate to your fields.

We believe exceedance problems can be solved by following either or both of the following practices:

- Preventing spray drift, a "doable" management practice that can eliminate future movement of the insecticide into waterways. In particular, following the chlorpyrifos label-required buffer between waterways (25 feet for boom sprayers, 50 feet for orchard sprayers) and not spraying when the wind is blowing toward the waterway.
- Reduce or eliminate irrigation drainage after a chlorpyrifos application. The label says no irrigation discharges for 48 hours after application or is discouraged altogether unless the water can be held on the farm. *Keep in mind that if you switch to pyrethroid insecticides, they too can be transported off site through drift or irrigation drainage and detected in coalition sediment monitoring.*

Please **read and follow the enclosed Best Management Practice (BMP) information**. If you farm near a waterway, work to adopt practices that minimize movement of chlorpyrifos from your fields. You can find more information on BMPs for irrigated crops at www.curesworks.org.

Why should you bother? Participation in workshops, completing surveys and more importantly, adopting BMPs on lands contributing to runoff or spray drift problems are key success measures for you and the Westside Coalition to remain in compliance with the Irrigated Lands Regulatory Program. Failure to solve water quality problems could lead to regulations requiring individual permitting of each farm by the Regional Water Board.

Joseph C. McGahan

Joseph C. McGahan
Drainage Coordinator
559-582-9237

Westside San Joaquin River Watershed Coalition

Exceedances of Water Quality Values - July 2010 and May 2011

Chlorpyrifos and Malathion

July 14, 2010 Exceedances

Site	Analyte	Result (µg/L)	Criteria (µg/L)
Del Puerto Creek near Cox Road	Chlorpyrifos	0.063	0.015
Delta-Mendota Canal at DPWD	Chlorpyrifos	0.017	0.015
Hospital Creek at River Road	Chlorpyrifos	0.24	0.015
Ingram Creek at River Road	Chlorpyrifos	0.24	0.015
Los Banos Creek at China Camp Rd.	Chlorpyrifos	0.031	0.015
Marshall Road Drain at River Road	Chlorpyrifos	0.078	0.015
Marshall Road Drain at River Road	Malathion	0.061j	ND*
Orestimba Creek at Hwy 33	Chlorpyrifos	0.032	0.015
Orestimba Creek at River Road	Chlorpyrifos	0.06	0.015
Orestimba Creek at River Road	Malathion	0.081j	ND*
Salt Slough at Sand Dam	Chlorpyrifos	0.095	0.015
San Joaquin River at PID Pumps	Chlorpyrifos	0.019	0.015
San Joaquin River at Sack Dam	Chlorpyrifos	0.036	0.015
Westley Wasteway near Cox Road	Chlorpyrifos	0.13	0.015

May 10, 2011 Exceedances

Site	Analyte	Result (µg/L)	Criteria (µg/L)
Del Puerto Creek near Cox Road	Chlorpyrifos	0.018	0.015
Ingram Creek at River Road	Chlorpyrifos	0.067	0.015
Ingram Creek at River Road	Malathion	0.067j	ND*
Marshall Road Drain at River Road	Chlorpyrifos	0.09	0.015
Marshall Road Drain at River Road	Malathion	0.09j	ND*
Orestimba Creek at River Road	Chlorpyrifos	0.054	0.015
Ramona Lake near Fig Ave.	Chlorpyrifos	0.065	0.015

* Malathion is under a prohibition of discharge.

Stewardship of Chlorpyrifos to Avoid Water Quality Issues


alfalfa


tree nuts


grapes

Chlorpyrifos Residues Detected in Local Waterways

Water testing conducted by various California water quality coalitions has detected residues of chlorpyrifos in several waterways where farm runoff is common. Chlorpyrifos is the active ingredient in Lorsban®-4E, Lorsban Advanced, Lorsban 15G and Lock-On® insecticides.

While water testing has indicated the presence of chlorpyrifos, any pesticide used on crops could potentially be transported into waterways and detected in monitoring. Without preventative actions, the future use of those important farm inputs is threatened.

How did this happen?

