San Joaquin Valley Drainage Authority

Westside San Joaquin River Watershed Coalition

Semi-Annual Monitoring Report

2009 Irrigation Season Report

Covering the period: March through August 2009

(Sampling Events 53 through 58)

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SECTION 1: EXECUTIVE SUMMARY

This report covers the 2009 irrigation season sampling events beginning March 2009 through August 2009 (Event 53 through Event 58). 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. The irrigation season within the Westside Coalition typically starts in March, with pre-irrigation and typically ends in August, just before harvest of the late season crops (such as cotton and fall corn). Because the irrigation period is also when pesticides are applied, and most likely to be carried off by tailwater drainage, the Westside Coalition has targeted this period for pesticide and toxicity analysis (see MRP Order No. R5-2008-0831). The 2009 irrigation season saw an increase in fallowed (unplanted) fields caused by a severe reduction in the water allocation to Federal water districts and a number of sites measured no discernable flow.

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 six times, all of which were for *Ceriodaphnia dubia*. The measurements of significant toxicity occurred during four sampling events, with two measurements during Event 55 (May at Hospital and Ingram Creeks), one during Event 56 (June, Newman Wasteway), one during Event 57 (July, at Orestimba Creek at River Road) and two during Event 58 (August, at Marshall Road Drain and Orestimba Creek at River Road). These results, along with associated water quality and flow data, are summarized in **Attachment 2**. Details of the aquatic toxicity analyses are shown in **Appendix C**. The results of the 2009 bioassessment are included in **Appendix F.**

Sediment samples were collected in March (Event 53) and tested for toxicity to *Hyalella azteca*. Statistically significant toxicity was observed at six sites, however only three sites measured survival less than 82.5% survival (Blewett Drain – 18.8%, Hospital Creek – 0%, and Ingram Creek – 18.8%). See **Section 8**.

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). During Event 56 the toxicity samples from the Southerly Region were insufficiently iced during the initial sample collection (June 9th). Toxicity samples were recollected on June 15th, but a laboratory error resulted in test failures for five of these samples. These five sites were resampled on June 25th. During Event 58, the quality control sample site was inaccessible and chemistry/pesticide quality control samples were not collected for that event. The Field EC probe for the southerly region of the Westside Coalition began to drift during the June sampling event, continuing through the August event, at which point it was replaced. The data drift resulted in higher readings than equivalent laboratory results.

There were also a handful of minor quality control issues, including apparent contamination of field blank samples, exceedance of the field duplicate relative percent difference (RPD) value, or control sample failure. None of these issues are expected to affect data usability. Results of the Quality Control samples are discussed in Section 4 and **Attachment 3**.

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 and none of these sites discharged during this reporting period. No samples have been collected at any of the SLWD sites since they joined the Westside Coalition.

Table 1: March 2009 through August 2009 Sampling Events Summary

Map Designation	Monitoring Site	Event 53		Event 54	Event 55	Event 56	Event 57	Event 58
	Discharge Sites	Mar		Apr	May	Jun	July	Aug
1	Hospital Cr at River Road	NF	SS	S	S	NF	S	S
2	Ingram Cr at River Road	NF	SS	S	S	S	S	S
3	Westley Wasteway near Cox Road	NF	SS	S	S	S	S	S
4	Del Puerto Cr near Cox Road	NF	SS	S	S	S	NF	S
5	Del Puerto Cr at Hwy 33	NF	SS	NF	NF	NF	NF	NF
7	Ramona Lake near Fig Avenue	NF	SS	S	S	S	S	S
8	Marshall Road Drain near River Road	NF	NP	S	S	S	S	S
9	Orestimba Cr at River Road	S	SS	S	S	S	S	S
10	Orestimba Cr at Hwy 33	S	SS	S	S	S	S	S
11	Newman Wasteway near Hills Ferry Road	S	SS	S	S	S	S	NA
13	San Joaquin River at Lander Avenue	S	NP	S	S	S	S	S
14	Mud Slough u/s San Luis Drain	S	NP	S	S	S	S	S
15	Salt Slough at Lander Avenue	S	NP	S	S	S	S	S
16	Salt Slough at Sand Dam	S	NP	S	S	S	S	S
17	Los Banos Creek at Highway 140	S	NP	S	S	S	S	S
18	Los Banos Creek at China Camp Road	S	SS	S	S	S	S	S
19	Turner Slough near Edminster Road	S	NP	S	S	NA	S	S
20	Blewett Drain near Highway 132	NF	SS	S	S	S	S	S
21	Poso Slough at Indiana Avenue	S	NP	S	S	S	S	S
24	Los Banos Creek at Sunset Ave	NF	NP	NF	NF	NF	NF	NF
25	Little Panoche Cr at Western Boundary	NF	NP	NF	NF	NF	NF	NF
26	Little Panoche Cr at San Luis Canal	NF	NP	NF	NF	NF	NF	NF
27	Russell Ave. Drain at San Luis Canal	NF	NP	NF	NF	NF	NF	NF
	Source Water Sites							
12	San Joaquin River at Sack Dam	S	NP	S	S	S	S	S
22	San Joaquin River at PID Pumps	S	NP	S	S	S	S	S
23	Delta Mendota Canal at Del Puerto WD	S	NP	S	S	S	S	S

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

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. The area coordinates its separate monitoring and reporting program under the above waste discharge requirements.

The described 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) 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 beginning of this reporting period).

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. None of the San Luis Water District sites discharged during this report period.

During any given sampling event, each accessible site is visited, visually assessed, and samples are collected in accordance with the field sampling manual. **Table 1** shows the monitoring events summary by site for the reporting period.

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 2**. The laboratory, method, and constituents analyzed are shown in **Table 3.**

Table 2: 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 3: 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 Toxicity Event Summaries.
The 2009 irrigation season saw an increase in fallowed (unplanted) fields caused by a severe reduction in the water allocation to Federal water districts and a number of sites measured no discernable flow. Note that sites are considered to have no flow if there is no measurable discharge past the site. Water samples are collected from "no flow" sites if there is sufficient ponded water to submerge the sample container. The four San Luis Water District Sites (Los Banos Creek at Sunset Ave., Little Panoche Creek at Western Boundary, Little Panoche Creek at San Luis Canal, and Russell Ave. Drain at San Luis Canal) were dry for the entire irrigation season and were not sampled.

Event 53, March 9th and 10th, 2009.
Sediment samples were collected on March 9th at 11 monitoring sites (see **Section 6**). Water samples were collected on March 10th. Eight sites had no water during this event and were not sampled (Hospital Creek, Ingram Creek, Westley Wasteway, both Del Puerto Creek sites, Ramona Lake, Marshall Road Drain, and Blewett Drain). No aquatic toxicity was measured in any of the samples. Sediment toxicity was measured at Hospital Creek, Ingram Creek, Westley Wasteway, Orestimba Creek (at River Road and Highway 33), and Blewett Drain. Sediment samples from Hospital Creek, Ingram Creek, and Blewett Drain were tested for pesticides. See **Section 8**.

Event 54, April 13th and 14th, 2009.
Irrigation season water samples were collected on April 13th in the Northerly region and April 14th in the Southerly Region. In addition to the San Luis Water District sites, only one other site had no water (Del Puerto Creek at Highway 33). No significant toxicity was observed in the tested samples. Northerly and Southerly samples were collected on separate days due to a schedule conflict with the sampling crews.

Event 55, May 12, 2009.
Irrigation season samples were collected on May 12th. In addition to the San Luis Water District sites, only one other site had no water (Del Puerto Creek at Highway 33). Significant toxicity to *Ceriodaphnia dubia* was measured at Hospital Creek (45% survival) and Ingram Creek (0% survival). Elevated levels of chlorpyrifos and DDE were measured in the sample water of both sites. Dicofol was also detected in the Hospital Creek sample water.

Event 56, June 9th, 15th, and 25th, 2009.
Irrigation season samples were collected on June 9th at all sites except Hospital Creek and Del Puerto Creek at Highway 33 because of a lack of water, and Turner Slough due to a locked gate. Toxicity samples from the ten Southerly sites were not properly iced upon collection and were resampled on June 15th. An error in the lab resulted in test failure of five samples from that sample set, and a third set of samples were collected on June 25th. Significant toxicity to *Ceriodaphnia dubia* was observed in the Newman Wasteway sample (collected June 25th, 65% survival). However, because this sample was not collected concurrently with the water quality and pesticide samples (collected on June 9th), there is no data to correlate the toxicity to an apparent cause.

Event 57, July 14th, 2009.
Irrigation season samples were collected on July 14th in accordance with the Westside Coalition's Monitoring Program. July is the peak irrigation month within the Westside Coalition and water samples were collected at all of the monitoring sites except Del Puerto Creek (both sites). Significant toxicity to *Ceriodaphnia dubia* was observed at Orestimba Creek at River Road (0% survival). A TIE and dilution series (performed concurrently with the TIE) was initiated. The dilution series measured 4.15 toxic units, and the TIE indicated that the probable cause of toxicity was a metabolically activated non-polar organic material(s). An elevated level of chlorpyrifos (1.6 µg/L) was detected in the sample water.

Event 58, August 11, 2009.
Irrigation season samples were collected on August 11th. No water was present at Del Puerto Creek at Highway 33, and massive aquatic weed growth at Newman Wasteway prevented the safe sample collection. Newman Wasteway was selected as the quality control site for chemistry and pesticide tests. Because of the access restrictions, quality control samples for this event were not collected. Significant toxicity to *Ceriodaphnia dubia* was observed at Orestimba Creek at River Road (35% survival) and Marshall Road Drain (5% survival). A TIE was initiated for both sites. For the Orestimba Creek sample, the TIE indicated that a particulate bound material(s) was the cause of toxicity. For the Marshall Road Drain sample, the TIE indicated that the probable cause was a metabolically activated material(s). Elevated levels of chlorpyrifos (0.078 µg/L), DDE (0.011 µg/L), and dimethoate (0.39 µg/L) were detected in the Orestimba Creek sample. Chlorpyrifos (0.46 µg/L), chlordane (0.043 µg/L), dimethoate (0.40 µg/L), DDE (0.009 µg/L) , and endosulfan I (0.08 µg/L) were detected in the Marshall Road Drain sample.

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 (also called Vernalis at Highway 132 [VH132]). This site is located at the northerly boundary of the Westside Coalition, and has not been regularly monitored. Regional Board staff have observed turbid water discharges at this site on a number of occasions. Flow at this site is calculated as an estimated velocity and measured flow area.
- 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.
- 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 stite 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 acoustic probe.
- 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 CDEC.
- 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. 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 the 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 will typically measure only storm runoff or releases from the Little Panoche reservoir. These sites typically convey storm water and have not been extensively monitored. Since inclusion within the Westside Coalition, this site has not had any observed flow and has not been sampled.
- 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 likely to be storm runoff or releases from the Los Banos Reservoir. Since inclusion within the Westside Coalition, this site has not had any observed flow and has not been sampled.
- 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.

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 4** shows the top ten crops within the Coalition area based on 2008/09 Agricultural Commissioner pesticide use data. Complete data for the 2009 irrigation season is not yet available.

Table 4: Top 10 Crops Grown by County

Fresno	Merced	Stanislaus
Alfalfa	Alfalfa	Almonds
Cotton	Cotton	Tomatoes
Grapes (Raisins)	Tomatoes	Alfalfa
Almonds	Almonds	Beans (dry)
Tomatoes	Oats	Walnuts
Melons	Corn	Corn
Wheat	Wheat	Grapes (wine)
Corn	Melons	Apricots
Grapes (Wine)	Walnuts	Oats
Sugarbeets	Pistachios	Wheat

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 are usually furrow irrigated using either a plowed head ditch or gated pipe, but may also be sprinkler 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 many of the older orchards are still flood irrigated. **Table 5** shows the types of pesticides used in Stanislaus County according to the most recent data available from the Agricultural Commissioner, by sub-watershed and crop type. This area includes 7 of the 23 discharge monitoring sites within the Westside Coalition.

Table 5: Stanislaus County 2009 Irrigation Season Pesticide Use by Subwatershed (partial data)

	Pesticide Type	Fallow / Native	Field Crops	Pasture	Orchard Crops	Vineyards	Nursery
Del Puerto Cr. Subwatershed	Carbamates		x	x	x		
	Herbicides	x	x	x	x		
	Organochlorine						
	Organophosphorus		x		x		
	Pyrethroid		x		x		
Hospital/Ingram Cr. Subwatershed	Carbamates		x		x		
	Herbicides	x	x		x	x	
	Organochlorine						
	Organophosphorus		x		x		
	Pyrethroid		x		x		
Orestimba Cr. Subwatershed	Carbamates		x				
	Herbicides		x		x		x
	Organochlorine		x				
	Organophosphorus		x		x		
	Pyrethroid		x		x		
Westley Wasteway Subwatershed	Carbamates		x		x		
	Herbicides		x		x		
	Organochlorine						
	Organophosphorus		x		x		
	Pyrethroid		x		x		

Table 6 shows the 10 most commonly applied pesticides (by acreage) within the three counties occupied by the Westside Coalition.

Table 6: Most Commonly Applied Pesticides by County

Fresno County		Merced County		Stanislaus County	
Pesticide	Class	Pesticide	Class	Pesticide	Class
Lambda-cyhalothrin	Pyrethroid	Glysophate	Herbicide	Glysophate	Herbicide
Glysophate	Herbicide	Trifluralin	Herbicide	Lambda-cyhalothrin	Pyrethroid
Trifluralin	Herbicide	Lambda-cyhalothrin	Pyrethroid	Oxyfluorfen	Herbicide
Malathion	Organophosphorus	Malathion	Organophosphorus	Esfenvalerate	Pyrethroid
Oxyfluorfen	Herbicide	Oxyfluorfen	Herbicide	Dimethoate	Organophosphorus
Pendimethalin (Prowl)	Herbicide	Chlorpyrifos	Organophosphorus	Rimsulfuron	Herbicide
Rimsulfuron	Herbicide	2,4-D	Herbicide	2,4-D	Herbicide
Chlorpyrifos	Organophosphorus	MCPA	Herbicide	Chlorpyrifos	Organophosphorus
Imazethapyr	Herbicide	Bifenthrin	Pyrethroid	Trifluralin	Herbicide
Cyfluthrin	Pyrethroid	Dimethoate	Organophosphorus	Pendimethalin (Prowl)	Herbicide

This data was provided by the Agricultural Commissioner for each county and represents a portion of the 2009 irrigation season pesticide use. Data for the entire 2009 irrigation season was not available at the time of this report.

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.

SECTION 6: 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.** Field duplicate and field blank samples were collected during five of the sampling events within 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 118 duplicate analyses were completed and compared to the event sample results. Sixteen duplicate samples exceeded the 25% relative percent difference (RPD) established in the QAPP for:

Ammonia	Cadmium (total and dissolved)	E. Coli
TKN	Total Suspended Solids	Turbidity
Zinc		

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 water column quality. The Westside Coalition does not expect these variations to impact data usability.

Five field blank sample sets were analyzed during the report period (114 results, total). Of these, 4 resulted in values greater than 20% of the event sample result, including:

Cadmium	Copper	Dissolved Organic Carbon
Zinc		

Two of the field blank results exceeding 20% of the event sample results were detected below the reporting limit ("j" or "DNQ" flagged). Based on a review of the field blank collection method and a large number of blank results that exceeded the 20% threshold during the prior reporting period (see the June 15th 2009 SAMR), changes were made to the blank sample collection method. Of the four blank threshold exceedances, three occurred during the June Sampling event, and the changes in field blank collection method apparently corrected the problem.

- **Pesticide Analyses.** Five field duplicate and field blank samples sets were collected during the reporting period and analyzed for pesticides. There were no pesticide detections in any of the field blank samples. Calculated RPD for field duplicate results exceeded the 25% threshold for two analytes during the reporting period (Prowl in Event 54 and DDE in Event 55). 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. Field duplicate results were acceptable for all of the tests.

- **Sediment Toxicity Analyses.** A field duplicate sample was collected for sediment toxicity during the March sampling event. The measured RPD was 1.3%.

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%. On set of aquatic toxicity samples were not properly iced during the initial sample event, however, these samples were re-collected and tested.
- Sample Analysis: Completeness for sample analysis during this reporting period is 100%. The control for six toxicity samples failed due to a laboratory accident, and all six were successfully re-tested. During Events 55 and 57, the *Ceriodaphnia dubia* control sample failed, however the affected samples were successfully restested in both cases. During Event 56 (June), a laboratory error resulted in test failure for five sites, however, samples from these sites were re-collected and successfully tested.
- Field Quality Control Samples: Completeness for toxicity duplicate samples is 100% for this reporting period. Because quality control samples for general chemistry and pesticide constituents were not collected during Event 58, the completeness is 83% for chemistry and pesticide quality control samples. It is the policy of the Westside Coalition's monitoring program to collect quality control samples at another site if the

pre-selected site is dry or inaccessible. For some reason this policy was not enacted during Event 58 and no quality control samples were collected. Based on the historic pattern of quality control data collected through this program, the Westside Coalition does not believe that this oversight will impact data usability.

SECTION 7: ANALYTICAL METHODS

Table 3 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.

The Westside Coalition's monitoring program includes 26 monitoring sites on the Westside of the San Joaquin Valley (see **Table 1** and **Figure 1**). 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 2009 irrigation season months and there was significant agricultural activity during this period. Six measurements of significant aquatic toxicity were measured to *Ceriodaphnia dubia*. **Attachment 2** summarizes all available data for each measurement of significant aquatic toxicity.

Ceriodaphnia dubia. Toxicity to *Ceriodaphnia dubia* was measured during Event 55 (Hosptial Creek and Ingram Creek), Event 56 (Newman Wasteway), Event 57 (Orestimba Creek at River Road), and Event 58 (Marshall Road Drain and Orestimba Creek at River Road). Follow-up

testing was performed on all of these samples except Newman Wasteway (65% survival). Additionally, due to a sample collection and testing error, the Newman Wasteway toxicity sample was collected after the chemistry and pesticide samples and there is no comparable water quality data to help explain the cause of toxicity in that sample. Insecticides were present in the other samples showing aquatic toxicity in sufficient quantity to explain toxicity. See **Attachment 2**.

Selenastrum capricornutum (algae). Toxicity to Algae was not observed during the reporting period.

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

Sediment Toxicity (*Hyalella azteca*). Sediment samples were collected during Event 53 (March) and tested for toxicity to *Hyalella azteca*. Twelve samples were collected (including one duplicate), and significant toxicity was measured at six sites (Blewett Drain, Hospital Creek, Ingram Creek, Westley Wasteway, Orestimba Creek at River Road, and Orestimba Creek at Highway 33). Although statistically significant, three of the sites measuring toxicity had survival rates greater than 80% (Westley Wasteway – 82.5%, Orestimba Creek at River Road – 91.2%, and Orestimba Creek at Highway 33 – 88.8). Three sites measured survival less than 50% (Blewett Drain – 18.8%, Hospital Creek – 0%, Ingram Creek – 18.8%). Samples from these four sites were tested for selected pesticides including chlorpyrifos, legacy organochlorines and pyrethroids. **Table 7** summarizes the detected pesticide data at those four sites. See **Appendix C** for the full laboratory report. **Table 8** shows the sediment toxicity results since the beginning of the monitoring program.

Table 7: Detected Pesticides in Sediment Samples (March 2009).

	Blewett Drain	Hospital Creek	Ingram Creek
Sediment Toxicity (% survival)	18.8	0	18.8
Bifenthrin (mg/kg)	0.003	0.023	ND
Chlorpyrifos (mg/kg)	ND	0.13j	ND
Lambda-Cyhalothrin (mg/kg)	0.021	ND	0.017
DDE (mg/kg)	0.045	0.040	0.052
TOC (mg/kg)	14,500	5,400	9,550

The detected pesticides in these sediment samples are likely sufficient to explain toxicity. Details of the sediment pesticide analyses are in **Attachment 4.**

Table 8: Sediment Toxicity Results.

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	N/A	N/A
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**
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)
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**
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**
Mud Slough	96.2	N	100	N	98.8	N	97.5	N

Site	96.2	N	Sep 04 % Survival	Sep 04 Toxicity (Y/N)
Hospital Creek	**16.2**	**Y**	85	N
Ingram Creek	**32.5**	**Y**	**0**	**Y**
Westley Wasteway	**0**	**Y**	95.7	N
Del Puerto Creek (Cox Rd)	N/A	N/A	93.75	N
Del Puerto Creek (Hwy 33)	**0**	**Y**	N/A	N/A
Orestimba Creek at River Rd.	**51.2**	**Y**	95	N
Orestimba Creek at Hwy 33	N/A	N/A	**52.5**	**Y**
Ramona Lake at Fig Ave.	N/A	N/A	N/A	N/A
Newman Wasteway	**72.5**	**Y**	90	N
Turner Slough	85	N	93.75	N
SJR at Lander	91.2	N	88.75	N
Salt Slough at Lander	**62.5**	**Y**	92.5	N
Salt Slough at Sand Dam	87.5	N	95	N
Los Banos Creek at Hwy 140	**56.2**	**Y**	93.75	N
Los Banos Creek at China Camp Rd.	**58.8**	**Y**	95	N
Mud Slough	**76.2**	**Y**	92.8	N

N/A indicates no sample taken or criteria not applicable. Shaded cells indicate that the site is no longer monitored for sediment toxicity.

A total of 17 different pesticides were detected in water samples during the 2009 irrigation season for a total of 142 detections. This is nearly half the number of detections from the same reporting period in 2008. Fifty five of these detections (39%) were below the reporting limit and 31 were legacy pesticides that are no longer in use (DDE and gamma-chlordane).

- Chlordane-gamma (4 detections): Chlordane is an organochlorine insecticide that was used on a variety of crops including fruits, vegetables, and tree crops. It was banned for agricultural purposes in the United States in 1983.
- Chlorpyrifos (19 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 period were mostly applied to alfalfa in Fresno and Merced Counties, and fruit and nut tree crops in Stanislaus County, however this data only reflects a portion of the irrigation season pesticide use.
- DDT/DDD/DDE (27 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 value but are compounds normally associated with the degradation of DDT.
- Diazinon (1 detection): Diazinon is an organophosphate pesticide used to control a wide range of insects and is frequently applied to nut trees, melons, and tomatoes, and is often used as a dormant spray for trees.
- Dicofol (2 detections): Dicofol is an orgaochlorine insecticide that is registered for use on a variety of field crops such as cotton, tomatoes, beans, and melons.
- 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 (11 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.
- Disulfoton (2 detections): Disulfoton is an organophosphate insecticide used to control a variety of pests. It is used on field crops including cotton, wheat, and sugar beets. Disulfoton is a systemic insecticide (absorbed by the plant), which makes it effective against sucking pests while protecting beneficial insects.
- Diuron (39 detections): Diuron is a substitute urea herbicide used to control weeds in a variety of field crops including cotton, alfalfa, and wheat. It is also effective in controlling algae.
- Endosulfan I (3 detection): Endosulfan is a Group A organochlorine pesticide used to control a variety of insects on vegetable crops, grains, and cotton. Based on available pesticide use reports, this material is not widely used.
- EPTC (3 detections): EPTC is a selective thiocarbamate herbicide used to control grassy and broadleaf weeds in a variety of field crops including beans and corn.
- Methamidophos (1 detection): Methamidophos is an organophosphate insecticide and is used on a variety of field crops including tomatoes, cotton, and alfalfa.
- Methidathion (1 detection): Methidathion is an organophosphate pesticide used to control insects on alfalfa, fruit and nut trees, alfalfa, safflower, and vegetable crops.

- Prowl (19 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 (3 detections): Simazine is a triazine herbicide used to control broadleaf weeds and annual grasses in a variety of field crops.
- Trifluran (1): Trifluralin is a pre-emergent herbicide used to control broadleaf and grassy weeds and is approved for a variety of crops including fruit and nut trees, cotton, beans, and tomatoes.

Exceedences of Recommended Water Quality Values

Water chemistry analyses were compared to recommended water quality values[1] (RWQV).

- **Field, General Physical and Drinking Water Quality Exceedences.** 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 more than 3,000 field and chemistry (non-pesticide) parameters during the reporting period, during which, 326 (11%) results were greater than the RWQVs. Electrical conductivity and total dissolved solids (TDS) accounted for 98 and 77 of these exceedances (respectively). E. coli results accounted for 25 of these exceedances, 34 for dissolved oxygen (DO), 32 for pH, and 20 for boron. The RWQV for cadmium, copper, lead, nickel, and zinc are dependant on site water hardness and is a calculated value. During this reporting period there were no exceedances of the RWQV for those constituents. Potential causes for EC/TDS, E. coli, and DO 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 severe reduction in the federal water allocation may have caused growers to rely more heavily on wells for irrigation. Most of the groundwater wells within the Westside Coalition are more saline than the surface water supplies. It is also notable that 9 of the 18 TDS measurements of source water samples exceeded the TDS RWQV. The field EC probe for the southerly region of the Westside Coalition began drifting higher during the June, July, and August events. Although the logged results measured higher than equivalent laboratory results, in most cases, both results were higher than the EC RWQV.
    - **E. coli and Fecal coliform.** 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

[1] 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.

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 time of day, turbidity, biological growth and decay, and channel turbulence. The cause of the DO exceedances measured during this report period is not immediately clear. As part of the Management Plan, the Westside Coalition has reviewed DO exceedances from historic data. See **Attachment 6.**

- **Pesticide exceedences.** The Westside Coalition tested for more than 3,800 pesticides during the reporting period. These analyses resulted in 145 detections, of which, 54 (1.4%) were greater than established RWQVs. Of the 54 exceedances, 34 were caused by legacy pesticides (either DDE or chlordane), which are not currently in use. Of the remaining 20, 14 were caused by chlorpyrifos, 2 by dimethoate, 3 by diuron, and 1 by methamidophos. Pesticide use data from the county Agricultural Commissioners was only available for a portion of the irrigation season. See **Attachment 5.**

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, and the Focused Plan was targeted at the specific issues within Ingram and Hospital Creek. **Table 9** shows the implementation schedule listed in the Management Plan (see the Management Plan – General Approach, Table 4, October 23, 2008).

Table 9: 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	Nov. 2009
4	Develop subwatershed maps	All Categories	On-going	Jan. 2010
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 10th 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).

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. Since that time, the Westside Coalition has implemented a number of activities.

- Management practice inventory. A detailed survey of growers within the Ingram and Hospital creek watershed was conducted early in 2009 and completed in July with 100% participation. The surveys provided a detailed, parcel by parcel view of the grower practices within those watersheds. A summary of the surveys is included in **Attachment 6.**
- Surveillance level monitoring (SLM). Six sites within the Ingram and Hospital creek watersheds were visited weekly during the irrigation season. Each site was visually assessed, an estimate of flow was made and a water sample was tested for turbidity. The primary purpose of the SLM was to qualitatively track weekly changes in the water quality.
- Sedimentation/tailwater pond funding assistance program. The Westside Coalition has developed a funding assistance program to encourage growers within targeted areas (including the Hospital and Ingram creek watersheds) to construct new and maintain existing tailwater ponds. The program provides 75% of the cost to clean out an existing pond or construct a new pond (up to a maximum of $6,000). To date, this program has funded the clean or construction of two ponds, serving 650 acres. Additionally, ten more ponds are planned for the fall, serving another 3,200 acres.

3. Compile Management Practice Inventory.
A management plan survey for the Ingram and Hospital creek watersheds was completed as part of the Focused Plan (see above). A new survey for the Del Puerto Creek, Westley Wasteway, and Orestimba Creek watersheds is in development.

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 Plan, the Westside Coalition collected highly detailed drainage information on the Ingram and Hospital creek subwatersheds. A map of these watersheds is included in **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. This pesticide use data is reviewed to develop the data presented in **Tables 5** and **6** of this report. Additionally, specific regional pesticide use data is periodically reviewed to attempt to compare with pesticide detections through the monitoring program. However, the lag time between pesticide application and data availability limits the usefulness of this effort.

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.

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 exceedances were likely human in cause. As part of the Focused Plan, surveys were circulated within the Hospital and Ingram creek watersheds in an attempt to map manure usage. The results of the survey indicated that manure usage was very widespread. Additional studies to determine the source of E. coli are being considered.

8. Continue Reporting and Outreach.
Outreach included regular updates at the monthly meeting of the Westside Coalition. Additional outreach meeting were held per the attached tabulation shown in **Table 10**. At each meeting, the latest information on the BMP studies conducted in this grant as well as other BMPs applicable to managing sediment and pesticide runoff were provided.

Outreach activities in this reporting period focused on the two high priority Westside San Joaquin River waterways where Management Plans (MP) are being implemented, Ingram and Hospital Creeks. In this period, the Coalition began its effort to map the individual parcels adjacent to the two creeks, to identify the crops grown and begin scheduling individual meetings with growers who may have used pesticides associated with the exceedances in the waterways. The Coalition believes its priority should be working with landowners and operators who have

the highest potential impact on correcting a problem then add other areas as information becomes available.

The Coalition has begun efforts to contact individual member growers in the Ingram and Hospital Creeks subwatershed identified as having potential discharge points into either waterway. Landowners with potential discharge points who are coalition members will be contacted first to discuss options for mitigating any farm runoff or spray drift into the waterways. Pesticide use information from the Stanislaus County Agricultural Commissioners office is also being compiled and examined to see if use reports can 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 are sometime not possible. The Coalition anticipates contacting individual member growers during Fall – Spring 2009-10. This 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.

The Coalition also began planning grower meetings in the watershed to present 2009 irrigation water quality monitoring results and management practices information. There will be Subwatershed specific meetings scheduled between February and April 2010 focusing on Coalition data from the previous year of monitoring and activities to prevent off site movement.

A Westside Coalition newsletter was distributed by its member districts in March 2009 that outlined results from winter 2008-09 monitoring results and information on funding currently available to members. The newsletter also described the process for the new long term ILRP.

On April 8, 2009, the West Stanislaus RCD and the Coalition invited growers who farm in the Hospital Creek and Ingram Creek watersheds to a meeting in Patterson. The purpose of the meeting was to explain the Management Plan activities for the two waterways and funding sources available for installing BMPs to irrigated crop land. Also discussed were possible sources of pesticide exceedances and potential management practices to use in fields adjacent to the creeks. A follow up meeting was held at the offices of the West Stanislaus Irrigation District in Westley on June 10, 2009.

In May, 2009, the Westside Coalition mailed/faxed a notice out to Pest Control Advisors (PCAs) and aerial applicators operating in western Stanislaus County describing the Management Plans in effect for Ingram/Hospital Creeks. The memo stressed caution when recommending or making pesticide applications near the priority watersheds. Also included in the correspondence was a map showing the locations of the waterways.

In July, the coalition distributed an “Exceedance Notice” for pesticide exceedances in Orestimba, Hospital and Ingram Creeks in July sampling. The Exceedance Notice is intended to raise awareness of growers operating in Western Stanislaus County of the pesticide exceedances. The notice was distributed to the Westside San Joaquin River Resource Conservation District members, and to growers in the Del Puerto Water District, West Stanislaus Irrigation District and Patterson Irrigation District.

Table 10: Outreach Meetings

Date	Group	Location	Description	Approximate Attendance
4/8/2009	W. Stan RCD	Patterson	Organize stakeholder group for Ingram/Hospital	15
4/29/2009	CCID Dos Palos Area Meeting	Dos Palos	Provded information on water quality exceedences, best management practices and funding opportunities	10
6/10/2009	W. Stan RCD Stakeholder Group	Westley	Follow up Ingram/Hospital Issues	8
Monthly	Meetings of Coalition Steering Committee	Los Banos	Review monitoring, budgeting and management plan implementation	20
11/10/2009	Merced College PCA Class	Merced	Outreach to PCA's and interested parties on management requirements within the Westside Coalition	40

Examples of outreach meeting handouts are included in **Attachment 6.**

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 is included in **Attachment 6**.

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.

- **Regional Tailwater Return Systems:** As was reported in prior monitoring reports, a number of regional tailwater ponds and recirculation systems have been constructed recently in the Patterson Subarea of the Westside Coalition (most recently the Northside Recovery System and the Westley Tailwater Pond). These systems have shown

significant impact in improving water quality in the receiving waterbody, but also increased water management flexibility. Two additional tailwater return system projects have been identified in the Ingram and Hospital Creek watershed areas, and potential funding programs for these are being sought.

- **Conversion to high efficiency irrigation systems:** Drip and micro-sprinkler irrigation systems virtually eliminate tailwater discharges as well as providing some advantages in the applications of chemicals that can reduce impacts to water quality. Several of the districts within the Westside Coalition have implemented grant and loan programs that to assist growers in upgrading their irrigation systems. During the 2009 irrigation season more than 2,500 acres of high efficiency irrigation systems came on line.

Pumping restrictions placed on the pump stations that feed the California Aqueduct and Delta-Mendota Canal have severely reduced the agricultural water supply. Central Valley Project (CVP) water allocations for South-of-Delta contractors were reduced to 10% for the 2009 irrigation season. Water shortfalls were made up by growers fallowing land and pumping groundwater.

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 12 samples in March (Event 53). The results of these tests were similar to previous sediment toxicity results in that sites which showed sever toxicity had a fairly consistent history of toxic results since the beginning of the program. Samples from Blewett Drain, Hospital Creek and Ingram Creek all measured severe toxicity and all had shown toxic results in the past. Although statistically significant, the toxicity at Westley Wasteway and both Orestimba Creek sites were relatively minor in magnitude. Westley Wasteway has a history of fairly sever sediment toxicity, and the recent results could indicate some improvement in the watershed if the trend continues. Sediment samples from Hospital Creek, Ingram Creek, and Blewett Drain were tested for a variety of pesticides as well as total organic carbon (TOC), see **Table 7**. In all three cases it appears that pyrethroids are the probable cause of toxicity (although DDE was present at all three sites). 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.

- **Aquatic Toxicity:** During this reporting period, 6 samples indicated significant toxicity to *Ceriodaphnia dubia*. **Attachment 2** provides monitoring results for all of the sites that measured significant toxicity, including a discussion of the TIE and dilution series findings. Chlorpyrifos was present in five of the sites at sufficient levels to explain the toxicity. Although other materials were present in some of the samples showing toxicity, the Westside Coalition believes that a more aggressive management of chlorpyrifos applications will dramatically reduce the number of samples toxic to *Ceriodaphnia dubia*. No toxicity was observed to any of the other indicator species during the reporting period. For reference, there were nine measurement of toxicity to *Ceriodaphnia dubia* and two to algae during the 2008 irrigation season.

- **Pesticide Analyses:** During this reporting period, total of 17 different pesticides were detected in water samples during the 2009 irrigation season for a total of 142 detections. Fifty four exceeded the established RWQV. The majority of these exceedances were caused by either DDE (30) or chlorpyrifos (14). For reference, there were 267 pesticides detected in the 2008 irrigation season, with 87 exceedances of the RWQV. See **Attachment 2**.

- **General Chemistry and Field Observations:** The monitoring results for field and general chemistry tests were largely similar to the 2008 irrigation season in form. EC/TDS measured the largest number of exceedances for this reporting period (98 and 77 exceedances, respectively), which is not surprising given the very dry hydrologic year. Bacteria continues to be a leading source of exceedances (25 for E. Coli during this period). Additionally, there were a large number of DO exceedances (34), however several sites had low or minimal flow, which may have contributed to the low DO measurements. Other constituent exceedances include ammonia (2 exceedances), arsenic (1 exceedance), pH (32 exceedances), boron (20 exceedances), and selenium (2 exceedances). Cadmium, copper, lead, nickel, and zinc results were compared to the calculated RWQV (based on site water hardness) and no exceedances were 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).

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 10**).

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 58 regular monitoring events and 7 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**).

Attachment 1
Sampling Event Details

Event 53 March 2009	Map Desig.	Caltest		APPL	PER				Dup?
		Gen Phy	Drnk Wtr	Pest	Sed Tox	CD Tox	PP Tox	SC Tox	
Hospital Cr at River Road	HCARR	no flow			x				
Ingram Cr at River Road	ICARR	no flow			x				
Westley Wasteway near Cox Road	WWNCR	no flow			x				
Del Puerto Cr near Cox Road	DPCCR	no flow			x				
Del Puerto Cr at Hwy 33	DPCHW	no flow			x				
Ramona Lake near Fig Avenue	ROLFA	no flow			x				
Marshall Road Drain near River Road	MRDRR	no flow							
Orestimba Cr at River Road	OCARR	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	
Mud Slough u/s San Luis Drain	MSUSL	x	x	x		x			
Salt Slough at Lander Avenue	SSALA	x	x	x		x		x	
Salt Slough at Sand Dam	SSASD			x		x		x	
Los Banos Creek at Highway 140	LBCHW	x	x	x		x			
Los Banos Creek at China Camp Road	LBCCC	x	x	x	x	x	x	x	x
Turner Slough near Edminster Road	TSAER	x	x	x		x	x		
Blewett Drain near Highway 132	VH132	no flow			x				
Poso Slough at Indiana Avenue	PSAIA	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 54 April 09	Map Desig.	Caltest		APPL	PER				Dup?
		Gen Phy	Drnk Wtr	Pest	Sed Tox	CD Tox	PP Tox	SC Tox	
Hospital Cr at River Road	HCARR	x	x	x		x			
Ingram Cr at River Road	ICARR	x	x	x		x			
Westley Wasteway near Cox Road	WWNCR	x	x	x		x		x	
Del Puerto Cr near Cox Road	DPCCR	x	x	x		x			
Del Puerto Cr at Hwy 33	DPCHW	no flow							
Ramona Lake near Fig Avenue	ROLFA	x	x	x		x			
Marshall Road Drain near River Road	MRDRR	x	x	x		x			
Orestimba Cr at River Road	OCARR	no flow							
Orestimba Cr at Hwy 33	OCAHW	x	x	x		x		x	
Newman Wasteway near Hills Ferry Road	NWHFR	x	x	x		x			x
San Joaquin River at Lander Avenue	SJRLA	x	x	x		x		x	
Mud Slough u/s San Luis Drain	MSUSL	x	x	x		x			
Salt Slough at Lander Avenue	SSALA	x	x	x		x		x	
Salt Slough at Sand Dam	SSASD			x		x		x	
Los Banos Creek at Highway 140	LBCHW	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		
Blewett Drain near Highway 132	VH132	x	x						
Poso Slough at Indiana Avenue	PSAIA	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 55 May 09	Map Desig.	Caltest		APPL	PER				Dup?
		Gen Phy	Drnk Wtr	Pest	Sed Tox	CD Tox	PP Tox	SC Tox	
Hospital Cr at River Road	HCARR	x	x	x		x			
Ingram Cr at River Road	ICARR	x	x	x		x			
Westley Wasteway near Cox Road	WWNCR	x	x	x		x		x	
Del Puerto Cr near Cox Road	DPCCR	x	x	x		x			
Del Puerto Cr at Hwy 33	DPCHW	**no flow**							
Ramona Lake near Fig Avenue	ROLFA	x	x	x		x			
Marshall Road Drain near River Road	MRDRR	x	x	x		x			
Orestimba Cr at River Road	OCARR	x	x	x		x			
Orestimba Cr at Hwy 33	OCAHW	x	x	x		x		x	
Newman Wasteway near Hills Ferry Road	NWHFR	x	x	x		x			x
San Joaquin River at Lander Avenue	SJRLA	x	x	x		x		x	
Mud Slough u/s San Luis Drain	MSUSL	x	x	x		x			
Salt Slough at Lander Avenue	SSALA	x	x	x		x		x	
Salt Slough at Sand Dam	SSASD			x		x		x	
Los Banos Creek at Highway 140	LBCHW	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		
Blewett Drain near Highway 132	VH132	x	x						
Poso Slough at Indiana Avenue	PSAIA	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 56 June 09	Map Desig.	Caltest		APPL	PER				Dup?
		Gen Phy	Drnk Wtr	Pest	Sed Tox	CD Tox	PP Tox	SC Tox	
Hospital Cr at River Road	HCARR	**no flow**							
Ingram Cr at River Road	ICARR	x	x	x		x			
Westley Wasteway near Cox Road	WWNCR	x	x	x		x		x	
Del Puerto Cr near Cox Road	DPCCR	x	x	x		x			
Del Puerto Cr at Hwy 33	DPCHW	**no flow**							
Ramona Lake near Fig Avenue	ROLFA	x	x	x		x			
Marshall Road Drain near River Road	MRDRR	x	x	x		x			
Orestimba Cr at River Road	OCARR	x	x	x		x			
Orestimba Cr at Hwy 33	OCAHW	x	x	x		x		x	
Newman Wasteway near Hills Ferry Road	NWHFR	x	x	x		x			x
San Joaquin River at Lander Avenue	SJRLA	x	x	x		x		x	
Mud Slough u/s San Luis Drain	MSUSL	x	x	x		x			
Salt Slough at Lander Avenue	SSALA	x	x	x		x		x	
Salt Slough at Sand Dam	SSASD			x		x		x	
Los Banos Creek at Highway 140	LBCHW	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	**No Access**							
Blewett Drain near Highway 132	VH132	x	x						
Poso Slough at Indiana Avenue	PSAIA	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 57 July 09	Map Desig.	Caltest		APPL	PER				Dup?
		Gen Phy	Drnk Wtr	Pest	Sed Tox	CD Tox	PP Tox	SC Tox	
Hospital Cr at River Road	HCARR	x	x	x		x			
Ingram Cr at River Road	ICARR	x	x	x		x			
Westley Wasteway near Cox Road	WWNCR	x	x	x		x		x	
Del Puerto Cr near Cox Road	DPCCR	**no flow**							
Del Puerto Cr at Hwy 33	DPCHW	**no flow**							
Ramona Lake near Fig Avenue	ROLFA	x	x	x		x			
Marshall Road Drain near River Road	MRDRR	x	x	x		x			
Orestimba Cr at River Road	OCARR	x	x	x		x			
Orestimba Cr at Hwy 33	OCAHW	x	x	x		x		x	
Newman Wasteway near Hills Ferry Road	NWHFR	x	x	x		x			x
San Joaquin River at Lander Avenue	SJRLA	x	x	x		x		x	
Mud Slough u/s San Luis Drain	MSUSL	x	x	x		x			
Salt Slough at Lander Avenue	SSALA	x	x	x		x		x	
Salt Slough at Sand Dam	SSASD			x		x		x	
Los Banos Creek at Highway 140	LBCHW	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		
Blewett Drain near Highway 132	VH132	x	x						
Poso Slough at Indiana Avenue	PSAIA	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 58 August 09	Map Desig.	Caltest		APPL	PER				Dup?
		Gen Phy	Drnk Wtr	Pest	Sed Tox	CD Tox	PP Tox	SC Tox	
Hospital Cr at River Road	HCARR	x	x	x		x			
Ingram Cr at River Road	ICARR	x	x	x		x			
Westley Wasteway near Cox Road	WWNCR	x	x	x		x		x	
Del Puerto Cr near Cox Road	DPCCR	x	x	x		x			
Del Puerto Cr at Hwy 33	DPCHW	**no flow**							
Ramona Lake near Fig Avenue	ROLFA	x	x	x		x			
Marshall Road Drain near River Road	MRDRR	x	x	x		x			
Orestimba Cr at River Road	OCARR	x	x	x		x			
Orestimba Cr at Hwy 33	OCAHW	x	x	x		x		x	
Newman Wasteway near Hills Ferry Road	NWHFR	**No Access**							
San Joaquin River at Lander Avenue	SJRLA	x	x	x		x		x	
Mud Slough u/s San Luis Drain	MSUSL	x	x	x		x			
Salt Slough at Lander Avenue	SSALA	x	x	x		x		x	
Salt Slough at Sand Dam	SSASD			x		x		x	
Los Banos Creek at Highway 140	LBCHW	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		
Blewett Drain near Highway 132	VH132	x	x						
Poso Slough at Indiana Avenue	PSAIA	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
Hospital Creek at River Road	5/12/2009	55	Ceriodaphnia dubia	45	95	53%	%

Followup: TIE suggests that a non-polar organic compound(s) and metal, or compound(s) with both non-polar organic and polar properties caused the toxicity.