Residues of chlorpyrifos have been entering surface water through three potential routes following treatment of crops:

- Irrigation tail water runoff (especially alfalfa)
- Spray drift into waterways that border fields
- Storm water runoff after fields have been treated with an insecticide

Consequences for growers and/or PCAs

Detections of chlorpyrifos residues may result in serious regulatory restrictions. The restrictions could threaten the future use of an important insect management tool in alfalfa, tree nuts, grapes and other crops.

To date, no crop registrations have been eliminated due to residues in waterways.

What has Dow AgroSciences done?

Label changes have been implemented for products containing chlorpyrifos:

- A restriction statement: "To avoid contamination of irrigation tail waters, **do not flood irrigate within 24 hours** following a soil surface or foliar application."
- Addition of spray drift management guidelines. See labels for more details.
- Addition of buffer zones when chlorpyrifos applications are made adjacent to permanent bodies of water or other sensitive aquatic areas:

  25 feet for ground boom
  50 feet for orchard airblast
  150 feet for aerial

- Reduction in the total number of chlorpyrifos applications allowed per season.
- Re-treatment interval of 10 days for all products containing chlorpyrifos.

Dow AgroSciences Lorsban® Advanced Insecticide | Dow AgroSciences Lorsban®-4E Insecticide | Dow AgroSciences Lock-On® Insecticide | Dow AgroSciences Lorsban® 15G Granular Insecticide

Always read and follow label directions. ®Trademarks of Dow AgroSciences LLC
Lorsban Advanced, Lorsban-4E and Lock-On are federally Restricted Use Pesticides. L01-368-012 (5/09) EF 010-32904

Best Management Practices (BMPs)

The following BMPs can be implemented to help prevent chlorpyrifos from entering sensitive waterways.

Field Site BMPs

- Vegetative ditches, barriers, filter strips around field perimeters to reduce sediment movement, increase filtration of sediments, and reduce overall volume of runoff water.
- Holding ponds (sediment basins) to capture runoff water and settle out sediments.
- Tail water return systems for reuse of excess irrigation water.
- Irrigation management to reduce the amount of runoff at the end of each field.

Spray Drift Management & Other Application BMPs

- Be aware of sensitive sites and waterways near the field being sprayed.
- Avoid spraying directly into or toward a ditch carrying water out of the field.
- Avoid application if current or near-term weather conditions favor off-site movement of the pesticide.
- Use drift control agents and/or drift-reducing application equipment.
- Properly dispose the spray rinsate. Do not dump any rinsate or unused spray mix into ditches, roads or other sensitive areas.
- Orchards/vineyards: Turn off outside nozzles when treating the outer three rows of trees/vines adjacent to waterways.

Buffer Zones Near Permanent Bodies of Water

Ground boom – 25 ft.
Orchard airblast – 50 ft.
Aerial – 150 ft.

It may be helpful to flag the corners of buffer zones as a visual reminder to applicators.

Call to Action

Dow AgroSciences is committed to the long-term defense and stewardship of chlorpyrifos products. Additionally, growers and PCAs need to take action to preserve the use of these important insect management tools.

Farm inputs including insecticides, fungicides, herbicides and fertilizers need to remain in the farm and not get to the waters of the state. Simply switching pest control products is not a long-term or short-term solution because waterways will be monitored for many different pesticides and fertilizers.

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For additional information, contact a County Ag Commissioner or the Coalition for Urban/Rural Environmental Stewardship (www.curesworks.org).

Westside San Joaquin River
Watershed Coalition
PO Box 2157
Los Banos, CA 93635

June 10, 2011

Notice of Water Quality Exceedances for Chlorpyrifos

(Lorsban, NuPhos, Lock-On, Govern)

Dear Member,

In July 2010, the Westside Coalition's monitoring program detected chlorpyrifos insecticide (Lorsban, Lock-On, Govern, NuPhos) at 14 locations throughout the Coalition area, 12 of which were exceedances of the water quality objective. This high number of detections and exceedances has caught the attention of the Regional Water Quality Control Board.