Field Data

DO	7.63	mg/l
EC	349	µmhos/cm
Est Depth		ft
Flow	0.8	cfs
pH	6.69	
Staff Gage	0.2	ft
Temp	18.56	c

Water Chemistry

Hardness (as CACO3)	110		mg/L
Arsenic	2.3		ug/L
Boron	200		ug/L
Cadmium	0.03	DNQ	ug/L
Cadmium (dissolved)	0.01	DNQ	ug/L
Copper	6.6		ug/L
Copper (dissolved)	2.2		ug/L
Lead	2.7		ug/L
Nickel	9.8		ug/L
Nickel (dissolved)	1.7		ug/L
Zinc	13		ug/L
Zinc (dissolved)	1.4		ug/L

Detected Pesticides

Chlorpyrifos	0.034	
DDE(p,p')	0.0091	DNQ
Dicofol	0.12	

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
Ingram Creek at River Road	5/12/2009	55	Ceriodaphnia dubia	0	95	100%	%

Followup: 1.91 Toxic Units measured. TIE suggests that a non-polar organic compound(s) and metal, or compound(s) with both non-polar organic and polar properties caused the toxicity.

Field Data

DO	7.75	mg/l
EC	669	µmhos/cm
Est Depth		ft
Flow	11.5	cfs
pH	7.64	
Staff Gage	0.5	ft
Temp	18.26	c

Water Chemistry

Bromide	0.14	DNQ	mg/L
Dissolved Organic Carbon	3.1		mg/L
E. Coli	81		MPN/100m
Total Organic Carbon	3.6		mg/L
Hardness (as CACO3)	230		mg/L
Total Dissolved Solids	500		mg/L
Total Suspended Solids	300		mg/L
Turbidity	86		NTU
Arsenic	4.4		ug/L
Boron	520		ug/L
Cadmium	0.06	DNQ	ug/L
Cadmium (dissolved)	0.01	DNQ	ug/L
Copper	12		ug/L
Copper (dissolved)	1.6		ug/L
Lead	4.6		ug/L
Nickel	21		ug/L
Nickel (dissolved)	2		ug/L
Zinc	38		ug/L
Zinc (dissolved)	2.5		ug/L
Ammonia (as N)	0.099	DNQ	mg/L
Nitrogen, Nitrate-Nitrite	4.4		mg/L
Ortho Phosphate as P	0.12		mg/L
Total Kjeldahl Nitrogen	0.78		mg/L
Total Phosphorus as P	0.39		mg/L

Detected Pesticides

Chlorpyrifos	0.018
DDE(p,p')	0.022

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	6/25/2009	56	Ceriodaphnia dubia	65	95	32%	%

Followup: Survival was greater than 50% and additional testing was not required. Toxicity sample was collected during a different sampling event than the chemistry sample. Chemistry and pesticide data is not available for this sample.

Field Data

DO	5.5	mg/l
EC	1575	µmhos/cm
Est Depth	0.5	ft
Flow	126	cfs
pH	7.36	
Staff Gage	0.5	ft
Temp	22.5	c

Water Chemistry

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
Orestimba Creek at River Road	7/14/2009	57	Ceriodaphnia dubia	0	70	100%	%

Followup: 4.15 Toxic Units measured. The TIE suggests that a non-polar organic compound(s) caused the toxicity and that a metabolically activated compound(s) may have contributed.

Field Data

DO	6.01	mg/l
EC	940	µmhos/cm
Est Depth	1.5	ft
Flow	8.2	cfs
pH	8	
Staff Gage		ft
Temp	24.11	c

Water Chemistry

Bromide	0.62	DNQ	mg/L
Dissolved Organic Carbon	3.1		mg/L
E. coli	1200		MPN/100
Total Organic Carbon	3.1		mg/L
Total Dissolved Solids	680		mg/L
Total Suspended Solids	90		mg/L
Turbidity	67		NTU
Arsenic	3.9		µg/L
Boron	350		µg/L
Cadmium	0.03	DNQ	µg/L
Cadmium (dissolved)	0.01	DNQ	µg/L
Copper	5.6		µg/L
Copper (dissolved)	1.2		µg/L
Lead	1.6		µg/L
Lead (dissolved)	-0.071	ND	µg/L
Nickel	11		µg/L
Nickel (dissolved)	2.3		µg/L
Selenium	3.3		µg/L
Zinc	27		µg/L
Zinc (dissolved)	11		µg/L
Ammonia as N	-0.06	ND	mg/L
Nitrogen, Total Kjeldahl	0.75		mg/L
Phosphate as P	1.1		mg/L

Detected Pesticides

Chlorpyrifos	1.6	
DDE(p,p')	0.009	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
Marshall Road Drain near River Road	8/11/2009	58	Ceriodaphnia dubia	5	100	95%	%

Followup: TIE suggests that a particulate associated and metabolically activated compound(s) caused the toxicity. An oxidant or metal may have also contributed to the toxicty.

Field Data

DO	5.39	mg/l
EC	1349	µmhos/cm
Est Depth		ft
Flow		cfs
pH	8.13	
Staff Gage		ft
Temp	25.42	c

Water Chemistry

Bromide	0.77	DNQ	mg/L
Dissolved Organic Carbon	6.1		mg/L
E. coli	81		MPN/100
Total Organic Carbon	6.1		mg/L
Total Dissolved Solids	890		mg/L
Total Suspended Solids	120		mg/L
Turbidity	63		NTU
Arsenic	5.3		µg/L
Boron	770		µg/L
Cadmium	0.05	DNQ	µg/L
Cadmium (dissolved)	0.02	DNQ	µg/L
Copper	8.5		µg/L
Copper (dissolved)	1.8		µg/L
Lead	2.7		µg/L
Lead (dissolved)	-0.071	ND	µg/L
Nickel	11		µg/L
Nickel (dissolved)	2.9		µg/L
Selenium	1.5		µg/L
Zinc	22		µg/L
Zinc (dissolved)	8.5		µg/L
Ammonia as N	0.49		mg/L
Nitrogen, Total Kjeldahl	1.4		mg/L
Phosphate as P	0.4		mg/L

Detected Pesticides

Chlordane, gamma-	0.043	
Chlorpyrifos	0.46	
DDE(p,p')	0.0093	DNQ
Dimethoate	0.40	
Endosulfan I	0.081	

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
Orestimba Creek at River Road	8/11/2009	58	Ceriodaphnia dubia	35	100	65%	%

Followup: TIE suggests that a particulate associated and metabolically activated compound(s) caused the toxicity.

Field Data

DO	4.9	mg/l
EC	900	µmhos/cm
Est Depth	1.5	ft
Flow	9.1	cfs
pH	8.45	
Staff Gage		ft
Temp	24.45	c

Water Chemistry

Bromide	0.073	DNQ	mg/L
Dissolved Organic Carbon	3.4		mg/L
E. coli	580		MPN/100
Total Organic Carbon	3.4		mg/L
Total Dissolved Solids	690		mg/L
Total Suspended Solids	150		mg/L
Turbidity	53		NTU
Arsenic	3.3		µg/L
Boron	280		µg/L
Cadmium	0.03	DNQ	µg/L
Cadmium (dissolved)	-0.011	ND	µg/L
Copper	7.7		µg/L
Copper (dissolved)	1.8		µg/L
Lead	2.2		µg/L
Lead (dissolved)	-0.071	ND	µg/L
Nickel	19		µg/L
Nickel (dissolved)	2.2		µg/L
Selenium	3.8		µg/L
Zinc	21		µg/L
Zinc (dissolved)	1.1		µg/L
Ammonia as N	0.077	DNQ	mg/L
Nitrogen, Total Kjeldahl	0.64		mg/L
Phosphate as P	0.33		mg/L

Detected Pesticides

Chlorpyrifos	0.078
DDE(p,p')	0.011
Dimethoate	0.39

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: 3/10/2009	**Site: Newman Wasteway near Hills Ferry Road**							
Ammonia (as N)	General Chemistry	0.11		0.14		mg/L	24%	
Arsenic	General Chemistry	4		4.1		ug/L	2%	
Boron	General Chemistry	1300		1400		ug/L	7%	
Bromide	General Chemistry	0.94	DNQ	0.97	DNQ	mg/L	3%	
Cadmium	General Chemistry	0.03	DNQ	0.05	DNQ	ug/L	50%	*
Cadmium (dissolved)	General Chemistry	-0.01	ND	-0.01	ND	ug/L	NA	
Copper	General Chemistry	2.7		3		ug/L	11%	
Copper (dissolved)	General Chemistry	0.53		0.58		ug/L	9%	
Dissolved Organic Carbon	General Chemistry	4.9		4.9		mg/L	0%	
E. Coli	General Chemistry	98		78		MPN/100mL	23%	
Hardness (as CACO3)	General Chemistry	740		710		mg/L	4%	
Lead	General Chemistry	0.87		0.81		ug/L	7%	
Nickel	General Chemistry	6.3		6.7		ug/L	6%	
Nickel (dissolved)	General Chemistry	2.5		2.7		ug/L	8%	
Nitrogen, Nitrate-Nitrite	General Chemistry	-0.04	ND	-0.02	ND	mg/L	NA	
Ortho Phosphate as P	General Chemistry	0.1		0.1		mg/L	0%	
Total Dissolved Solids	General Chemistry	1400		1400		mg/L	0%	
Total Kjeldahl Nitrogen	General Chemistry	3.3		4.5		mg/L	31%	*
Total Organic Carbon	General Chemistry	7.1		5.7		mg/L	22%	
Total Phosphorus as P	General Chemistry	0.48		0.54		mg/L	12%	
Total Suspended Solids	General Chemistry	80		40		mg/L	67%	*
Turbidity	General Chemistry	28		31		NTU	10%	
Zinc	General Chemistry	9.9		11		ug/L	11%	
Zinc (dissolved)	General Chemistry	-0.8	ND	-0.8	ND	ug/L	NA	
Aldrin	Pesticide	-0.009	ND	-0.009	ND	µg/L	NA	
Atrazine	Pesticide	-0.07	ND	-0.07	ND	µg/L	NA	
Chlorpyrifos	Pesticide	-0.003	ND	-0.003	ND	µg/L	NA	
Cyanazine	Pesticide	-0.09	ND	-0.09	ND	µg/L	NA	
DDD(p,p')	Pesticide	-0.003	ND	-0.003	ND	µg/L	NA	
DDE(p,p')	Pesticide	0.007	DNQ	0.0082	DNQ	µg/L	16%	
DDT(p,p')	Pesticide	-0.007	ND	-0.007	ND	µg/L	NA	
Demeton-s	Pesticide	-0.08	ND	-0.08	ND	µg/L	NA	
Diazinon	Pesticide	-0.004	ND	-0.004	ND	µg/L	NA	
Dichlorvos	Pesticide	-0.02	ND	-0.02	ND	µg/L	NA	
Dicofol	Pesticide	-0.01	ND	-0.01	ND	µg/L	NA	
Dieldrin	Pesticide	-0.005	ND	-0.005	ND	µg/L	NA	
Dimethoate	Pesticide	-0.080	ND	-0.080	ND	µg/L	NA	
Disulfoton	Pesticide	-0.020	ND	-0.020	ND	µg/L	NA	
Diuron	Pesticide	-0.20	ND	-0.20	ND	µg/L	NA	
Endosulfan I	Pesticide	-0.005	ND	-0.005	ND	µg/L	NA	
Endosulfan II	Pesticide	-0.004	ND	-0.004	ND	µg/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	
Endosulfan Sulfate	Pesticide	-0.005	ND	-0.005	ND	µg/L	NA	
Endrin	Pesticide	-0.007	ND	-0.007	ND	µg/L	NA	
EPTC	Pesticide	-0.03	ND	-0.03	ND	µg/L	NA	
Heptachlor	Pesticide	-0.008	ND	-0.008	ND	µg/L	NA	
Heptachlor epoxide	Pesticide	-0.007	ND	-0.007	ND	µg/L	NA	
Linuron	Pesticide	-0.20	ND	-0.20	ND	µg/L	NA	
Malathion	Pesticide	-0.050	ND	-0.050	ND	µg/L	NA	
Methamidophos	Pesticide	-0.08	ND	-0.08	ND	µg/L	NA	
Methidathion	Pesticide	-0.04	ND	-0.04	ND	µg/L	NA	
Methoxychlor	Pesticide	-0.008	ND	-0.008	ND	µg/L	NA	
Parathion, Ethyl	Pesticide	-0.02	ND	-0.02	ND	µg/L	NA	
Parathion, Methyl	Pesticide	-0.075	ND	-0.075	ND	µg/L	NA	
Phorate	Pesticide	-0.072	ND	-0.072	ND	µg/L	NA	
Phosmet	Pesticide	-0.06	ND	-0.06	ND	µg/L	NA	
Prowl	Pesticide	-0.04	ND	-0.04	ND	µg/L	NA	
Simazine	Pesticide	-0.08	ND	-0.08	ND	µg/L	NA	
Toxaphene	Pesticide	-0.38	ND	-0.38	ND	µg/L	NA	
Trifluralin	Pesticide	-0.04	ND	-0.04	ND	µg/L	NA	

Sample Date: 4/14/2009 Site: Newman Wasteway near Hills Ferry Road

Ammonia (as N)	General Chemistry	0.099	DNQ	0.077	DNQ	mg/L	25%	*
Arsenic	General Chemistry	2.8		2.9		ug/L	4%	
Boron	General Chemistry	1100		1100		ug/L	0%	
Bromide	General Chemistry	0.37	DNQ	0.43	DNQ	mg/L	15%	
Cadmium	General Chemistry	0.01	DNQ	0.02	DNQ	ug/L	67%	*
Cadmium (dissolved)	General Chemistry	-0.011	ND	-0.011	ND	ug/L	NA	
Copper	General Chemistry	3		3.2		ug/L	6%	
Copper (dissolved)	General Chemistry	0.67		0.72		ug/L	7%	
Dissolved Organic Carbon	General Chemistry	5.5		4.9		mg/L	12%	
E. Coli	General Chemistry	440		490		MPN/100mL	11%	
Hardness (as CACO3)	General Chemistry	620		560		mg/L	10%	
Lead	General Chemistry	0.76		0.81		ug/L	6%	
Nickel	General Chemistry	6.8		7		ug/L	3%	
Nickel (dissolved)	General Chemistry	2.8		2.8		ug/L	0%	
Nitrogen, Nitrate-Nitrite	General Chemistry	1.9		2		mg/L	5%	
Ortho Phosphate as P	General Chemistry	0.099		0.099		mg/L	0%	
Total Dissolved Solids	General Chemistry	1100		1100		mg/L	0%	
Total Kjeldahl Nitrogen	General Chemistry	0.65		0.6		mg/L	8%	
Total Organic Carbon	General Chemistry	4.6		4.6		mg/L	0%	
Total Phosphorus as P	General Chemistry	0.26		0.3		mg/L	14%	
Total Suspended Solids	General Chemistry	45		35		mg/L	25%	*
Turbidity	General Chemistry	26		23		NTU	12%	
Zinc	General Chemistry	7.2		7.6		ug/L	5%	

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	
Zinc (dissolved)	General Chemistry	-0.8	ND	1.4		ug/L	NA	
Aldrin	Pesticide	-0.009	ND	-0.009	ND	µg/L	NA	
Atrazine	Pesticide	-0.07	ND	-0.07	ND	µg/L	NA	
Chlorpyrifos	Pesticide	-0.003	ND	-0.003	ND	µg/L	NA	
Cyanazine	Pesticide	-0.09	ND	-0.09	ND	µg/L	NA	
DDD(p,p')	Pesticide	-0.003	ND	-0.003	ND	µg/L	NA	
DDE(p,p')	Pesticide	-0.004	ND	-0.004	ND	µg/L	NA	
DDT(p,p')	Pesticide	-0.007	ND	-0.007	ND	µg/L	NA	
Demeton-s	Pesticide	-0.08	ND	-0.08	ND	µg/L	NA	
Diazinon	Pesticide	-0.004	ND	-0.004	ND	µg/L	NA	
Dichlorvos	Pesticide	-0.02	ND	-0.02	ND	µg/L	NA	
Dicofol	Pesticide	-0.01	ND	-0.01	ND	µg/L	NA	
Dieldrin	Pesticide	-0.005	ND	-0.005	ND	µg/L	NA	
Dimethoate	Pesticide	-0.080	ND	-0.080	ND	µg/L	NA	
Disulfoton	Pesticide	-0.020	ND	-0.020	ND	µg/L	NA	
Diuron	Pesticide	0.35	DNQ	0.35	DNQ	µg/L	0%	
Endosulfan I	Pesticide	-0.005	ND	-0.005	ND	µg/L	NA	
Endosulfan II	Pesticide	-0.004	ND	-0.004	ND	µg/L	NA	
Endosulfan Sulfate	Pesticide	-0.005	ND	-0.005	ND	µg/L	NA	
Endrin	Pesticide	-0.007	ND	-0.007	ND	µg/L	NA	
EPTC	Pesticide	-0.03	ND	-0.03	ND	µg/L	NA	
Heptachlor	Pesticide	-0.008	ND	-0.008	ND	µg/L	NA	
Heptachlor epoxide	Pesticide	-0.007	ND	-0.007	ND	µg/L	NA	
Linuron	Pesticide	-0.20	ND	-0.20	ND	µg/L	NA	
Malathion	Pesticide	-0.050	ND	-0.050	ND	µg/L	NA	
Methamidophos	Pesticide	-0.08	ND	-0.08	ND	µg/L	NA	
Methidathion	Pesticide	-0.04	ND	-0.04	ND	µg/L	NA	
Methoxychlor	Pesticide	-0.008	ND	-0.008	ND	µg/L	NA	
Parathion, Ethyl	Pesticide	-0.02	ND	-0.02	ND	µg/L	NA	
Parathion, Methyl	Pesticide	-0.075	ND	-0.075	ND	µg/L	NA	
Phorate	Pesticide	-0.072	ND	-0.072	ND	µg/L	NA	
Phosmet	Pesticide	-0.06	ND	-0.06	ND	µg/L	NA	
Prowl	Pesticide	0.13		0.07	DNQ	µg/L	60%	*
Simazine	Pesticide	-0.08	ND	-0.08	ND	µg/L	NA	
Toxaphene	Pesticide	-0.380	ND	-0.380	ND	µg/L	NA	
Trifluralin	Pesticide	-0.04	ND	-0.04	ND	µg/L	NA	
Sample Date: 5/12/2009	**Site: Newman Wasteway near Hills Ferry Road**							
Ammonia (as N)	General Chemistry	0.51		0.49		mg/L	4%	
Arsenic	General Chemistry	4.3		4.3		ug/L	0%	
Boron	General Chemistry	640		630		ug/L	2%	
Bromide	General Chemistry	-0.01	ND	0.064	DNQ	mg/L	NA	
Cadmium	General Chemistry	0.03	DNQ	0.06	DNQ	ug/L	67%	*

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	
Cadmium (dissolved)	General Chemistry	0.01	DNQ	-0.011	ND	ug/L	NA	
Copper	General Chemistry	7		6.8		ug/L	3%	
Copper (dissolved)	General Chemistry	1.3		1.3		ug/L	0%	
Dissolved Organic Carbon	General Chemistry	5.4		5.5		mg/L	2%	
E. Coli	General Chemistry	690		690		MPN/100mL	0%	
Hardness (as CACO3)	General Chemistry	330		320		mg/L	3%	
Lead	General Chemistry	2.1		2		ug/L	5%	
Nickel	General Chemistry	14		14		ug/L	0%	
Nickel (dissolved)	General Chemistry	3.5		3.5		ug/L	0%	
Nitrogen, Nitrate-Nitrite	General Chemistry	2.2		2.3		mg/L	4%	
Ortho Phosphate as P	General Chemistry	0.25		0.26		mg/L	4%	
Total Dissolved Solids	General Chemistry	630		620		mg/L	2%	
Total Kjeldahl Nitrogen	General Chemistry	1.8		1.9		mg/L	5%	
Total Organic Carbon	General Chemistry	5.7		5.7		mg/L	0%	
Total Phosphorus as P	General Chemistry	0.47		0.48		mg/L	2%	
Total Suspended Solids	General Chemistry	120		89		mg/L	30%	*
Turbidity	General Chemistry	59		52		NTU	13%	
Zinc	General Chemistry	14		14		ug/L	0%	
Zinc (dissolved)	General Chemistry	0.9	DNQ	1.1		ug/L	20%	
Aldrin	Pesticide	-0.009	ND	-0.009	ND	µg/L	NA	
Atrazine	Pesticide	-0.07	ND	-0.07	ND	µg/L	NA	
Chlorpyrifos	Pesticide	-0.0026	ND	-0.0026	ND	µg/L	NA	
Cyanazine	Pesticide	-0.09	ND	-0.09	ND	µg/L	NA	
DDD(p,p')	Pesticide	-0.003	ND	-0.003	ND	µg/L	NA	
DDE(p,p')	Pesticide	0.01		0.0075	DNQ	µg/L	29%	*
DDT(p,p')	Pesticide	-0.007	ND	-0.007	ND	µg/L	NA	
Demeton-s	Pesticide	-0.08	ND	-0.08	ND	µg/L	NA	
Diazinon	Pesticide	-0.004	ND	-0.004	ND	µg/L	NA	
Dichlorvos	Pesticide	-0.02	ND	-0.02	ND	µg/L	NA	
Dicofol	Pesticide	-0.01	ND	-0.01	ND	µg/L	NA	
Dieldrin	Pesticide	-0.005	ND	-0.005	ND	µg/L	NA	
Dimethoate	Pesticide	-0.080	ND	-0.080	ND	µg/L	NA	
Disulfoton	Pesticide	-0.020	ND	-0.020	ND	µg/L	NA	
Diuron	Pesticide	-0.20	ND	-0.20	ND	µg/L	NA	
Endosulfan I	Pesticide	-0.005	ND	-0.005	ND	µg/L	NA	
Endosulfan II	Pesticide	-0.004	ND	-0.004	ND	µg/L	NA	
Endosulfan Sulfate	Pesticide	-0.005	ND	-0.005	ND	µg/L	NA	
Endrin	Pesticide	-0.007	ND	-0.007	ND	µg/L	NA	
EPTC	Pesticide	-0.03	ND	-0.03	ND	µg/L	NA	
Heptachlor	Pesticide	-0.008	ND	-0.008	ND	µg/L	NA	
Heptachlor epoxide	Pesticide	-0.007	ND	-0.007	ND	µg/L	NA	
Linuron	Pesticide	-0.20	ND	-0.20	ND	µg/L	NA	
Malathion	Pesticide	-0.050	ND	-0.050	ND	µg/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	µg/L	NA	
Methidathion	Pesticide	-0.04	ND	-0.04	ND	µg/L	NA	
Methoxychlor	Pesticide	-0.008	ND	-0.008	ND	µg/L	NA	
Parathion, Ethyl	Pesticide	-0.02	ND	-0.02	ND	µg/L	NA	
Parathion, Methyl	Pesticide	-0.075	ND	-0.075	ND	µg/L	NA	
Phorate	Pesticide	-0.072	ND	-0.072	ND	µg/L	NA	
Phosmet	Pesticide	-0.06	ND	-0.06	ND	µg/L	NA	
Prowl	Pesticide	0.22		0.19		µg/L	15%	
Simazine	Pesticide	-0.08	ND	-0.08	ND	µg/L	NA	
Toxaphene	Pesticide	-0.380	ND	-0.380	ND	µg/L	NA	
Trifluralin	Pesticide	-0.04	ND	-0.04	ND	µg/L	NA	
Sample Date: 6/9/2009	**Site: Newman Wasteway near Hills Ferry Road**							
Arsenic	General Chemistry	4.2		4.1		µg/L	2%	
Boron	General Chemistry	780		770		µg/L	1%	
Bromide	General Chemistry	0.75	DNQ	0.77	DNQ	mg/L	3%	
Cadmium	General Chemistry	0.08	DNQ	0.05	DNQ	µg/L	46%	*
Cadmium (dissolved)	General Chemistry	0.01	DNQ	0.02	DNQ	µg/L	67%	*
Copper	General Chemistry	6.7		5.9		µg/L	13%	
Copper (dissolved)	General Chemistry	1.2		1.2		µg/L	0%	
Dissolved Organic Carbon	General Chemistry	6.1		6.2		mg/L	2%	
E. coli	General Chemistry	550		1100		MPN/100 mL	67%	*
Lead	General Chemistry	1.8		1.6		µg/L	12%	
Lead (dissolved)	General Chemistry	-0.071	ND	-0.071	ND	µg/L	NA	
Nickel	General Chemistry	13		11		µg/L	17%	
Nickel (dissolved)	General Chemistry	3.4		3.4		µg/L	0%	
Phosphate as P	General Chemistry	0.92		0.97		mg/L	5%	
Selenium	General Chemistry	0.73	DNQ	0.7	DNQ	µg/L	4%	
Total Dissolved Solids	General Chemistry	750		710		mg/L	5%	
Total Organic Carbon	General Chemistry	6.6		6.4		mg/L	3%	
Total Suspended Solids	General Chemistry	68		120		mg/L	55%	*
Turbidity	General Chemistry	49		65		NTU	28%	*
Zinc	General Chemistry	13		11		µg/L	17%	
Zinc (dissolved)	General Chemistry	-0.8	ND	0.8	DNQ	µg/L	NA	
Aldrin	Pesticide	-0.009	ND	-0.009	ND	µg/L	NA	
Atrazine	Pesticide	-0.07	ND	-0.07	ND	µg/L	NA	
Chlorpyrifos	Pesticide	-0.0026	ND	-0.0026	ND	µg/L	NA	
Cyanazine	Pesticide	-0.09	ND	-0.09	ND	µg/L	NA	
DDD(p,p')	Pesticide	-0.003	ND	-0.003	ND	µg/L	NA	
DDE(p,p')	Pesticide	0.0081	DNQ	0.0081	DNQ	µg/L	0%	
DDT(p,p')	Pesticide	-0.007	ND	-0.007	ND	µg/L	NA	
Demeton-s	Pesticide	-0.08	ND	-0.08	ND	µg/L	NA	
Diazinon	Pesticide	-0.004	ND	-0.004	ND	µg/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	
Dichlorvos	Pesticide	-0.02	ND	-0.02	ND	µg/L	NA	
Dicofol	Pesticide	-0.01	ND	-0.01	ND	µg/L	NA	
Dieldrin	Pesticide	-0.005	ND	-0.005	ND	µg/L	NA	
Dimethoate	Pesticide	-0.080	ND	-0.080	ND	µg/L	NA	
Disulfoton	Pesticide	-0.020	ND	-0.020	ND	µg/L	NA	
Diuron	Pesticide	-0.20	ND	-0.20	ND	µg/L	NA	
Endosulfan I	Pesticide	-0.005	ND	-0.005	ND	µg/L	NA	
Endosulfan II	Pesticide	-0.004	ND	-0.004	ND	µg/L	NA	
Endosulfan Sulfate	Pesticide	-0.005	ND	-0.005	ND	µg/L	NA	
Endrin	Pesticide	-0.007	ND	-0.007	ND	µg/L	NA	
EPTC	Pesticide	-0.03	ND	-0.03	ND	µg/L	NA	
Heptachlor	Pesticide	-0.008	ND	-0.008	ND	µg/L	NA	
Heptachlor epoxide	Pesticide	-0.007	ND	-0.007	ND	µg/L	NA	
Linuron	Pesticide	-0.20	ND	-0.20	ND	µg/L	NA	
Malathion	Pesticide	-0.050	ND	-0.050	ND	µg/L	NA	
Methamidophos	Pesticide	-0.08	ND	-0.08	ND	µg/L	NA	
Methidathion	Pesticide	-0.04	ND	-0.04	ND	µg/L	NA	
Methoxychlor	Pesticide	-0.008	ND	-0.008	ND	µg/L	NA	
Parathion, Ethyl	Pesticide	-0.02	ND	-0.02	ND	µg/L	NA	
Parathion, Methyl	Pesticide	-0.075	ND	-0.075	ND	µg/L	NA	
Phorate	Pesticide	-0.072	ND	-0.072	ND	µg/L	NA	
Phosmet	Pesticide	-0.06	ND	-0.06	ND	µg/L	NA	
Prowl	Pesticide	0.18		0.20		µg/L	11%	
Simazine	Pesticide	-0.08	ND	-0.08	ND	µg/L	NA	
Toxaphene	Pesticide	-0.380	ND	-0.380	ND	µg/L	NA	
Trifluralin	Pesticide	-0.04	ND	-0.04	ND	µg/L	NA	
Sample Date: 7/14/2009	**Site: Newman Wasteway near Hills Ferry Road**							
Arsenic	General Chemistry	2.4		2.3		µg/L	4%	
Boron	General Chemistry	690		680		µg/L	1%	
Bromide	General Chemistry	0.58	DNQ	0.6	DNQ	mg/L	3%	
Cadmium	General Chemistry	0.02	DNQ	0.01	DNQ	µg/L	67%	*
Cadmium (dissolved)	General Chemistry	-0.011	ND	-0.011	ND	µg/L	NA	
Copper	General Chemistry	3.3		2.8		µg/L	16%	
Copper (dissolved)	General Chemistry	0.91		0.93		µg/L	2%	
Dissolved Organic Carbon	General Chemistry	3.9		4		mg/L	3%	
E. coli	General Chemistry	730		490		MPN/100 mL	39%	*
Lead	General Chemistry	0.67		0.53		µg/L	23%	
Lead (dissolved)	General Chemistry	-0.071	ND	-0.071	ND	µg/L	NA	
Nickel	General Chemistry	6.3		5		µg/L	23%	
Nickel (dissolved)	General Chemistry	2.6		2.5		µg/L	4%	
Phosphate as P	General Chemistry	0.12		0.15		mg/L	22%	
Selenium	General Chemistry	0.51	DNQ	0.5	DNQ	µg/L	2%	

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	
Total Dissolved Solids	General Chemistry	680		690		mg/L	1%	
Total Organic Carbon	General Chemistry	4.4		5.3		mg/L	19%	
Total Suspended Solids	General Chemistry	20		19		mg/L	5%	
Turbidity	General Chemistry	15		16		NTU	6%	
Zinc	General Chemistry	5.2		3.4		µg/L	42%	*
Zinc (dissolved)	General Chemistry	-0.8	ND	-0.8	ND	µg/L	NA	
Aldrin	Pesticide	-0.009	ND	-0.009	ND	µg/L	NA	
Atrazine	Pesticide	-0.07	ND	-0.07	ND	µg/L	NA	
Chlorpyrifos	Pesticide	-0.0026	ND	-0.0026	ND	µg/L	NA	
Cyanazine	Pesticide	-0.09	ND	-0.09	ND	µg/L	NA	
DDD(p,p')	Pesticide	-0.003	ND	-0.003	ND	µg/L	NA	
DDE(p,p')	Pesticide	-0.004	ND	-0.004	ND	µg/L	NA	
DDT(p,p')	Pesticide	-0.007	ND	-0.007	ND	µg/L	NA	
Demeton-s	Pesticide	-0.08	ND	-0.08	ND	µg/L	NA	
Diazinon	Pesticide	-0.004	ND	-0.004	ND	µg/L	NA	
Dichlorvos	Pesticide	-0.02	ND	-0.02	ND	µg/L	NA	
Dicofol	Pesticide	-0.01	ND	-0.01	ND	µg/L	NA	
Dieldrin	Pesticide	-0.005	ND	-0.005	ND	µg/L	NA	
Dimethoate	Pesticide	-0.080	ND	-0.080	ND	µg/L	NA	
Disulfoton	Pesticide	-0.020	ND	-0.020	ND	µg/L	NA	
Diuron	Pesticide	-0.20	ND	-0.20	ND	µg/L	NA	
Endosulfan I	Pesticide	-0.005	ND	-0.005	ND	µg/L	NA	
Endosulfan II	Pesticide	-0.004	ND	-0.004	ND	µg/L	NA	
Endosulfan Sulfate	Pesticide	-0.005	ND	-0.005	ND	µg/L	NA	
Endrin	Pesticide	-0.007	ND	-0.007	ND	µg/L	NA	
EPTC	Pesticide	-0.03	ND	-0.03	ND	µg/L	NA	
Heptachlor	Pesticide	-0.008	ND	-0.008	ND	µg/L	NA	
Heptachlor epoxide	Pesticide	-0.007	ND	-0.007	ND	µg/L	NA	
Linuron	Pesticide	-0.20	ND	-0.20	ND	µg/L	NA	
Malathion	Pesticide	-0.050	ND	-0.050	ND	µg/L	NA	
Methamidophos	Pesticide	-0.08	ND	-0.08	ND	µg/L	NA	
Methidathion	Pesticide	-0.04	ND	-0.04	ND	µg/L	NA	
Methoxychlor	Pesticide	-0.008	ND	-0.008	ND	µg/L	NA	
Parathion, Ethyl	Pesticide	-0.02	ND	-0.02	ND	µg/L	NA	
Parathion, Methyl	Pesticide	-0.075	ND	-0.075	ND	µg/L	NA	
Phorate	Pesticide	-0.072	ND	-0.072	ND	µg/L	NA	
Phosmet	Pesticide	-0.06	ND	-0.06	ND	µg/L	NA	
Prowl	Pesticide	-0.04	ND	-0.04	ND	µg/L	NA	
Simazine	Pesticide	-0.08	ND	-0.08	ND	µg/L	NA	
Toxaphene	Pesticide	-0.380	ND	-0.380	ND	µg/L	NA	
Trifluralin	Pesticide	-0.036	ND	-0.036	ND	µg/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:	**3/10/2009**	**Site:**	**Newman Wasteway near Hills Ferry Road**					
Ammonia (as N)	General Chemistry	0.11		-0.05	ND	mg/L	NA	
Arsenic	General Chemistry	4		-0.008	ND	ug/L	NA	
Boron	General Chemistry	1300		5.9	DNQ	ug/L	0%	
Bromide	General Chemistry	0.94	DNQ	-0.01	ND	mg/L	NA	
Cadmium	General Chemistry	0.03	DNQ	0.03	DNQ	ug/L	100%	*
Cadmium (dissolved)	General Chemistry	-0.01	ND	-0.01	ND	ug/L	NA	
Copper	General Chemistry	2.7		0.1	DNQ	ug/L	4%	
Copper (dissolved)	General Chemistry	0.53		0.16	DNQ	ug/L	30%	*
Dissolved Organic Carbon	General Chemistry	4.9		5		mg/L	102%	*
E. Coli	General Chemistry	98		-1	ND	MPN/100mL	NA	
Hardness (as CACO3)	General Chemistry	740		-1.7	ND	mg/L	NA	
Lead	General Chemistry	0.87		-0.07	ND	ug/L	NA	
Nickel	General Chemistry	6.3		0.04	DNQ	ug/L	1%	
Nickel (dissolved)	General Chemistry	2.5		0.06	DNQ	ug/L	2%	
Nitrogen, Nitrate-Nitrite	General Chemistry	-0.04	ND	-0.02	ND	mg/L	NA	
Ortho Phosphate as P	General Chemistry	0.1		-0.006	ND	mg/L	NA	
Total Dissolved Solids	General Chemistry	1400		-4	ND	mg/L	NA	
Total Kjeldahl Nitrogen	General Chemistry	3.3		-0.06	ND	mg/L	NA	
Total Organic Carbon	General Chemistry	7.1		0.26	DNQ	mg/L	4%	
Total Phosphorus as P	General Chemistry	0.48		0.021		mg/L	4%	
Total Suspended Solids	General Chemistry	80		-4	ND	mg/L	NA	
Turbidity	General Chemistry	28		-0.02	ND	NTU	NA	
Zinc	General Chemistry	9.9		1.6		ug/L	16%	
Zinc (dissolved)	General Chemistry	-0.8	ND	-0.8	ND	ug/L	NA	
Aldrin	Pesticide	-0.009	ND	-0.009	ND	µg/L	NA	
Atrazine	Pesticide	-0.07	ND	-0.07	ND	µg/L	NA	
Azinphos methyl	Pesticide	-0.02	ND	-0.02	ND	µg/L	NA	
Chlordane, Alpha-	Pesticide	-0.007	ND	-0.007	ND	µg/L	NA	
Chlordane, gamma-	Pesticide	-0.006	ND	-0.006	ND	µg/L	NA	
Chlorpyrifos	Pesticide	-0.003	ND	-0.003	ND	µg/L	NA	
Cyanazine	Pesticide	-0.09	ND	-0.09	ND	µg/L	NA	
DDD(p,p')	Pesticide	-0.003	ND	-0.003	ND	µg/L	NA	
DDE(p,p')	Pesticide	0.007	DNQ	-0.004	ND	µg/L	NA	
DDT(p,p')	Pesticide	-0.007	ND	-0.007	ND	µg/L	NA	
Demeton-s	Pesticide	-0.08	ND	-0.08	ND	µg/L	NA	
Diazinon	Pesticide	-0.004	ND	-0.004	ND	µg/L	NA	
Dichlorvos	Pesticide	-0.02	ND	-0.02	ND	µg/L	NA	
Dicofol	Pesticide	-0.01	ND	-0.01	ND	µg/L	NA	
Dieldrin	Pesticide	-0.005	ND	-0.005	ND	µg/L	NA	
Dimethoate	Pesticide	-0.080	ND	-0.080	ND	µg/L	NA	
Disulfoton	Pesticide	-0.020	ND	-0.020	ND	µg/L	NA	
Diuron	Pesticide	-0.20	ND	-0.20	ND	µg/L	NA	
Endosulfan I	Pesticide	-0.005	ND	-0.005	ND	µg/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	
Endosulfan II	Pesticide	-0.004	ND	-0.004	ND	µg/L	NA	
Endosulfan Sulfate	Pesticide	-0.005	ND	-0.005	ND	µg/L	NA	
Endrin	Pesticide	-0.007	ND	-0.007	ND	µg/L	NA	
EPTC	Pesticide	-0.03	ND	-0.03	ND	µg/L	NA	
Heptachlor	Pesticide	-0.008	ND	-0.008	ND	µg/L	NA	
Heptachlor epoxide	Pesticide	-0.007	ND	-0.007	ND	µg/L	NA	
Linuron	Pesticide	-0.20	ND	-0.20	ND	µg/L	NA	
Malathion	Pesticide	-0.050	ND	-0.050	ND	µg/L	NA	
Methamidophos	Pesticide	-0.08	ND	-0.08	ND	µg/L	NA	
Methidathion	Pesticide	-0.04	ND	-0.04	ND	µg/L	NA	
Methoxychlor	Pesticide	-0.008	ND	-0.008	ND	µg/L	NA	
Parathion, Ethyl	Pesticide	-0.02	ND	-0.02	ND	µg/L	NA	
Parathion, Methyl	Pesticide	-0.075	ND	-0.075	ND	µg/L	NA	
Phorate	Pesticide	-0.072	ND	-0.072	ND	µg/L	NA	
Phosmet	Pesticide	-0.06	ND	-0.06	ND	µg/L	NA	
Prowl	Pesticide	-0.04	ND	-0.04	ND	µg/L	NA	
Simazine	Pesticide	-0.08	ND	-0.08	ND	µg/L	NA	
Toxaphene	Pesticide	-0.38	ND	-0.38	ND	µg/L	NA	
Trifluralin	Pesticide	-0.04	ND	-0.04	ND	µg/L	NA	
Sample Date:	**4/14/2009**	**Site:**		**Newman Wasteway near Hills Ferry Road**				
Ammonia (as N)	General Chemistry	0.099	DNQ	-0.06	ND	mg/L	NA	
Arsenic	General Chemistry	2.8		-0.008	ND	ug/L	NA	
Boron	General Chemistry	1100		3.5	DNQ	ug/L	0%	
Bromide	General Chemistry	0.37	DNQ	-0.01	ND	mg/L	NA	
Cadmium	General Chemistry	0.01	DNQ	-0.011	ND	ug/L	NA	
Cadmium (dissolved)	General Chemistry	-0.011	ND	-0.011	ND	ug/L	NA	
Copper	General Chemistry	3		0.2	DNQ	ug/L	7%	
Copper (dissolved)	General Chemistry	0.67		0.08	DNQ	ug/L	12%	
Dissolved Organic Carbon	General Chemistry	5.5		0.96		mg/L	17%	
E. Coli	General Chemistry	440		-1	ND	MPN/100mL	NA	
Hardness (as CACO3)	General Chemistry	620		-1.7	ND	mg/L	NA	
Lead	General Chemistry	0.76		-0.071	ND	ug/L	NA	
Nickel	General Chemistry	6.8		0.05	DNQ	ug/L	1%	
Nickel (dissolved)	General Chemistry	2.8		0.04	DNQ	ug/L	1%	
Nitrogen, Nitrate-Nitrite	General Chemistry	1.9		0.021	DNQ	mg/L	1%	
Ortho Phosphate as P	General Chemistry	0.099		0.008	DNQ	mg/L	8%	
Total Dissolved Solids	General Chemistry	1100		-4	ND	mg/L	NA	
Total Kjeldahl Nitrogen	General Chemistry	0.65		-0.06	ND	mg/L	NA	
Total Organic Carbon	General Chemistry	4.6		0.498	DNQ	mg/L	11%	
Total Phosphorus as P	General Chemistry	0.26		0.014		mg/L	5%	
Total Suspended Solids	General Chemistry	45		-2	ND	mg/L	NA	
Turbidity	General Chemistry	26		-0.02	ND	NTU	NA	
Zinc	General Chemistry	7.2		1.6		ug/L	22%	*
Zinc (dissolved)	General Chemistry	-0.8	ND	0.8	DNQ	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
Aldrin	Pesticide	-0.009	ND	-0.009	ND	µg/L	NA
Atrazine	Pesticide	-0.07	ND	-0.07	ND	µg/L	NA
Azinphos methyl	Pesticide	-0.02	ND	-0.02	ND	µg/L	NA
Chlordane, Alpha-	Pesticide	-0.007	ND	-0.007	ND	µg/L	NA
Chlordane, gamma-	Pesticide	-0.006	ND	-0.006	ND	µg/L	NA
Chlorpyrifos	Pesticide	-0.003	ND	-0.003	ND	µg/L	NA
Cyanazine	Pesticide	-0.09	ND	-0.09	ND	µg/L	NA
DDD(p,p')	Pesticide	-0.003	ND	-0.003	ND	µg/L	NA
DDE(p,p')	Pesticide	-0.004	ND	-0.004	ND	µg/L	NA
DDT(p,p')	Pesticide	-0.007	ND	-0.007	ND	µg/L	NA
Demeton-s	Pesticide	-0.08	ND	-0.08	ND	µg/L	NA
Diazinon	Pesticide	-0.004	ND	-0.004	ND	µg/L	NA
Dichlorvos	Pesticide	-0.02	ND	-0.02	ND	µg/L	NA
Dicofol	Pesticide	-0.01	ND	-0.01	ND	µg/L	NA
Dieldrin	Pesticide	-0.005	ND	-0.005	ND	µg/L	NA
Dimethoate	Pesticide	-0.080	ND	-0.080	ND	µg/L	NA
Disulfoton	Pesticide	-0.020	ND	-0.020	ND	µg/L	NA
Diuron	Pesticide	0.35	DNQ	-0.20	ND	µg/L	NA
Endosulfan I	Pesticide	-0.005	ND	-0.005	ND	µg/L	NA
Endosulfan II	Pesticide	-0.004	ND	-0.004	ND	µg/L	NA
Endosulfan Sulfate	Pesticide	-0.005	ND	-0.005	ND	µg/L	NA
Endrin	Pesticide	-0.007	ND	-0.007	ND	µg/L	NA
EPTC	Pesticide	-0.03	ND	-0.03	ND	µg/L	NA
Heptachlor	Pesticide	-0.008	ND	-0.008	ND	µg/L	NA
Heptachlor epoxide	Pesticide	-0.007	ND	-0.007	ND	µg/L	NA
Linuron	Pesticide	-0.20	ND	-0.20	ND	µg/L	NA
Malathion	Pesticide	-0.050	ND	-0.050	ND	µg/L	NA
Methamidophos	Pesticide	-0.08	ND	-0.08	ND	µg/L	NA
Methidathion	Pesticide	-0.04	ND	-0.04	ND	µg/L	NA
Methoxychlor	Pesticide	-0.008	ND	-0.008	ND	µg/L	NA
Parathion, Ethyl	Pesticide	-0.02	ND	-0.02	ND	µg/L	NA
Parathion, Methyl	Pesticide	-0.075	ND	-0.075	ND	µg/L	NA
Phorate	Pesticide	-0.072	ND	-0.072	ND	µg/L	NA
Phosmet	Pesticide	-0.06	ND	-0.06	ND	µg/L	NA
Prowl	Pesticide	0.13		-0.04	ND	µg/L	NA
Simazine	Pesticide	-0.08	ND	-0.08	ND	µg/L	NA
Toxaphene	Pesticide	-0.380	ND	-0.380	ND	µg/L	NA
Trifluralin	Pesticide	-0.04	ND	-0.04	ND	µg/L	NA
Sample Date:	**5/12/2009**	**Site:**	**Newman Wasteway near Hills Ferry Road**				
Ammonia (as N)	General Chemistry	0.51		-0.06	ND	mg/L	NA
Arsenic	General Chemistry	4.3		-0.008	ND	ug/L	NA
Boron	General Chemistry	640		1.4	DNQ	ug/L	0%
Bromide	General Chemistry	-0.01	ND	-0.01	ND	mg/L	NA
Cadmium	General Chemistry	0.03	DNQ	-0.011	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	
Cadmium (dissolved)	General Chemistry	0.01	DNQ	-0.011	ND	ug/L	NA	
Copper	General Chemistry	7		-0.06	ND	ug/L	NA	
Copper (dissolved)	General Chemistry	1.3		0.1	DNQ	ug/L	8%	
Dissolved Organic Carbon	General Chemistry	5.4		0.28	DNQ	mg/L	5%	
E. Coli	General Chemistry	690		-1	ND	MPN/100mL	NA	
Hardness (as CACO3)	General Chemistry	330		-1.7	ND	mg/L	NA	
Lead	General Chemistry	2.1		-0.071	ND	ug/L	NA	
Nickel	General Chemistry	14		0.05	DNQ	ug/L	0%	
Nickel (dissolved)	General Chemistry	3.5		0.13	DNQ	ug/L	4%	
Nitrogen, Nitrate-Nitrite	General Chemistry	2.2		0.026	DNQ	mg/L	1%	
Ortho Phosphate as P	General Chemistry	0.25		-0.006	ND	mg/L	NA	
Total Dissolved Solids	General Chemistry	630		-4	ND	mg/L	NA	
Total Kjeldahl Nitrogen	General Chemistry	1.8		0.15		mg/L	8%	
Total Organic Carbon	General Chemistry	5.7		0.33	DNQ	mg/L	6%	
Total Phosphorus as P	General Chemistry	0.47		-0.01	ND	mg/L	NA	
Total Suspended Solids	General Chemistry	120		-2	ND	mg/L	NA	
Turbidity	General Chemistry	59		-0.02	ND	NTU	NA	
Zinc	General Chemistry	14		1.8		ug/L	13%	
Zinc (dissolved)	General Chemistry	0.9	DNQ	0.9	DNQ	ug/L	100%	*
Aldrin	Pesticide	-0.009	ND	-0.009	ND	µg/L	NA	
Atrazine	Pesticide	-0.07	ND	-0.07	ND	µg/L	NA	
Azinphos methyl	Pesticide	-0.02	ND	-0.02	ND	µg/L	NA	
Chlordane, Alpha-	Pesticide	-0.007	ND	-0.007	ND	µg/L	NA	
Chlordane, gamma-	Pesticide	-0.006	ND	-0.006	ND	µg/L	NA	
Chlorpyrifos	Pesticide	-0.0026	ND	-0.0026	ND	µg/L	NA	
Cyanazine	Pesticide	-0.09	ND	-0.09	ND	µg/L	NA	
DDD(p,p')	Pesticide	-0.003	ND	-0.003	ND	µg/L	NA	
DDE(p,p')	Pesticide	0.01		-0.004	ND	µg/L	NA	
DDT(p,p')	Pesticide	-0.007	ND	-0.007	ND	µg/L	NA	
Demeton-s	Pesticide	-0.08	ND	-0.08	ND	µg/L	NA	
Diazinon	Pesticide	-0.004	ND	-0.004	ND	µg/L	NA	
Dichlorvos	Pesticide	-0.02	ND	-0.02	ND	µg/L	NA	
Dicofol	Pesticide	-0.01	ND	-0.01	ND	µg/L	NA	
Dieldrin	Pesticide	-0.005	ND	-0.005	ND	µg/L	NA	
Dimethoate	Pesticide	-0.080	ND	-0.080	ND	µg/L	NA	
Disulfoton	Pesticide	-0.020	ND	-0.020	ND	µg/L	NA	
Diuron	Pesticide	-0.20	ND	-0.20	ND	µg/L	NA	
Endosulfan I	Pesticide	-0.005	ND	-0.005	ND	µg/L	NA	
Endosulfan II	Pesticide	-0.004	ND	-0.004	ND	µg/L	NA	
Endosulfan Sulfate	Pesticide	-0.005	ND	-0.005	ND	µg/L	NA	
Endrin	Pesticide	-0.007	ND	-0.007	ND	µg/L	NA	
EPTC	Pesticide	-0.03	ND	-0.03	ND	µg/L	NA	
Heptachlor	Pesticide	-0.008	ND	-0.008	ND	µg/L	NA	
Heptachlor epoxide	Pesticide	-0.007	ND	-0.007	ND	µg/L	NA	
Linuron	Pesticide	-0.20	ND	-0.20	ND	µg/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	-0.050	ND	-0.050	ND	µg/L	NA
Methamidophos	Pesticide	-0.08	ND	-0.08	ND	µg/L	NA
Methidathion	Pesticide	-0.04	ND	-0.04	ND	µg/L	NA
Methoxychlor	Pesticide	-0.008	ND	-0.008	ND	µg/L	NA
Parathion, Ethyl	Pesticide	-0.02	ND	-0.02	ND	µg/L	NA
Parathion, Methyl	Pesticide	-0.075	ND	-0.075	ND	µg/L	NA
Phorate	Pesticide	-0.072	ND	-0.072	ND	µg/L	NA
Phosmet	Pesticide	-0.06	ND	-0.06	ND	µg/L	NA
Prowl	Pesticide	0.22		-0.04	ND	µg/L	NA
Simazine	Pesticide	-0.08	ND	-0.08	ND	µg/L	NA
Toxaphene	Pesticide	-0.380	ND	-0.380	ND	µg/L	NA
Trifluralin	Pesticide	-0.04	ND	-0.04	ND	µg/L	NA
Sample Date:	**6/9/2009**	**Site:**		**Newman Wasteway near Hills Ferry Road**			
Ammonia as N	General Chemistry	0.67		-0.06	ND	mg/L	NA
Arsenic	General Chemistry	4.2		-0.008	ND	µg/L	NA
Boron	General Chemistry	780		4.1	DNQ	µg/L	1%
Bromide	General Chemistry	0.75	DNQ	-0.01	ND	mg/L	NA
Cadmium	General Chemistry	0.08	DNQ	-0.011	ND	µg/L	NA
Cadmium (dissolved)	General Chemistry	0.01	DNQ	-0.011	ND	µg/L	NA
Copper	General Chemistry	6.7		-0.06	ND	µg/L	NA
Copper (dissolved)	General Chemistry	1.2		-0.06	ND	µg/L	NA
Dissolved Organic Carbon	General Chemistry	6.1		0.23	DNQ	mg/L	4%
E. coli	General Chemistry	550		-1	ND	MPN/100 mL	NA
Lead	General Chemistry	1.8		-0.071	ND	µg/L	NA
Lead (dissolved)	General Chemistry	-0.071	ND	-0.071	ND	µg/L	NA
Nickel	General Chemistry	13		-0.01	ND	µg/L	NA
Nickel (dissolved)	General Chemistry	3.4		-0.01	ND	µg/L	NA
Nitrogen, Total Kjeldahl	General Chemistry	2		0.077	DNQ	mg/L	4%
Phosphate as P	General Chemistry	0.92		0.028		mg/L	3%
Selenium	General Chemistry	0.73	DNQ	-0.06	ND	µg/L	NA
Total Dissolved Solids	General Chemistry	750		-4	ND	mg/L	NA
Total Organic Carbon	General Chemistry	6.6		0.42	DNQ	mg/L	6%
Total Suspended Solids	General Chemistry	68		-2	ND	mg/L	NA
Turbidity	General Chemistry	49		0.17		NTU	0%
Zinc	General Chemistry	13		1.2		µg/L	9%
Zinc (dissolved)	General Chemistry	-0.8	ND	-0.8	ND	µg/L	NA
Aldrin	Pesticide	-0.009	ND	-0.009	ND	µg/L	NA
Atrazine	Pesticide	-0.07	ND	-0.07	ND	µg/L	NA
Azinphos methyl	Pesticide	-0.02	ND	-0.02	ND	µg/L	NA
Chlordane, Alpha-	Pesticide	-0.007	ND	-0.007	ND	µg/L	NA
Chlordane, gamma-	Pesticide	-0.006	ND	-0.006	ND	µg/L	NA
Chlorpyrifos	Pesticide	-0.0026	ND	-0.0026	ND	µg/L	NA
Cyanazine	Pesticide	-0.09	ND	-0.09	ND	µg/L	NA
DDD(p,p')	Pesticide	-0.003	ND	-0.003	ND	µg/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
DDE(p,p')	Pesticide	0.0081	DNQ	-0.004	ND	µg/L	NA
DDT(p,p')	Pesticide	-0.007	ND	-0.007	ND	µg/L	NA
Demeton-s	Pesticide	-0.08	ND	-0.08	ND	µg/L	NA
Diazinon	Pesticide	-0.004	ND	-0.004	ND	µg/L	NA
Dichlorvos	Pesticide	-0.02	ND	-0.02	ND	µg/L	NA
Dicofol	Pesticide	-0.01	ND	-0.01	ND	µg/L	NA
Dieldrin	Pesticide	-0.005	ND	-0.005	ND	µg/L	NA
Dimethoate	Pesticide	-0.080	ND	-0.080	ND	µg/L	NA
Disulfoton	Pesticide	-0.020	ND	-0.020	ND	µg/L	NA
Diuron	Pesticide	-0.20	ND	-0.20	ND	µg/L	NA
Endosulfan I	Pesticide	-0.005	ND	-0.005	ND	µg/L	NA
Endosulfan II	Pesticide	-0.004	ND	-0.004	ND	µg/L	NA
Endosulfan Sulfate	Pesticide	-0.005	ND	-0.005	ND	µg/L	NA
Endrin	Pesticide	-0.007	ND	-0.007	ND	µg/L	NA
EPTC	Pesticide	-0.03	ND	-0.03	ND	µg/L	NA
Heptachlor	Pesticide	-0.008	ND	-0.008	ND	µg/L	NA
Heptachlor epoxide	Pesticide	-0.007	ND	-0.007	ND	µg/L	NA
Linuron	Pesticide	-0.20	ND	-0.20	ND	µg/L	NA
Malathion	Pesticide	-0.050	ND	-0.050	ND	µg/L	NA
Methamidophos	Pesticide	-0.08	ND	-0.08	ND	µg/L	NA
Methidathion	Pesticide	-0.04	ND	-0.04	ND	µg/L	NA
Methoxychlor	Pesticide	-0.008	ND	-0.008	ND	µg/L	NA
Parathion, Ethyl	Pesticide	-0.02	ND	-0.02	ND	µg/L	NA
Parathion, Methyl	Pesticide	-0.075	ND	-0.075	ND	µg/L	NA
Phorate	Pesticide	-0.072	ND	-0.072	ND	µg/L	NA
Phosmet	Pesticide	-0.06	ND	-0.06	ND	µg/L	NA
Prowl	Pesticide	0.18		-0.04	ND	µg/L	NA
Simazine	Pesticide	-0.08	ND	-0.08	ND	µg/L	NA
Toxaphene	Pesticide	-0.380	ND	-0.380	ND	µg/L	NA
Trifluralin	Pesticide	-0.04	ND	-0.04	ND	µg/L	NA
Sample Date:	**7/14/2009**	**Site:**	**Newman Wasteway near Hills Ferry Road**				
Ammonia as N	General Chemistry	-0.06	ND	-0.06	ND	mg/L	NA
Arsenic	General Chemistry	2.4		0.01	DNQ	µg/L	0%
Boron	General Chemistry	690		7.9	DNQ	µg/L	1%
Bromide	General Chemistry	0.58	DNQ	-0.01	ND	mg/L	NA
Cadmium	General Chemistry	0.02	DNQ	-0.011	ND	µg/L	NA
Cadmium (dissolved)	General Chemistry	-0.011	ND	-0.011	ND	µg/L	NA
Copper	General Chemistry	3.3		-0.06	ND	µg/L	NA
Copper (dissolved)	General Chemistry	0.91		-0.06	ND	µg/L	NA
Dissolved Organic Carbon	General Chemistry	3.9		0.32	DNQ	mg/L	8%
E. coli	General Chemistry	730		-1	ND	MPN/100 mL	NA
Lead	General Chemistry	0.67		-0.071	ND	µg/L	NA
Lead (dissolved)	General Chemistry	-0.071	ND	-0.071	ND	µg/L	NA
Nickel	General Chemistry	6.3		0.04	DNQ	µg/L	1%