Conversations with growers and crop advisors lead us to believe that the exceedances were likely caused by two factors: spray drift and irrigation runoff after an application. The most frequent chlorpyrifos uses during the summer are on alfalfa, almonds, walnuts, and corn.

As a result of these exceedances we can expect an increase in scrutiny by regulators. It is extremely important that growers make every effort to prevent future chlorpyrifos exceedances. We believe the exceedance problems can be solved by following either or both of the following practices:

- Preventing spray drift, a "doable" management practice that can eliminate future movement of the insecticide into waterways. In particular, following the chlorpyrifos label-required buffer between waterways (25 feet for boom sprayers, 50 feet for orchard sprayers) and not spraying when the wind is blowing toward the waterway.
- Reduce or eliminate irrigation drainage after a chlorpyrifos application, the label says no irrigation discharges for 48 hours after application or is discouraged altogether unless the water can be held on the farm. *Keep in mind that if you switch to pyrethroid insecticides, they too can be transported off site through drift or irrigation drainage and detected in coalition sediment monitoring.*

Why should you bother? Participation in workshops, completing surveys and more importantly, adopting BMPs on lands contributing to runoff or spray drift problems are key success measures for you and the Westside Coalition to remain in compliance with the Irrigated Lands Regulatory Program. Failure to solve water quality problems could lead to regulations requiring individual permitting of each farm by the Regional Water Board.

Thank you,

Joseph C. McGahan

Joseph C. McGahan
Watershed Coordinator
(559) 582-9237

(See Reverse Side for 2010 Monitoring Results)

Westside San Joaquin River Watershed Coalition

Pesticide Water Quality Value Exceedances for the period of 3/1/2010 to 9/1/2010

Del Puerto Creek near Cox Road

Analyte/Species	Event	Sample Date	Result	Units	WQV Max
Chlorpyrifos	67	5/11/2010	0.018	µg/L	0.015
Chlorpyrifos	69	7/14/2010	0.063	ug/L	0.015

Hospital Creek at River Road

Analyte/Species	Event	Sample Date	Result	Units	WQV Max
Chlorpyrifos	67	5/11/2010	0.045	µg/L	0.015
Chlorpyrifos	69	7/14/2010	0.24	ug/L	0.015

Ingram Creek at River Road

Analyte/Species	Event	Sample Date	Result	Units	WQV Max
Chlorpyrifos	67	5/11/2010	0.022	µg/L	0.015
Chlorpyrifos	69	7/14/2010	0.24	ug/L	0.015

Los Banos Creek at China Camp Road

Analyte/Species	Event	Sample Date	Result	Units	WQV Max
Chlorpyrifos	69	7/14/2010	0.031	ug/L	0.015

Marshall Road Drain near River Road

Analyte/Species	Event	Sample Date	Result	Units	WQV Max
Chlorpyrifos	67	5/11/2010	0.53	µg/L	0.015
Chlorpyrifos	68	6/8/2010	0.054	µg/L	0.015
Chlorpyrifos	69	7/14/2010	0.078	ug/L	0.015

Orestimba Creek at Hwy 33

Analyte/Species	Event	Sample Date	Result	Units	WQV Max
Chlorpyrifos	68	6/8/2010	0.079	µg/L	0.015
Chlorpyrifos	69	7/14/2010	0.032	ug/L	0.015

Orestimba Creek at River Road

Analyte/Species	Event	Sample Date	Result	Units	WQV Max
Chlorpyrifos	68	6/8/2010	0.20	µg/L	0.015
Chlorpyrifos	69	7/14/2010	0.06	ug/L	0.015

Salt Slough at Sand Dam

Analyte/Species	Event	Sample Date	Result	Units	WQV Max
Chlorpyrifos	69	7/14/2010	0.095	ug/L	0.015
Chlorpyrifos	70	8/10/2010	0.038	ug/L	0.015

Westley Wasteway near Cox Road

Analyte/Species	Event	Sample Date	Result	Units	WQV Max
Chlorpyrifos	69	7/14/2010	0.13	ug/L	0.015

WQV = Water Quality Value as established by the Central Valley Regional Water Quality Control Board DNQ = Detected, Not Quantifiable

Stewardship of Chlorpyrifos to Avoid Water Quality Issues


alfalfa


tree nuts


grapes

Chlorpyrifos Residues Detected in Local Waterways

Water testing conducted by various California water quality coalitions has detected residues of chlorpyrifos in several waterways where farm runoff is common. Chlorpyrifos is the active ingredient in Lorsban®-4E, Lorsban Advanced, Lorsban 15G and Lock-On® insecticides.

While water testing has indicated the presence of chlorpyrifos, any pesticide used on crops could potentially be transported into waterways and detected in monitoring. Without preventative actions, the future use of those important farm inputs is threatened.

How did this happen?

Residues of chlorpyrifos have been entering surface water through three potential routes following treatment of crops:

- Irrigation tail water runoff (especially alfalfa)
- Spray drift into waterways that border fields
- Storm water runoff after fields have been treated with an insecticide

Consequences for growers and/or PCAs

Detections of chlorpyrifos residues may result in serious regulatory restrictions. The restrictions could threaten the future use of an important insect management tool in alfalfa, tree nuts, grapes and other crops.

To date, no crop registrations have been eliminated due to residues in waterways.

What has Dow AgroSciences done?

Label changes have been implemented for products containing chlorpyrifos:

- A restriction statement: "To avoid contamination of irrigation tail waters, **do not flood irrigate within 24 hours** following a soil surface or foliar application."
- Addition of spray drift management guidelines. See labels for more details.
- Addition of buffer zones when chlorpyrifos applications are made adjacent to permanent bodies of water or other sensitive aquatic areas:

  25 feet for ground boom
  50 feet for orchard airblast
  150 feet for aerial

- Reduction in the total number of chlorpyrifos applications allowed per season.
- Re-treatment interval of 10 days for all products containing chlorpyrifos.

Dow AgroSciences Lorsban® Advanced Insecticide | Dow AgroSciences Lorsban®-4E Insecticide | Dow AgroSciences Lock-On® Insecticide | Dow AgroSciences Lorsban® 15G Granular Insecticide

Always read and follow label directions. ®Trademarks of Dow AgroSciences LLC
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Best Management Practices (BMPs)

The following BMPs can be implemented to help prevent chlorpyrifos from entering sensitive waterways.

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Buffer Zones Near Permanent Bodies of Water

Ground boom – 25 ft.
Orchard airblast – 50 ft.
Aerial – 150 ft.

It may be helpful to flag the corners of buffer zones as a visual reminder to applicators.

Call to Action

Dow AgroSciences is committed to the long-term defense and stewardship of chlorpyrifos products. Additionally, growers and PCAs need to take action to preserve the use of these important insect management tools.

Farm inputs including insecticides, fungicides, herbicides and fertilizers need to remain in the farm and not get to the waters of the state. Simply switching pest control products is not a long-term or short-term solution because waterways will be monitored for many different pesticides and fertilizers.

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For additional information, contact a County Ag Commissioner or the Coalition for Urban/Rural Environmental Stewardship (www.curesworks.org).

Appendix A
Chain of Custody Sheets and Data Summary

Appendix A
Definitions

Sample Type:
E: Event sample
FD: Field duplicate sample
FB: Field blank sample.

Result Flags:
ND: Not Detected.
DNQ: Estimated result, detected below Reporting Limit.

Note: Pesticides with results indicating “Non-Detect” are not reported in this summary. See **Table 7** for a list of analytes. See **Appendix C** for the laboratory data reports.

Appendix A
Chain of Custody Sheets

Appendix A

Sediment and Aquatic Toxicity Results

Appendix A
Data Summary

Appendix B
Communication Reports
Organized by Event Date

Appendix C
Laboratory Data Reports and EDDs

Field Data Sheets
CalTest General Physical, Drinking Water Data, Nutrient Data, Metals Data
APPL Pesticide Analyses
Pacific Ecorisk Toxicity Reports
Electronic Data Deliverable Files

Appendix D
Laboratory Quality Assurance Review

Appendix E
Sampling Event Photos