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	
Nickel (dissolved)	General Chemistry	2.6		0.03	DNQ	µg/L	1%	
Nitrogen, Total Kjeldahl	General Chemistry	0.65		-0.07	ND	mg/L	NA	
Phosphate as P	General Chemistry	0.12		0.023		mg/L	19%	
Selenium	General Chemistry	0.51	DNQ	-0.06	ND	µg/L	NA	
Total Dissolved Solids	General Chemistry	680		-4	ND	mg/L	NA	
Total Organic Carbon	General Chemistry	4.4		0.63		mg/L	14%	
Total Suspended Solids	General Chemistry	20		-2	ND	mg/L	NA	
Turbidity	General Chemistry	15		-0.02	ND	NTU	NA	
Zinc	General Chemistry	5.2		1.4		µg/L	27%	*
Zinc (dissolved)	General Chemistry	-0.8	ND	-0.8	ND	µg/L	NA	
Aldrin	Pesticide	-0.009	ND	-0.009	ND	µg/L	NA	
Atrazine	Pesticide	-0.07	ND	-0.07	ND	µg/L	NA	
Azinphos methyl	Pesticide	-0.02	ND	-0.02	ND	µg/L	NA	
Chlordane, Alpha-	Pesticide	-0.007	ND	-0.007	ND	µg/L	NA	
Chlordane, gamma-	Pesticide	-0.006	ND	-0.006	ND	µg/L	NA	
Chlorpyrifos	Pesticide	-0.0026	ND	-0.0026	ND	µg/L	NA	
Cyanazine	Pesticide	-0.09	ND	-0.09	ND	µg/L	NA	
DDD(p,p')	Pesticide	-0.003	ND	-0.003	ND	µg/L	NA	
DDE(p,p')	Pesticide	-0.004	ND	-0.004	ND	µg/L	NA	
DDT(p,p')	Pesticide	-0.007	ND	-0.007	ND	µg/L	NA	
Demeton-s	Pesticide	-0.08	ND	-0.08	ND	µg/L	NA	
Diazinon	Pesticide	-0.004	ND	-0.004	ND	µg/L	NA	
Dichlorvos	Pesticide	-0.02	ND	-0.02	ND	µg/L	NA	
Dicofol	Pesticide	-0.01	ND	-0.01	ND	µg/L	NA	
Dieldrin	Pesticide	-0.005	ND	-0.005	ND	µg/L	NA	
Dimethoate	Pesticide	-0.080	ND	-0.080	ND	µg/L	NA	
Disulfoton	Pesticide	-0.020	ND	-0.020	ND	µg/L	NA	
Diuron	Pesticide	-0.20	ND	-0.20	ND	µg/L	NA	
Endosulfan I	Pesticide	-0.005	ND	-0.005	ND	µg/L	NA	
Endosulfan II	Pesticide	-0.004	ND	-0.004	ND	µg/L	NA	
Endosulfan Sulfate	Pesticide	-0.005	ND	-0.005	ND	µg/L	NA	
Endrin	Pesticide	-0.007	ND	-0.007	ND	µg/L	NA	
EPTC	Pesticide	-0.03	ND	-0.03	ND	µg/L	NA	
Heptachlor	Pesticide	-0.008	ND	-0.008	ND	µg/L	NA	
Heptachlor epoxide	Pesticide	-0.007	ND	-0.007	ND	µg/L	NA	
Linuron	Pesticide	-0.20	ND	-0.20	ND	µg/L	NA	
Malathion	Pesticide	-0.050	ND	-0.050	ND	µg/L	NA	
Methamidophos	Pesticide	-0.08	ND	-0.08	ND	µg/L	NA	
Methidathion	Pesticide	-0.04	ND	-0.04	ND	µg/L	NA	
Methoxychlor	Pesticide	-0.008	ND	-0.008	ND	µg/L	NA	
Parathion, Ethyl	Pesticide	-0.02	ND	-0.02	ND	µg/L	NA	
Parathion, Methyl	Pesticide	-0.075	ND	-0.075	ND	µg/L	NA	
Phorate	Pesticide	-0.072	ND	-0.072	ND	µg/L	NA	
Phosmet	Pesticide	-0.06	ND	-0.06	ND	µg/L	NA	
Prowl	Pesticide	-0.04	ND	-0.04	ND	µg/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
Simazine	Pesticide	-0.08	ND	-0.08	ND	µg/L	NA
Toxaphene	Pesticide	-0.380	ND	-0.380	ND	µg/L	NA
Trifluralin	Pesticide	-0.036	ND	-0.036	ND	µg/L	NA

Event = Event Sample Result FB = Field Blank Sample Result

Attachment 4
Sediment Toxicity Follow-up Analyses

Sediment Toxictiy Follow-up Analysis

Blewett Drain at Highway 132

Toxicity Results Hyalella azteca 18.75 % survival

Sample Event: 53 3/9/2009

Pesticide	Results	Units
4,4'-DDD	ND	mg/kg
4,4'-DDE	0.045	mg/kg
4,4'-DDT	ND	mg/kg
Aldrin	ND	mg/kg
Allethrin	ND	mg/kg
alpha-BHC	ND	mg/kg
beta-BHC	ND	mg/kg
Bifenthrin (Biphenthrin)	0.003	mg/kg
Chlordane	ND	mg/kg
Chlorpyrifos (Dursban)	ND	mg/kg
Cyfluthrin (Baythroid)	ND	mg/kg
Cypermethrin	ND	mg/kg
delta-BHC	ND	mg/kg
Deltamethrin:Tralomethrin	ND	mg/kg
Dieldrin	ND	mg/kg
Endosulfan I	ND	mg/kg
Endosulfan II	ND	mg/kg
Endosulfan sulfate	ND	mg/kg
Endrin	ND	mg/kg
Endrin aldehyde	ND	mg/kg
Endrin ketone	ND	mg/kg
Esfenvalerate:Fenvalerate	ND	mg/kg
Fenpropathrin (Danitol)	ND	mg/kg
gamma-BHC (Lindane)	ND	mg/kg
Heptachlor	ND	mg/kg
Heptachlor epoxide	ND	mg/kg
Kepone	ND	mg/kg
Lambda-Cyhalothrin	0.021	mg/kg
Methoxychlor	ND	mg/kg
Mirex	ND	mg/kg
Permethrin	ND	mg/kg
Phenothrin	ND	mg/kg
Resmethrin	ND	mg/kg
Tau-Fluvalinate	ND	mg/kg
Tetramethrin	ND	mg/kg

Sediment Toxictiy Follow-up Analysis

Hospital Creek at River Road

Toxicity Results Hyalella azteca 0 % survival

Sample Event: 53 3/9/2009

Pesticide	Results	Units
4,4'-DDD	ND	mg/kg
4,4'-DDE	0.04	mg/kg
4,4'-DDT	ND	mg/kg
Aldrin	ND	mg/kg
Allethrin	ND	mg/kg
alpha-BHC	ND	mg/kg
beta-BHC	ND	mg/kg
Bifenthrin (Biphenthrin)	0.023	mg/kg
Chlordane	ND	mg/kg
Chlorpyrifos (Dursban)	0.13	mg/kg
Cyfluthrin (Baythroid)	ND	mg/kg
Cypermethrin	ND	mg/kg
delta-BHC	ND	mg/kg
Deltamethrin:Tralomethrin	ND	mg/kg
Dieldrin	ND	mg/kg
Endosulfan I	ND	mg/kg
Endosulfan II	ND	mg/kg
Endosulfan sulfate	ND	mg/kg
Endrin	ND	mg/kg
Endrin aldehyde	ND	mg/kg
Endrin ketone	ND	mg/kg
Esfenvalerate:Fenvalerate	ND	mg/kg
Fenpropathrin (Danitol)	ND	mg/kg
gamma-BHC (Lindane)	ND	mg/kg
Heptachlor	ND	mg/kg
Heptachlor epoxide	ND	mg/kg
Kepone	ND	mg/kg
Lambda-Cyhalothrin	ND	mg/kg
Methoxychlor	ND	mg/kg
Mirex	ND	mg/kg
Permethrin	ND	mg/kg
Phenothrin	ND	mg/kg
Resmethrin	ND	mg/kg
Tau-Fluvalinate	ND	mg/kg
Tetramethrin	ND	mg/kg
Toxaphene	ND	mg/kg

Sediment Toxictiy Follow-up Analysis

Ingram Creek at River Road

Toxicity Results Hyalella azteca 18.75 % survival

Sample Event: 53 3/9/2009

Pesticide	Results	Units
4,4'-DDD	ND	mg/kg
4,4'-DDE	0.052	mg/kg
4,4'-DDT	ND	mg/kg
Aldrin	ND	mg/kg
Allethrin	ND	mg/kg
alpha-BHC	ND	mg/kg
beta-BHC	ND	mg/kg
Bifenthrin (Biphenthrin)	ND	mg/kg
Chlordane	ND	mg/kg
Chlorpyrifos (Dursban)	ND	mg/kg
Cyfluthrin (Baythroid)	ND	mg/kg
Cypermethrin	ND	mg/kg
delta-BHC	ND	mg/kg
Deltamethrin:Tralomethrin	ND	mg/kg
Dieldrin	ND	mg/kg
Endosulfan I	ND	mg/kg
Endosulfan II	ND	mg/kg
Endosulfan sulfate	ND	mg/kg
Endrin	ND	mg/kg
Endrin aldehyde	ND	mg/kg
Endrin ketone	ND	mg/kg
Esfenvalerate:Fenvalerate	ND	mg/kg
Fenpropathrin (Danitol)	ND	mg/kg
gamma-BHC (Lindane)	ND	mg/kg
Heptachlor	ND	mg/kg
Heptachlor epoxide	ND	mg/kg
Kepone	ND	mg/kg
Lambda-Cyhalothrin	0.017	mg/kg
Methoxychlor	ND	mg/kg
Mirex	ND	mg/kg
Permethrin	ND	mg/kg
Phenothrin	ND	mg/kg
Resmethrin	ND	mg/kg
Tau-Fluvalinate	ND	mg/kg
Tetramethrin	ND	mg/kg
Toxaphene	ND	mg/kg

Attachment 5
Exceedance of Recommended Water Quality Values

Westside San Joaquin River Watershed Coalition

Number of Water Quality Value Exceedances for the period of 3/1/2009 to 8/31/2009

Type	Constituient	# of Exceedances	# of Tests
Aquatic Toxicity	Ceriodaphnia dubia	6	84
Field Data	DO	34	123
Field Data	EC	98	121
Field Data	Flow	35	112
Field Data	pH	32	114
General Chemistry	Ammonia (as N)	2	79
General Chemistry	Arsenic	1	47
General Chemistry	Boron	20	62
General Chemistry	E. Coli	25	97
General Chemistry	Selenium	2	24
General Chemistry	Total Dissolved Solids	77	97
Pesticide	Chlorpyrifos	14	103
Pesticide	DDE(p,p')	30	65
Pesticide	Dimethoate	2	103
Pesticide	Diuron	3	85
Pesticide	g-Chlordane	4	62
Pesticide	Methamidophos	1	103
Sediment Toxicity	Hyalella azteca	6	11

Westside San Joaquin River Watershed Coalition

Number of Water Quality Value Exceedances for the period of 3/1/2009 to 8/31/2009

Blewett Drain at Highway 132

Type	Constituient	# of Exceedances	# of Tests
Field Data	EC	3	5
Field Data	Flow	1	6
Field Data	pH	1	5
General Chemistry	Total Dissolved Solids	3	4
Pesticide	DDE(p,p')	1	1
Sediment Toxicity	Hyalella azteca	1	1

Del Puerto Creek at Hwy 33

Type	Constituient	# of Exceedances	# of Tests
Field Data	Flow	4	4

Del Puerto Creek near Cox Road

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

Delta Mendota Canal at DPWD

Type	Constituient	# of Exceedances	# of Tests
Field Data	DO	1	6

Hospital Creek at River Road

Type	Constituient	# of Exceedances	# of Tests
Aquatic Toxicity	Ceriodaphnia dubia	1	4
Field Data	EC	3	4
Field Data	Flow	2	6
Pesticide	Chlorpyrifos	3	4
Pesticide	DDE(p,p')	4	5
Sediment Toxicity	Hyalella azteca	1	1

Ingram Creek at River Road

Type	Constituient	# of Exceedances	# of Tests
Aquatic Toxicity	Ceriodaphnia dubia	1	5
Field Data	DO	1	5
Field Data	EC	4	5

Field Data	Flow	1	6
Field Data	pH	1	5
General Chemistry	Arsenic	1	5
General Chemistry	Boron	3	5
General Chemistry	E. Coli	3	5
General Chemistry	Total Dissolved Solids	5	5
Pesticide	Chlorpyrifos	1	5
Pesticide	DDE(p,p')	5	6
Pesticide	Dimethoate	2	5
Sediment Toxicity	Hyalella azteca	1	1

Los Banos Creek at China Camp Road

Type	Constituient	# of Exceedances	# of Tests
Field Data	DO	3	7
Field Data	EC	7	7
Field Data	Flow	6	6
Field Data	pH	1	7
General Chemistry	E. Coli	1	6
General Chemistry	Total Dissolved Solids	5	6
Pesticide	Chlorpyrifos	1	6

Los Banos Creek at Hwy 140

Type	Constituient	# of Exceedances	# of Tests
Field Data	DO	2	6
Field Data	EC	6	6
Field Data	pH	2	5
General Chemistry	E. Coli	3	6
General Chemistry	Total Dissolved Solids	6	6

Marshall Road Drain near River Road

Type	Constituient	# of Exceedances	# of Tests
Aquatic Toxicity	Ceriodaphnia dubia	1	4
Field Data	DO	2	6
Field Data	EC	6	6
Field Data	Flow	1	1
Field Data	pH	1	6
General Chemistry	Boron	3	5
General Chemistry	Total Dissolved Solids	5	5
Pesticide	Chlorpyrifos	1	5
Pesticide	DDE(p,p')	2	5
Pesticide	g-Chlordane	2	5

Westside San Joaquin River Watershed Coalition

Number of Water Quality Value Exceedances for the period of 3/1/2009 to 8/31/2009

Mud Slough Upstream of San Luis Drain

Type	Constituient	# of Exceedances	# of Tests
Field Data	DO	1	6
Field Data	EC	6	6
Field Data	pH	3	5
General Chemistry	E. Coli	1	6
General Chemistry	Total Dissolved Solids	6	6

Newman Wasteway near Hills Ferry Road

Type	Constituient	# of Exceedances	# of Tests
Aquatic Toxicity	Ceriodaphnia dubia	1	5
Field Data	DO	1	7
Field Data	EC	7	7
Field Data	Flow	5	7
Field Data	pH	2	6
General Chemistry	Boron	3	5
General Chemistry	E. Coli	4	5
General Chemistry	Total Dissolved Solids	5	5
Pesticide	DDE(p,p')	3	5

Orestimba Creek at Hwy 33

Type	Constituient	# of Exceedances	# of Tests
Field Data	DO	2	7
Field Data	EC	5	7
Field Data	pH	1	7
General Chemistry	Selenium	2	3
Pesticide	DDE(p,p')	4	6
Pesticide	g-Chlordane	1	6
Sediment Toxicity	Hyalella azteca	1	1

Orestimba Creek at River Road

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

Westside San Joaquin River Watershed Coalition

Number of Water Quality Value Exceedances for the period of 3/1/2009 to 8/31/2009

Poso Slough at Indiana Ave

Type	Constituient	# of Exceedances	# of Tests
Field Data	DO	2	6
Field Data	EC	5	5
Field Data	pH	3	5
General Chemistry	Ammonia (as N)	2	6
General Chemistry	E. Coli	4	6
General Chemistry	Total Dissolved Solids	5	6

Ramona Lake near Fig Avenue

Type	Constituient	# of Exceedances	# of Tests
Field Data	DO	3	5
Field Data	EC	5	5
Field Data	Flow	1	1
Field Data	pH	2	5
General Chemistry	Boron	5	5
General Chemistry	E. Coli	1	5
General Chemistry	Total Dissolved Solids	5	5
Pesticide	Diuron	1	5

Salt Slough at Lander Ave

Type	Constituient	# of Exceedances	# of Tests
Field Data	DO	3	7
Field Data	EC	7	7
Field Data	pH	2	6
General Chemistry	Total Dissolved Solids	6	6
Pesticide	Chlorpyrifos	3	6
Pesticide	g-Chlordane	1	6

Salt Slough at Sand Dam

Type	Constituient	# of Exceedances	# of Tests
Field Data	DO	3	6
Field Data	EC	6	6
Field Data	Flow	1	5
Field Data	pH	3	5
Pesticide	Chlorpyrifos	2	6
Pesticide	Diuron	2	6

San Joaquin River at Lander Ave

Type	Constituient	# of Exceedances	# of Tests
Field Data	DO	2	6
Field Data	EC	5	6
Field Data	pH	2	5

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Number of Water Quality Value Exceedances for the period of 3/1/2009 to 8/31/2009

General Chemistry	E. Coli	1	6
General Chemistry	Total Dissolved Solids	4	6

San Joaquin River at PID Pumps

Type	Constituient	# of Exceedances	# of Tests
Field Data	DO	1	6
Field Data	EC	5	6
Field Data	pH	1	6
General Chemistry	Boron	3	6
General Chemistry	Total Dissolved Solids	5	6
Pesticide	Chlorpyrifos	1	6

San Joaquin River at Sack Dam

Type	Constituient	# of Exceedances	# of Tests
Field Data	DO	2	6
Field Data	EC	1	5
Field Data	Flow	5	5
Field Data	pH	4	5

Turner Slough at Edminster Road

Type	Constituient	# of Exceedances	# of Tests
Field Data	DO	4	5
Field Data	EC	5	5
Field Data	Flow	5	5
Field Data	pH	1	4
General Chemistry	E. Coli	2	5
General Chemistry	Total Dissolved Solids	5	5

Westley Wasteway near Cox Road

Type	Constituient	# of Exceedances	# of Tests
Field Data	EC	4	5
Field Data	Flow	1	6
Field Data	pH	1	5
General Chemistry	Boron	1	5
General Chemistry	Total Dissolved Solids	4	5
Pesticide	DDE(p,p')	4	5
Sediment Toxicity	Hyalella azteca	1	1

Westside San Joaquin River Watershed Coalition

Water Quality Value Exceedances for the period of 3/1/2009 to 8/31/2009

Blewett Drain at Highway 132

Analyte/Species	Event	Sample Date	Result		Units	Significant Toxicity	WQV Max	WQV Min
DDE(p,p')	53	3/9/2009	0.045		mg/kg		0.00059	
Hyalella azteca	53	3/9/2009	18.75		% survival	Yes		
Flow	53	3/10/2009	0		cfs			0.01
EC	54	4/14/2009	901		µmhos/cm		700	
pH	55	5/12/2009	6.23				8.5	6.5
Total Dissolved Solids	56	6/9/2009	460		mg/L		450	
EC	57	7/14/2009	1078		µmhos/cm		700	
Total Dissolved Solids	57	7/14/2009	740		mg/L		450	
EC	58	8/11/2009	738		µmhos/cm		700	
Total Dissolved Solids	58	8/11/2009	500		mg/L		450	

Del Puerto Creek at Hwy 33

Analyte/Species	Event	Sample Date	Result		Units	Significant Toxicity	WQV Max	WQV Min
Flow	53	3/9/2009	0		cfs			0.01
Flow	54	4/14/2009	0		cfs			0.01
Flow	56	6/9/2009	0		cfs			0.01
Flow	57	7/14/2009	0		cfs			0.01

Del Puerto Creek near Cox Road

Analyte/Species	Event	Sample Date	Result		Units	Significant Toxicity	WQV Max	WQV Min
EC	53	3/9/2009	710		µmhos/cm		700	
Flow	53	3/10/2009	0		cfs			0.01
Boron	54	4/14/2009	860		ug/L		700	
EC	54	4/14/2009	1048		µmhos/cm		700	
Total Dissolved Solids	54	4/14/2009	870		mg/L		450	
DDE(p,p')	55	5/12/2009	0.0042	DNQ	µg/L		0.00059	
Total Dissolved Solids	55	5/12/2009	510		mg/L		450	
Boron	56	6/9/2009	720		µg/L		700	
DDE(p,p')	56	6/9/2009	0.0056	DNQ	µg/L		0.00059	
EC	56	6/9/2009	1153		µmhos/cm		700	
Methamidophos	56	6/9/2009	1.3		µg/L		0.35	
pH	56	6/9/2009	8.83				8.5	6.5
Total Dissolved Solids	56	6/9/2009	790		mg/L		450	
Flow	57	7/14/2009	0		cfs			0.01
DDE(p,p')	58	8/11/2009	0.0097	DNQ	µg/L		0.00059	
E. Coli	58	8/11/2009	290		MPN/100 mL		235	
EC	58	8/11/2009	1355		µmhos/cm		700	
Total Dissolved Solids	58	8/11/2009	990		mg/L		450	

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DNQ = Detected, Not Quantifiable

Westside San Joaquin River Watershed Coalition

Water Quality Value Exceedances for the period of 3/1/2009 to 8/31/2009

Delta Mendota Canal at DPWD

Analyte/Species	Event	Sample Date	Result		Units	Significant Toxicity	WQV Max	WQV Min
DO	56	6/9/2009	4.7		mg/l			5

Hospital Creek at River Road

Analyte/Species	Event	Sample Date	Result		Units	Significant Toxicity	WQV Max	WQV Min
DDE(p,p')	53	3/9/2009	0.04		mg/kg		0.00059	
Hyalella azteca	53	3/9/2009	0		% survival	Yes		
Flow	53	3/10/2009	0		cfs			0.01
EC	54	4/14/2009	904		µmhos/cm		700	
Ceriodaphnia dubia	55	5/12/2009	45		%	yes		
Chlorpyrifos	55	5/12/2009	0.034		µg/L		0.015	
DDE(p,p')	55	5/12/2009	0.0091	DNQ	µg/L		0.00059	
Flow	56	6/9/2009	0		cfs			0.01
Chlorpyrifos	57	7/14/2009	0.21		µg/L		0.015	
DDE(p,p')	57	7/14/2009	0.02		µg/L		0.00059	
EC	57	7/14/2009	964		µmhos/cm		700	
Chlorpyrifos	58	8/11/2009	0.062		µg/L		0.015	
DDE(p,p')	58	8/11/2009	0.041		µg/L		0.00059	
EC	58	8/11/2009	731		µmhos/cm		700	

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Westside San Joaquin River Watershed Coalition

Water Quality Value Exceedances for the period of 3/1/2009 to 8/31/2009

Ingram Creek at River Road

Analyte/Species	Event	Sample Date	Result		Units	Significant Toxicity	WQV Max	WQV Min
DDE(p,p')	53	3/9/2009	0.052		mg/kg		0.00059	
Hyalella azteca	53	3/9/2009	18.75		% survival	Yes		
Flow	53	3/10/2009	0		cfs			0.01
Boron	54	4/14/2009	900		ug/L		700	
DO	54	4/14/2009	2.63		mg/l			5
E. Coli	54	4/14/2009	340		MPN/100mL		235	
EC	54	4/14/2009	1085		µmhos/cm		700	
Total Dissolved Solids	54	4/14/2009	920		mg/L		450	
Ceriodaphnia dubia	55	5/12/2009	0		%	yes		
Chlorpyrifos	55	5/12/2009	0.018		µg/L		0.015	
DDE(p,p')	55	5/12/2009	0.022		µg/L		0.00059	
Total Dissolved Solids	55	5/12/2009	500		mg/L		450	
DDE(p,p')	56	6/9/2009	0.0059	DNQ	µg/L		0.00059	
EC	56	6/9/2009	942		µmhos/cm		700	
pH	56	6/9/2009	8.78				8.5	6.5
Total Dissolved Solids	56	6/9/2009	600		mg/L		450	
Boron	57	7/14/2009	780		µg/L		700	
DDE(p,p')	57	7/14/2009	0.017		µg/L		0.00059	
Dimethoate	57	7/14/2009	3.1		µg/L		1	
E. Coli	57	7/14/2009	250		MPN/100 mL		235	
EC	57	7/14/2009	1156		µmhos/cm		700	
Total Dissolved Solids	57	7/14/2009	800		mg/L		450	
Arsenic	58	8/11/2009	14		µg/L		10	
Boron	58	8/11/2009	790		µg/L		700	
DDE(p,p')	58	8/11/2009	0.065		µg/L		0.00059	
Dimethoate	58	8/11/2009	1.9		µg/L		1	
E. Coli	58	8/11/2009	460		MPN/100 mL		235	
EC	58	8/11/2009	1288		µmhos/cm		700	
Total Dissolved Solids	58	8/11/2009	940		mg/L		450	

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Westside San Joaquin River Watershed Coalition

Water Quality Value Exceedances for the period of 3/1/2009 to 8/31/2009

Los Banos Creek at China Camp Road

Analyte/Species	Event	Sample Date	Result	Units	Significant Toxicity	WQV Max	WQV Min
EC	53	3/9/2009	3983	µmhos/cm		700	
Flow	53	3/9/2009	0	cfs			0.01
pH	53	3/9/2009	5.41			8.5	6.5
EC	53	3/10/2009	1936	µmhos/cm		700	
Flow	53	3/10/2009	0	cfs			0.01
Total Dissolved Solids	53	3/10/2009	1300	mg/L		450	
DO	54	4/14/2009	4.99	mg/l			5
EC	54	4/14/2009	1987	µmhos/cm		700	
Flow	54	4/14/2009	0	cfs			0.01
Total Dissolved Solids	54	4/14/2009	1200	mg/L		450	
EC	55	5/12/2009	1326	µmhos/cm		700	
Total Dissolved Solids	55	5/12/2009	550	mg/L		450	
EC	56	6/9/2009	858	µmhos/cm		700	
Flow	56	6/9/2009	0	cfs			0.01
Total Dissolved Solids	56	6/9/2009	490	mg/L		450	
DO	57	7/14/2009	4.35	mg/l			5
EC	57	7/14/2009	1338	µmhos/cm		700	
Flow	57	7/14/2009	0	cfs			0.01
Total Dissolved Solids	57	7/14/2009	770	mg/L		450	
Chlorpyrifos	58	8/11/2009	0.041	µg/L		0.015	
DO	58	8/11/2009	4.8	mg/l			5
E. Coli	58	8/11/2009	550	MPN/100 mL		235	
EC	58	8/11/2009	1049	µmhos/cm		700	
Flow	58	8/11/2009	0	cfs			0.01

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Westside San Joaquin River Watershed Coalition

Water Quality Value Exceedances for the period of 3/1/2009 to 8/31/2009

Los Banos Creek at Hwy 140

Analyte/Species	Event	Sample Date	Result	Units	Significant Toxicity	WQV Max	WQV Min
EC	53	3/10/2009	2238	µmhos/cm		700	
pH	53	3/10/2009	9.29			8.5	6.5
Total Dissolved Solids	53	3/10/2009	1500	mg/L		450	
E. Coli	54	4/14/2009	920	MPN/100mL		235	
EC	54	4/14/2009	2312	µmhos/cm		700	
Total Dissolved Solids	54	4/14/2009	1300	mg/L		450	
E. Coli	55	5/12/2009	260	MPN/100mL		235	
EC	55	5/12/2009	1832	µmhos/cm		700	
Total Dissolved Solids	55	5/12/2009	750	mg/L		450	
DO	56	6/9/2009	4.48	mg/l			5
EC	56	6/9/2009	1274	µmhos/cm		700	
pH	56	6/9/2009	6.02			8.5	6.5
Total Dissolved Solids	56	6/9/2009	740	mg/L		450	
DO	57	7/14/2009	4.8	mg/l			5
E. Coli	57	7/14/2009	690	MPN/100 mL		235	
EC	57	7/14/2009	1872	µmhos/cm		700	
Total Dissolved Solids	57	7/14/2009	1100	mg/L		450	
EC	58	8/11/2009	1886	µmhos/cm		700	
Total Dissolved Solids	58	8/11/2009	770	mg/L		450	

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DNQ = Detected, Not Quantifiable

Westside San Joaquin River Watershed Coalition

Water Quality Value Exceedances for the period of 3/1/2009 to 8/31/2009

Marshall Road Drain near River Road

Analyte/Species	Event	Sample Date	Result		Units	Significant Toxicity	WQV Max	WQV Min
Flow	53	3/10/2009	0		cfs			0.01
Boron	54	4/14/2009	790		ug/L		700	
EC	54	4/14/2009	1076		µmhos/cm		700	
Total Dissolved Solids	54	4/14/2009	820		mg/L		450	
DDE(p,p')	55	5/12/2009	0.0094	DNQ	µg/L		0.00059	
EC	55	5/12/2009	800		µmhos/cm		700	
Total Dissolved Solids	55	5/12/2009	570		mg/L		450	
DO	56	6/9/2009	4.5		mg/l			5
EC	56	6/9/2009	1121		µmhos/cm		700	
g-Chlordane	56	6/9/2009	0.0082	DNQ	µg/L		0.00057	
pH	56	6/9/2009	8.87				8.5	6.5
Total Dissolved Solids	56	6/9/2009	690		mg/L		450	
Boron	57	7/14/2009	720		µg/L		700	
DO	57	7/14/2009	4.05		mg/l			5
EC	57	7/14/2009	1248		µmhos/cm		700	
Total Dissolved Solids	57	7/14/2009	760		mg/L		450	
EC	57	7/22/2009	1571		µmhos/cm		700	
Boron	58	8/11/2009	770		µg/L		700	
Ceriodaphnia dubia	58	8/11/2009	5		%	yes		
Chlorpyrifos	58	8/11/2009	0.46		µg/L		0.015	
DDE(p,p')	58	8/11/2009	0.0093	DNQ	µg/L		0.00059	
EC	58	8/11/2009	1349		µmhos/cm		700	
g-Chlordane	58	8/11/2009	0.043		µg/L		0.00057	
Total Dissolved Solids	58	8/11/2009	890		mg/L		450	

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DNQ = Detected, Not Quantifiable

Westside San Joaquin River Watershed Coalition

Water Quality Value Exceedances for the period of 3/1/2009 to 8/31/2009

Mud Slough Upstream of San Luis Drain

Analyte/Species	Event	Sample Date	Result	Units	Significant Toxicity	WQV Max	WQV Min
EC	53	3/10/2009	2148	µmhos/cm		700	
pH	53	3/10/2009	9.76			8.5	6.5
Total Dissolved Solids	53	3/10/2009	1400	mg/L		450	
EC	54	4/14/2009	2357	µmhos/cm		700	
Total Dissolved Solids	54	4/14/2009	1500	mg/L		450	
Total Dissolved Solids	55	5/12/2009	1400	mg/L		450	
DO	56	6/9/2009	3.11	mg/l			5
E. Coli	56	6/9/2009	460	MPN/100 mL		235	
EC	56	6/9/2009	3051	µmhos/cm		700	
pH	56	6/9/2009	6.19			8.5	6.5
Total Dissolved Solids	56	6/9/2009	1900	mg/L		450	
EC	56	6/25/2009	2022	µmhos/cm		700	
EC	57	7/14/2009	1727	µmhos/cm		700	
Total Dissolved Solids	57	7/14/2009	1000	mg/L		450	
EC	58	8/11/2009	1700	µmhos/cm		700	
pH	58	8/11/2009	11.11			8.5	6.5
Total Dissolved Solids	58	8/11/2009	700	mg/L		450	

Westside San Joaquin River Watershed Coalition

Water Quality Value Exceedances for the period of 3/1/2009 to 8/31/2009

Newman Wasteway near Hills Ferry Road

Analyte/Species	Event	Sample Date	Result		Units	Significant Toxicity	WQV Max	WQV Min
EC	53	3/9/2009	4280		µmhos/cm		700	
Flow	53	3/9/2009	0		cfs			0.01
pH	53	3/9/2009	5.64				8.5	6.5
Boron	53	3/10/2009	1300		ug/L		700	
DDE(p,p')	53	3/10/2009	0.007	DNQ	µg/L		0.00059	
EC	53	3/10/2009	3118		µmhos/cm		700	
Flow	53	3/10/2009	0		cfs			0.01
Total Dissolved Solids	53	3/10/2009	1400		mg/L		450	
Boron	54	4/14/2009	1100		ug/L		700	
DO	54	4/14/2009	0.42		mg/l			5
E. Coli	54	4/14/2009	440		MPN/100mL		235	
EC	54	4/14/2009	1067		µmhos/cm		700	
Flow	54	4/14/2009	0		cfs			0.01
Total Dissolved Solids	54	4/14/2009	1100		mg/L		450	
DDE(p,p')	55	5/12/2009	0.01		µg/L		0.00059	
E. Coli	55	5/12/2009	690		MPN/100mL		235	
EC	55	5/12/2009	1543		µmhos/cm		700	
pH	55	5/12/2009	6.17				8.5	6.5
Total Dissolved Solids	55	5/12/2009	630		mg/L		450	
Boron	56	6/9/2009	780		µg/L		700	
DDE(p,p')	56	6/9/2009	0.0081	DNQ	µg/L		0.00059	
E. Coli	56	6/9/2009	550		MPN/100 mL		235	
EC	56	6/9/2009	1260		µmhos/cm		700	
Flow	56	6/9/2009	0		cfs			0.01
Total Dissolved Solids	56	6/9/2009	750		mg/L		450	
Ceriodaphnia dubia	56	6/25/2009	65		%	yes		
EC	56	6/25/2009	1575		µmhos/cm		700	
E. Coli	57	7/14/2009	730		MPN/100 mL		235	
EC	57	7/14/2009	1180		µmhos/cm		700	
Flow	57	7/14/2009	0		cfs			0.01
Total Dissolved Solids	57	7/14/2009	680		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 3/1/2009 to 8/31/2009

Orestimba Creek at Hwy 33

Analyte/Species	Event	Sample Date	Result		Units	Significant Toxicity	WQV Max	WQV Min
Hyalella azteca	53	3/9/2009	88.75		% survival	Yes		
pH	53	3/10/2009	8.56				8.5	6.5
EC	54	4/14/2009	1105		µmhos/cm		700	
DDE(p,p')	55	5/12/2009	0.013		µg/L		0.00059	
EC	55	5/12/2009	1081		µmhos/cm		700	
DDE(p,p')	56	6/9/2009	0.0089	DNQ	µg/L		0.00059	
EC	56	6/9/2009	869		µmhos/cm		700	
g-Chlordane	56	6/9/2009	0.007	DNQ	µg/L		0.00057	
DDE(p,p')	57	7/14/2009	0.012		µg/L		0.00059	
DO	57	7/14/2009	4.82		mg/l			5
EC	57	7/14/2009	1237		µmhos/cm		700	
Selenium	57	7/14/2009	9.1		µg/L		5	
DDE(p,p')	58	8/11/2009	0.014		µg/L		0.00059	
DO	58	8/11/2009	4.98		mg/l			5
EC	58	8/11/2009	1010		µmhos/cm		700	
Selenium	58	8/11/2009	7.6		µg/L		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 3/1/2009 to 8/31/2009

Orestimba Creek at River Road

Analyte/Species	Event	Sample Date	Result		Units	Significant Toxicity	WQV Max	WQV Min
Hyalella azteca	53	3/9/2009	91.25		% survival	Yes		
DDE(p,p')	55	5/12/2009	0.0089	DNQ	µg/L		0.00059	
E. Coli	55	5/12/2009	650		MPN/100mL		235	
EC	55	5/12/2009	906		µmhos/cm		700	
Total Dissolved Solids	55	5/12/2009	660		mg/L		450	
DDE(p,p')	56	6/9/2009	0.0098	DNQ	µg/L		0.00059	
E. Coli	56	6/9/2009	440		MPN/100 mL		235	
EC	56	6/9/2009	906		µmhos/cm		700	
Total Dissolved Solids	56	6/9/2009	620		mg/L		450	
Ceriodaphnia dubia	57	7/14/2009	0		%	yes		
Chlorpyrifos	57	7/14/2009	1.6		µg/L		0.015	
DDE(p,p')	57	7/14/2009	0.009	DNQ	µg/L		0.00059	
E. Coli	57	7/14/2009	1200		MPN/100 mL		235	
EC	57	7/14/2009	940		µmhos/cm		700	
Total Dissolved Solids	57	7/14/2009	680		mg/L		450	
Ceriodaphnia dubia	58	8/11/2009	35		%	yes		
Chlorpyrifos	58	8/11/2009	0.078		µg/L		0.015	
DDE(p,p')	58	8/11/2009	0.011		µg/L		0.00059	
DO	58	8/11/2009	4.2		mg/l			5
E. Coli	58	8/11/2009	580		MPN/100 mL		235	
EC	58	8/11/2009	900		µmhos/cm		700	
Total Dissolved Solids	58	8/11/2009	690		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 3/1/2009 to 8/31/2009

Poso Slough at Indiana Ave

Analyte/Species	Event	Sample Date	Result		Units	Significant Toxicity	WQV Max	WQV Min
EC	53	3/10/2009	891		µmhos/cm		700	
Total Dissolved Solids	53	3/10/2009	580		mg/L		450	
Ammonia (as N)	54	4/14/2009	2		mg/L		1.5	
E. Coli	54	4/14/2009	260		MPN/100mL		235	
EC	54	4/14/2009	1223		µmhos/cm		700	
pH	54	4/14/2009	6.05				8.5	6.5
Total Dissolved Solids	54	4/14/2009	700		mg/L		450	
Ammonia (as N)	55	5/12/2009	1.7		mg/L		1.5	
E. Coli	55	5/12/2009	2400	>	MPN/100mL		235	
EC	55	5/12/2009	1775		µmhos/cm		700	
Total Dissolved Solids	55	5/12/2009	700		mg/L		450	
DO	56	6/9/2009	1.02		mg/l			5
EC	56	6/9/2009	954		µmhos/cm		700	
pH	56	6/9/2009	5.73				8.5	6.5
Total Dissolved Solids	56	6/9/2009	480		mg/L		450	
E. Coli	57	7/14/2009	290		MPN/100 mL		235	
DO	58	8/11/2009	2.82		mg/l			5
E. Coli	58	8/11/2009	1600		MPN/100 mL		235	
EC	58	8/11/2009	1180		µmhos/cm		700	
pH	58	8/11/2009	10.92				8.5	6.5
Total Dissolved Solids	58	8/11/2009	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 3/1/2009 to 8/31/2009

Ramona Lake near Fig Avenue

Analyte/Species	Event	Sample Date	Result	Units	Significant Toxicity	WQV Max	WQV Min
Flow	53	3/9/2009	0	cfs			0.01
Boron	54	4/14/2009	1200	ug/L		700	
EC	54	4/14/2009	1495	µmhos/cm		700	
Total Dissolved Solids	54	4/14/2009	1200	mg/L		450	
Boron	55	5/12/2009	1000	ug/L		700	
Diuron	55	5/12/2009	3.6	µg/L		2	
EC	55	5/12/2009	1489	µmhos/cm		700	
Total Dissolved Solids	55	5/12/2009	510	mg/L		450	
Boron	56	6/9/2009	1000	µg/L		700	
DO	56	6/9/2009	4.09	mg/l			5
EC	56	6/9/2009	1067	µmhos/cm		700	
pH	56	6/9/2009	8.77			8.5	6.5
Total Dissolved Solids	56	6/9/2009	1000	mg/L		450	
Boron	57	7/14/2009	1100	µg/L		700	
DO	57	7/14/2009	4.54	mg/l			5
EC	57	7/14/2009	1795	µmhos/cm		700	
Total Dissolved Solids	57	7/14/2009	1200	mg/L		450	
Boron	58	8/11/2009	930	µg/L		700	
DO	58	8/11/2009	4.11	mg/l			5
E. Coli	58	8/11/2009	310	MPN/100 mL		235	
EC	58	8/11/2009	1558	µmhos/cm		700	
pH	58	8/11/2009	8.58			8.5	6.5
Total Dissolved Solids	58	8/11/2009	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 3/1/2009 to 8/31/2009

Salt Slough at Lander Ave

Analyte/Species	Event	Sample Date	Result		Units	Significant Toxicity	WQV Max	WQV Min
EC	53	3/10/2009	1760		µmhos/cm		700	
Total Dissolved Solids	53	3/10/2009	1100		mg/L		450	
EC	54	4/14/2009	1405		µmhos/cm		700	
Total Dissolved Solids	54	4/14/2009	800		mg/L		450	
Chlorpyrifos	55	5/12/2009	0.019		µg/L		0.015	
DO	55	5/12/2009	4.33		mg/l			5
EC	55	5/12/2009	1739		µmhos/cm		700	
g-Chlordane	55	5/12/2009	0.0069	DNQ	µg/L		0.00057	
Total Dissolved Solids	55	5/12/2009	1000		mg/L		450	
EC	56	6/9/2009	1283		µmhos/cm		700	
pH	56	6/9/2009	6.06				8.5	6.5
Total Dissolved Solids	56	6/9/2009	740		mg/L		450	
EC	56	6/25/2009	1371		µmhos/cm		700	
Chlorpyrifos	57	7/14/2009	0.058		µg/L		0.015	
DO	57	7/14/2009	3.7		mg/l			5
EC	57	7/14/2009	998		µmhos/cm		700	
Total Dissolved Solids	57	7/14/2009	560		mg/L		450	
Chlorpyrifos	58	8/11/2009	0.089		µg/L		0.015	
DO	58	8/11/2009	4.07		mg/l			5
EC	58	8/11/2009	1356		µmhos/cm		700	
pH	58	8/11/2009	11.27				8.5	6.5
Total Dissolved Solids	58	8/11/2009	550		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 3/1/2009 to 8/31/2009

Salt Slough at Sand Dam

Analyte/Species	Event	Sample Date	Result	Units	Significant Toxicity	WQV Max	WQV Min
Diuron	53	3/10/2009	4.6	µg/L		2	
EC	53	3/10/2009	1033	µmhos/cm		700	
Flow	53	3/10/2009	0	cfs			0.01
pH	53	3/10/2009	9.96			8.5	6.5
Diuron	54	4/14/2009	2.2	µg/L		2	
EC	54	4/14/2009	905	µmhos/cm		700	
pH	54	4/14/2009	6.29			8.5	6.5
EC	55	5/12/2009	1891	µmhos/cm		700	
DO	56	6/9/2009	1.86	mg/l			5
EC	56	6/9/2009	854	µmhos/cm		700	
pH	56	6/9/2009	5.28			8.5	6.5
Chlorpyrifos	57	7/14/2009	0.048	µg/L		0.015	
DO	57	7/14/2009	4.64	mg/l			5
EC	57	7/14/2009	726	µmhos/cm		700	
Chlorpyrifos	58	8/11/2009	0.20	µg/L		0.015	
DO	58	8/11/2009	2.82	mg/l			5
EC	58	8/11/2009	1165	µmhos/cm		700	

San Joaquin River at Lander Ave

Analyte/Species	Event	Sample Date	Result	Units	Significant Toxicity	WQV Max	WQV Min
pH	53	3/10/2009	9.53			8.5	6.5
EC	54	4/14/2009	1793	µmhos/cm		700	
Total Dissolved Solids	54	4/14/2009	950	mg/L		450	
E. Coli	55	5/12/2009	580	MPN/100mL		235	
EC	55	5/12/2009	2184	µmhos/cm		700	
Total Dissolved Solids	55	5/12/2009	820	mg/L		450	
EC	56	6/25/2009	1792	µmhos/cm		700	
DO	57	7/14/2009	4.87	mg/l			5
EC	57	7/14/2009	1765	µmhos/cm		700	
Total Dissolved Solids	57	7/14/2009	950	mg/L		450	
DO	58	8/11/2009	4.47	mg/l			5
EC	58	8/11/2009	2453	µmhos/cm		700	
pH	58	8/11/2009	11.28			8.5	6.5
Total Dissolved Solids	58	8/11/2009	930	mg/L		450	

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DNQ = Detected, Not Quantifiable

Westside San Joaquin River Watershed Coalition

Water Quality Value Exceedances for the period of 3/1/2009 to 8/31/2009

San Joaquin River at PID Pumps

Analyte/Species	Event	Sample Date	Result	Units	Significant Toxicity	WQV Max	WQV Min
Boron	53	3/10/2009	880	ug/L		700	
EC	53	3/10/2009	905	µmhos/cm		700	
Total Dissolved Solids	53	3/10/2009	740	mg/L		450	
Boron	54	4/14/2009	830	ug/L		700	
EC	54	4/14/2009	1147	µmhos/cm		700	
Total Dissolved Solids	54	4/14/2009	850	mg/L		450	
DO	56	6/9/2009	4.28	mg/l			5
EC	56	6/9/2009	1206	µmhos/cm		700	
pH	56	6/9/2009	9.3			8.5	6.5
Total Dissolved Solids	56	6/9/2009	760	mg/L		450	
Chlorpyrifos	57	7/14/2009	0.033	µg/L		0.015	
EC	57	7/14/2009	1204	µmhos/cm		700	
Total Dissolved Solids	57	7/14/2009	760	mg/L		450	
Boron	58	8/11/2009	740	µg/L		700	
EC	58	8/11/2009	1307	µmhos/cm		700	
Total Dissolved Solids	58	8/11/2009	850	mg/L		450	

San Joaquin River at Sack Dam

Analyte/Species	Event	Sample Date	Result	Units	Significant Toxicity	WQV Max	WQV Min
Flow	53	3/10/2009	0	cfs			0.01
pH	53	3/10/2009	10.03			8.5	6.5
Flow	54	4/14/2009	0	cfs			0.01
pH	54	4/14/2009	5.87			8.5	6.5
EC	55	5/12/2009	849	µmhos/cm		700	
DO	56	6/9/2009	1.43	mg/l			5
Flow	56	6/9/2009	0	cfs			0.01
pH	56	6/9/2009	5.97			8.5	6.5
Flow	57	7/14/2009	0	cfs			0.01
DO	58	8/11/2009	4.09	mg/l			5
Flow	58	8/11/2009	0	cfs			0.01
pH	58	8/11/2009	10.94			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 3/1/2009 to 8/31/2009

Turner Slough at Edminster Road

Analyte/Species	Event	Sample Date	Result	Units	Significant Toxicity	WQV Max	WQV Min
DO	53	3/10/2009	3.26	mg/l			5
EC	53	3/10/2009	2457	µmhos/cm		700	
Flow	53	3/10/2009	0	cfs			0.01
pH	53	3/10/2009	5.14			8.5	6.5
Total Dissolved Solids	53	3/10/2009	1500	mg/L		450	
DO	54	4/14/2009	3.59	mg/l			5
E. Coli	54	4/14/2009	650	MPN/100mL		235	
EC	54	4/14/2009	2529	µmhos/cm		700	
Flow	54	4/14/2009	0	cfs			0.01
Total Dissolved Solids	54	4/14/2009	1400	mg/L		450	
EC	55	5/12/2009	3139	µmhos/cm		700	
Flow	55	5/12/2009	0	cfs			0.01
Total Dissolved Solids	55	5/12/2009	1300	mg/L		450	
DO	57	7/14/2009	2.14	mg/l			5
EC	57	7/14/2009	2313	µmhos/cm		700	
Flow	57	7/14/2009	0	cfs			0.01
Total Dissolved Solids	57	7/14/2009	1300	mg/L		450	
DO	58	8/11/2009	2.14	mg/l			5
E. Coli	58	8/11/2009	390	MPN/100 mL		235	
EC	58	8/11/2009	3092	µmhos/cm		700	
Flow	58	8/11/2009	0	cfs			0.01
Total Dissolved Solids	58	8/11/2009	1200	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 3/1/2009 to 8/31/2009

Westley Wasteway near Cox Road

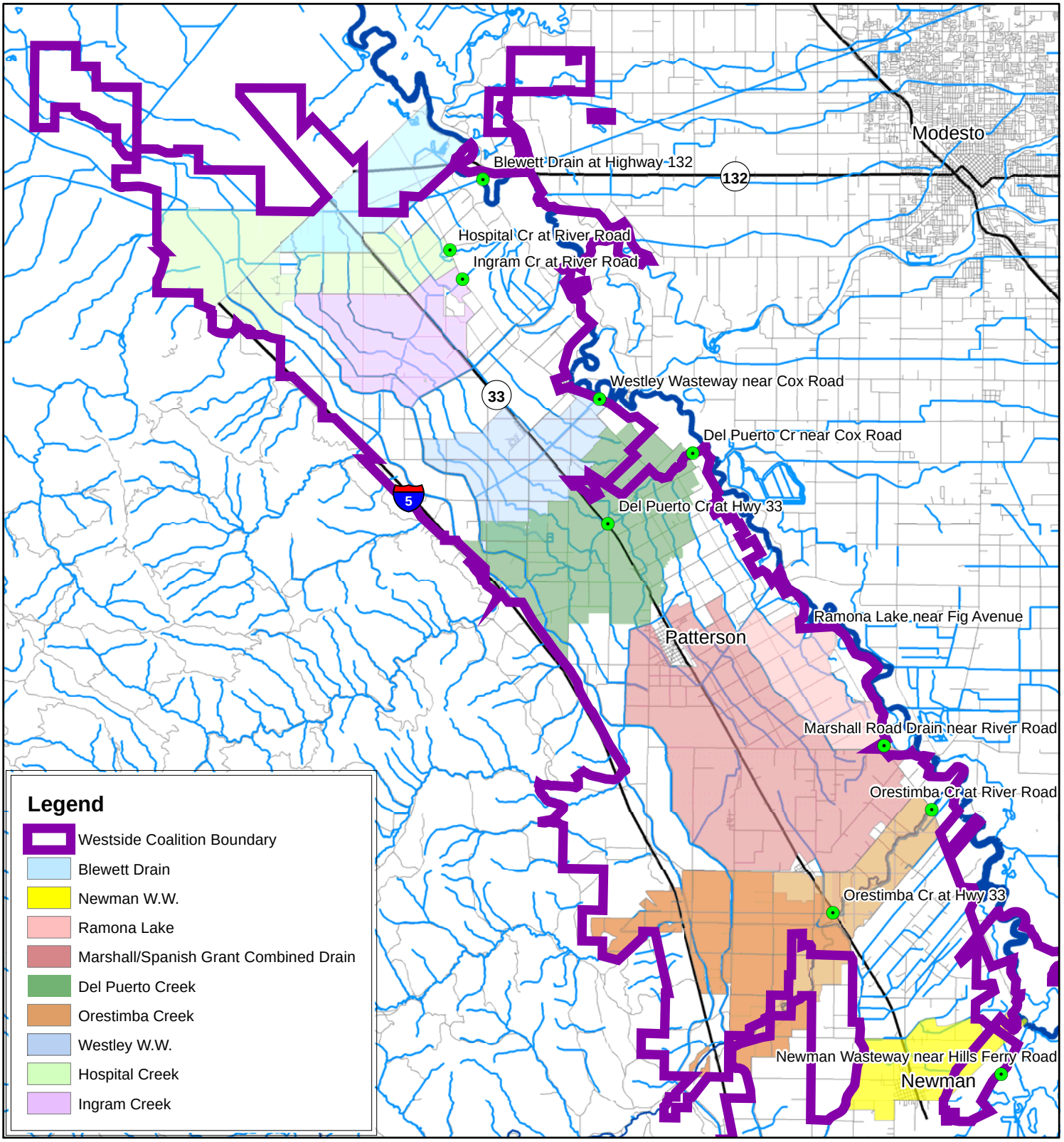
Analyte/Species	Event	Sample Date	Result		Units	Significant Toxicity	WQV Max	WQV Min
Hyalella azteca	53	3/9/2009	82.5		% survival	Yes		
Flow	53	3/10/2009	0		cfs			0.01
EC	54	4/14/2009	720		µmhos/cm		700	
Total Dissolved Solids	54	4/14/2009	610		mg/L		450	
DDE(p,p')	55	5/12/2009	0.014		µg/L		0.00059	
DDE(p,p')	56	6/9/2009	0.0053	DNQ	µg/L		0.00059	
EC	56	6/9/2009	973		µmhos/cm		700	
pH	56	6/9/2009	8.71				8.5	6.5
Total Dissolved Solids	56	6/9/2009	680		mg/L		450	
Boron	57	7/14/2009	740		µg/L		700	
DDE(p,p')	57	7/14/2009	0.01		µg/L		0.00059	
EC	57	7/14/2009	1257		µmhos/cm		700	
Total Dissolved Solids	57	7/14/2009	870		mg/L		450	
DDE(p,p')	58	8/11/2009	0.0083	DNQ	µg/L		0.00059	
EC	58	8/11/2009	1155		µmhos/cm		700	
Total Dissolved Solids	58	8/11/2009	820		mg/L		450	

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

DNQ = Detected, Not Quantifiable

Attachment 6
Management Plan Activities

Subwatershed Maps



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Westside San Joaquin River Watershed Coalition

Sub-watersheds and Monitoring Sites within the Patterson Subarea

Subwatershed area provided by NRCS
Basemap provided by DWR

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

Westside San Joaquin River Watershed Coalition

Blewett Drain at Highway 132

Hospital Cr at River Road

Ingram Cr at River Road

132

33

5

Legend

- Blewitt
- Hospital
- Ingram
- Morris Drain
- Outside Boundary
- White Lake

Prepared by:
Summers Engineering, Inc
Consulting Engineers
Hanford California

Hospital and Ingram Creek Watershed Map
Showing Adjacent Sub-watersheds

Hospital Creek and Ingram Creek Subwatersheds Summary of Management Practice Inventory Survey

10/5/2009

Westside San Joaquin River Watershed Coalition
Survey Summary - Ingram and Hospital Creek

		Ingram Crk		Hospital Crk	
		Acres	% 1/	Acres	% 1/
1	Watershed Area (APN)	5779		11043	
2	Non-Farmed	-252		-390	
3	Non-Member	0		-3149	
4	Subtotal	5526		7504	
5	Survey Area	5526	100%	7142	95%
6	Total Surveys Required	55	0%	91	0%
7	Surveys Collected *	55	100%	91	100%
8	Irrigated	5526	100%	5193	69%
9	Furrow/flood	4599	83%	1678	22%
10	Drip/micro-spray	926.8	17%	3515	47%
11	Other	0	0%	0	0%
12	Fallow/Non-irrigated	3	0%	1949	26%
13	Tree Crops	875.8	16%	3621	48%
14	Field Crops	4665	84%	1583	21%
15	Sedimentation Ponds	935.3	17%	1085	14%
16	Tailwater Return System	828	15%	205	3%
17	Use of PAM	4375	79%	488	7%
18	Tailwater Leaves property	4393	79%	1473	20%
19	Stormwater leaves property	5204	94%	4118	55%
20	Dormant Spray Usage	22	0%	926	12%
21	Horticultural Oil Usage	0	0%	390	5%
22	Manure Usage	1147	21%	276	4%
23	Berm Spray	871.8	16%	3198	43%

Preliminary Review of Dissolved Oxygen exceedances and related data

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

MEMORANDUM

TO: The Files of the Westside Coalition

FROM: Chris Linneman

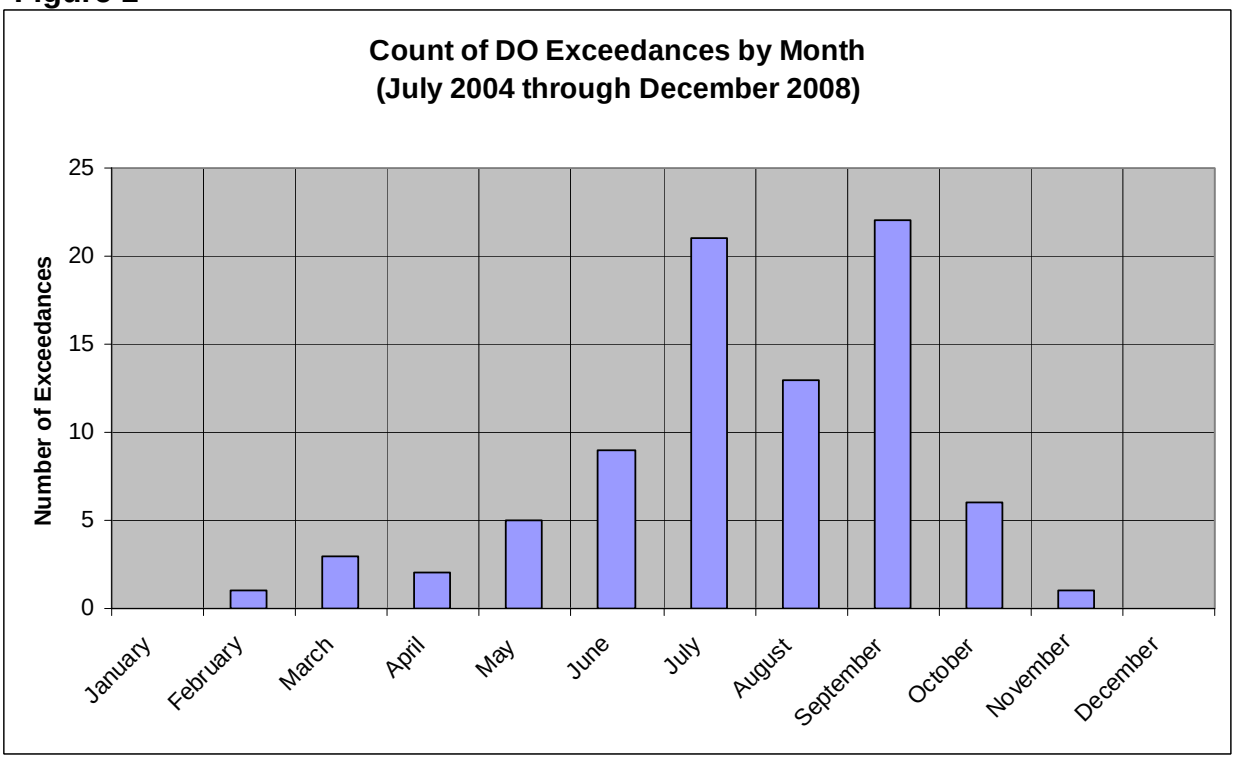
DATE: February 2, 2009

SUBJECT: Preliminary Review of Dissolved Oxygen exceedances and related data

Since the implementation of the Westside Coalition monitoring program in July 2004, 83 dissolved oxygen (DO) measurements have been below the water quality value establish by the Regional Water Quality Control Board. For the purpose of discussion in this memo, a DO measurement result below 5 mg/L is defined as an exceedance. Source water sites were excluded from this review.

Temporal Review. DO results were reviewed for all sites collectively to determine whether or not a pattern of exceedances existed. Figure 1 shows the count of DO exceedances by month for all DO measurements from July 2004 through December 2008.

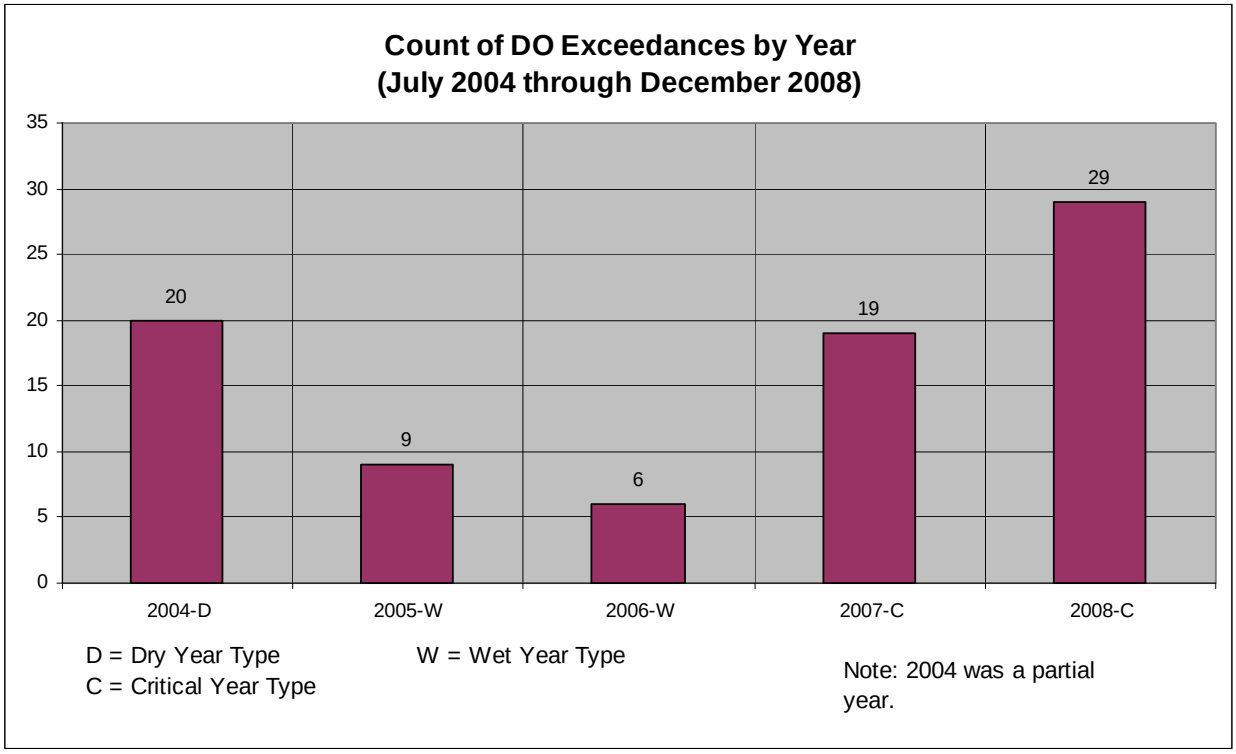
Figure 1



Seventy-eight percent of exceedances occur between June and September, with largest number of exceedances occurring in September and July. Data presented in Figure 1 indicates that the majority of DO exceedances occur while there is agricultural activity within the Westside Coalition. However the absence of DO exceedances in the non-irrigation season months could be related to the absence of flow as well.

Figure 2 shows the count of DO exceedances by year.

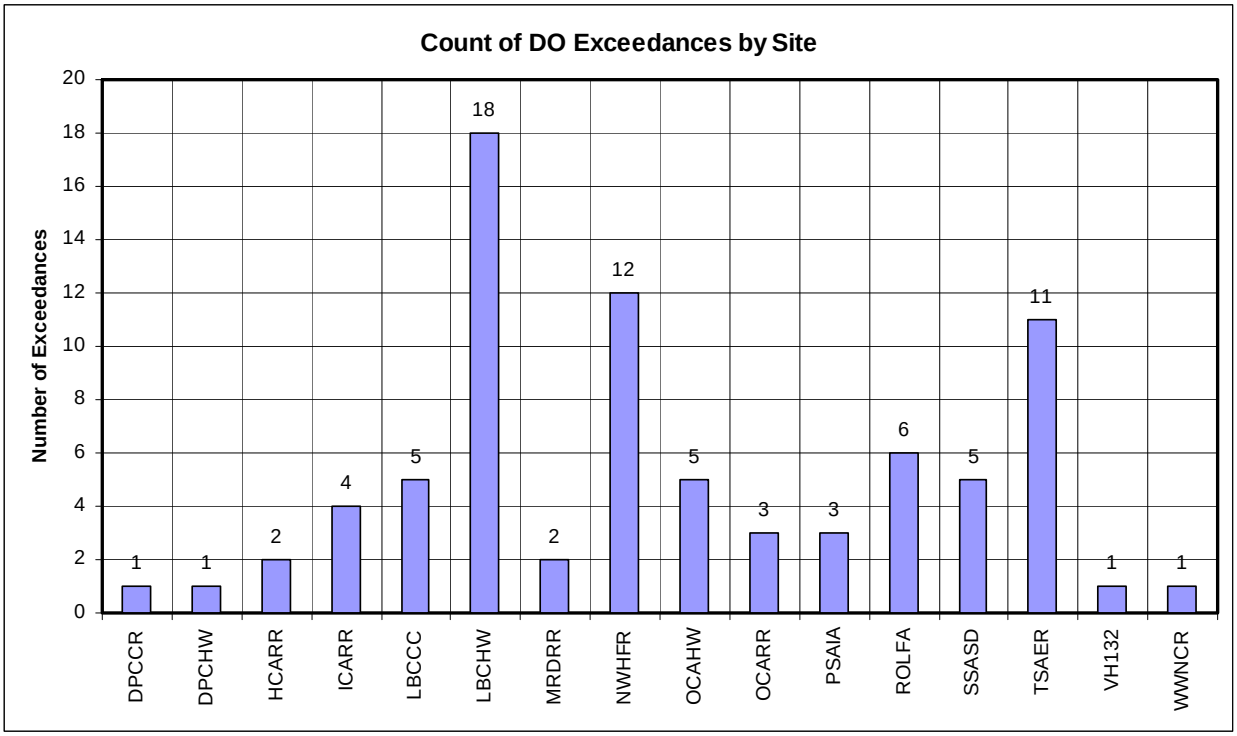
Figure 2



2005 and 2006 were classified as wet water year types, 2007 and 2008 were critical year types, and 2004 was dry. Fifty-eight percent of DO exceedances occurred in critical year types, with 82% of the exceedances occurring in dry and critical year types. This data seems to imply that there is a correlation between water year type and DO exceedances. This may be due to an increase in sequential reuse of tailwater during dry and critical years compared to wet years, or perhaps overall low flow/low velocity in the drains and creeks preventing re-oxygenation of the water column.

Geographic Review. Figure 3 shows the count of DO exceedances since the beginning of the monitoring program for each site.

Figure 3



The three sites with the highest number of DO exceedances (Los Banos Creek at Highway 33, Newman Wasteway, and Turner Slough) are located in the middle portion of the Westside Coalition (between Los Banos and Patterson). The four sites with the highest number of DO exceedances are either flat, slow moving channels (Los Banos Creek, and Newman Wasteway) or drain waterbodies that are impounded (Ramona Lake and Turner Slough). The slow water velocities and/or lack of turbulence may inhibit re-oxygenation of the water column.

Surveillance Level Monitoring Program Summary

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

MEMORANDUM

TO: The Files of the Westside Coalition

FROM: Chris Linneman

DATE: November 6, 2009

SUBJECT: 2009 Irrigation Season Surveillance Level Monitoring Program

As part of the Westside San Joaquin River Watershed Coalition's (Westside Coalition) Focused Watershed Plan on Ingram and Hospital Creeks, the Westside Coalition implemented a surveillance level monitoring program (SLM Program) for a number of locations within those subwatersheds. The purpose of the SLM program is to provide qualitative data related to flow and turbidity and general farming practices within the subwatersheds.

The sites monitored through SLM Program during the 2009 irrigation season are:

- Hospital Creek at Highway 33 (HCAHW)
- Hospital Creek at River Road (HCARR)
- Ingram Creek at Highway 33 (ICAHW)
- Ingram Creek at River Road (ICARR)
- Tailwater Pond Inlet (at Ingram Creek and Highway 33)
- Tailwater Pond at Outlet

For both Ingram and Hospital creeks, the site at highway 33 reflects the upslope/upstream water quality, and the River Road site reflects the downslope/ downstream water quality. The purpose of monitoring these two locations on each creek was to attempt to identify differences between the upper and middle portions of the subwatersheds. Differences in farming practices and cropping patterns could influence water quality within the subwatershed.

The tailwater pond monitored through the SLM program is located adjacent to (and southerly of) Ingram Creek on the West side of Highway 33. This is a large tailwater collection and recirculation pond that collects drainage from approximately 550 acres of farmland. The SLM program monitored both the inlet and outlet of the pond to estimate its effectiveness.

SLM Program Results.

Figures 1 and **2** compare turbidity readings for the Highway 33 and River Road sites on Ingram and Hospital Creeks (respectively). The figures show data through the 2009 irrigation season. Where no turbidity reading is shown, no flow was present at the site.

In the case of Ingram Creek, the Highway 33 site was frequently dry (15 out of 27 visits), compared to the River Road site where water was almost always present. Where data for both sites was present, turbidity at ICARR was usually less than at ICAHW. Flow was common in both of the Hospital Creek sites, and turbidity was almost universally higher at HCARR than at HCAHW. For both creeks, this implies that there is more agricultural activity downslope of Highway 33, which is expected. The tailwater pond at Ingram Creek and Highway 33 serves a significant acreage upslope of the ICAHW site and likely contributed to the frequent absence of flow at that site.

Figure 3 compares turbidity measurements for the tailwater pond inlet and outlet. In cases where the inlet turbidity was high (>50 NTU), the outlet turbidity was measurably lower, implying that the tailwater pond was settling out suspended silt as designed. However, part-way through the irrigation season, the grower farming some the property that drains into the pond began using PAM/CA as a management practice. PAM/CA is a polymer that can be added to irrigation or drain water to flocculate suspended solids, causing them to drop out of the water column and reducing both the drainage TSS and turbidity. The impact of this management practice is evident in **Figure 3**, where both the inlet and outlet turbidity drop significantly (<40 NTU for both). The exact timing of the PAM/CA application is not yet available.

Figure 1
Ingram Creek Turbidity

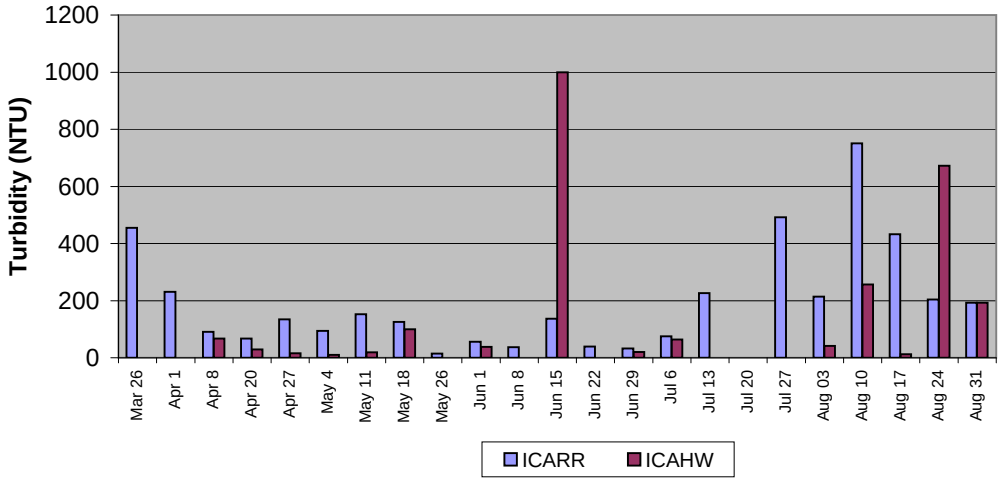


Figure 2
Hospital Creek Turbidity

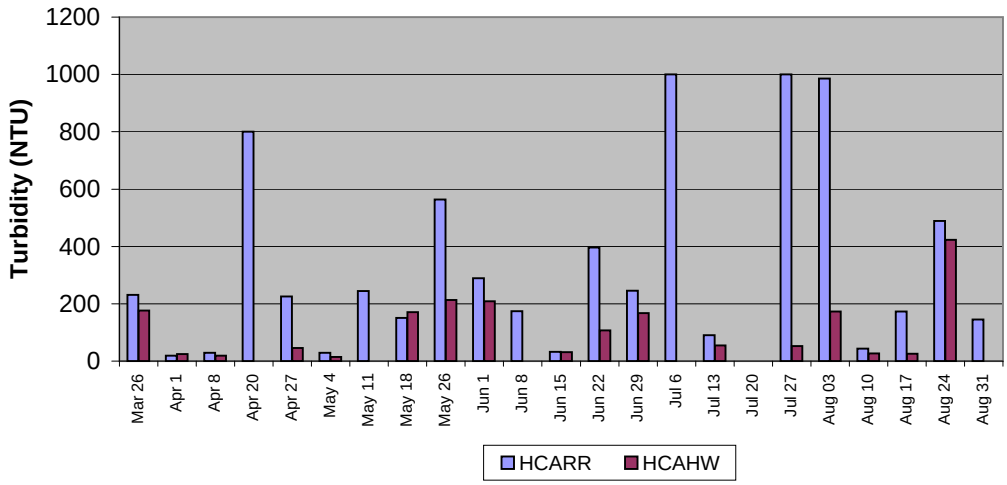
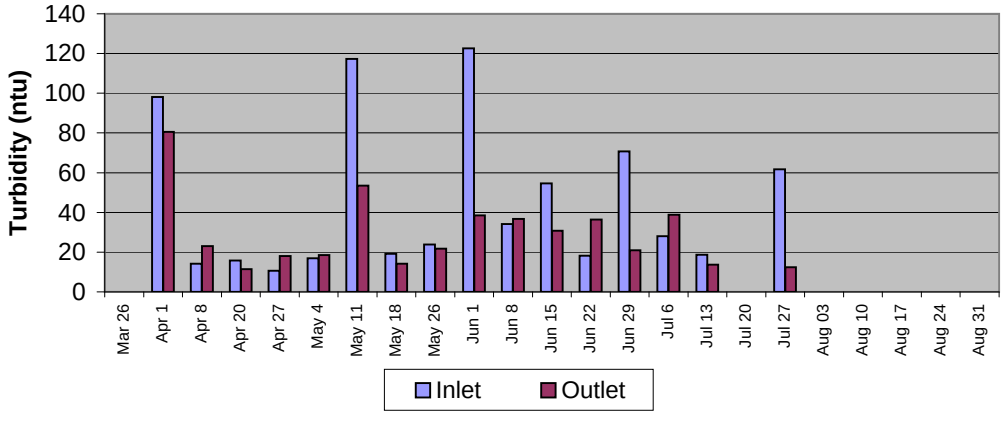


Figure 3
Tailwater Pond



Outreach Handouts

Coalition for Urban/Rural Environmental Stewardship
www.curesworks.org

This information forwarded by:

East San Joaquin Water Quality Coalition
1201 L Street Modesto, CA 95354
Phone (209) 522-7278 Fax: (209) 521-9938

August 6, 2009

Attention Landowners & Growers on:

- **Dry Creek** (Stanislaus County)
- **Mariposa Creek/Duck Slough** (Merced County)
- **Prairie Flower Drain** (Stanislaus County)
- **Ingram Creek/Hospital Creek** (Stanislaus County)

USDA recently approved $2 million annually in grants over the next 5 years for projects intended to improve water quality of waterways in Stanislaus and Merced counties. Owning or operating a farm that impacts a waterway listed above results in a "high priority" application. CURES was able to secure this funding by working in conjunction with the Partnership for Agriculture and the Environment, a coalition of local interests including East San Joaquin Water Quality Coalition, Stanislaus and Merced County Farm Bureaus, Almond Board of California, Western United Dairymen and others (see www.curesworks.org/bmp/20090722Press.asp for a complete listing). CURES' application was accepted by USDA in a nationally competitive process.

Where does the money come from? The Agricultural Water Enhancement Program (AWEP) was part of the 2008 Farm Bill. Think of AWEP as an expanded Environmental Quality Incentive Program (EQIP). Funds are dispersed through the Natural Resource Conservation Service (NRCS) offices in Merced and Stanislaus Counties. CURES will assist with grower outreach on the AWEP funding availability.

What types of projects can be funded? High priority projects include irrigation drainage sediment basins and irrigation tailwater recirculation systems as well as other water quality related practices installed on fields currently draining into the waterways listed above. Larger community (multi-farm/group project) systems can also be funded.

What are the requirements for receiving funds? A payment will be made to successful applicants after completion of approved practices. The payment rate is approximately 50% of the statewide average cost for an installation. Please contact NRCS for actual rates. Other 2008 Farm Bill rules apply.

When can growers begin applying? Immediately! Applications will be accepted on an ongoing basis over the next 4 years. Those received by August 14 will be considered for funding during the first round. Application cutoff dates for subsequent rounds will be announced later.

If you have questions about the application process or have a project in mind, contact me at the number below or your local NRCS office in Merced or Modesto.

Parry Klassen
Executive Director
559-288-8125

NRCS Merced Service Center
2135 Wardrobe Avenue, Suite C
Merced, CA 95341
209-722-4119 x 3

NRCS Modesto Service Center
3800 Cornucopia Way, Suite E
Modesto, CA 95358
209-491-9320 x 3

Orestimba Creek Exceedance Notice*

Westside San Joaquin River Watershed Coalition

Watershed: Orestimba Creek
Sampling Location: River Road
Sample Date: July 14, 2009

**Exceedance of state water quality standard for:*

Chlorpyrifos (Lorsban, Lock-On, NuPhos, Govern)

Associated toxicity? Yes, c. dubia (water flea)

Chlorpyrifos is labeled for the following crops grown in the watershed:

- walnuts
- almonds
- alfalfa

The chlorpyrifos levels found at the sample site were extremely high causing toxicity to water flea, a test organism exposed to the sample water in the laboratory. Likely sources of the exceedance:

- irrigation drainage from treated crops and/or
- spray drift into waterway during application.

This site has a history of repeated exceedances of chlorpyrifos, resulting in the waterway being assigned a Management Plan requirement under the Irrigated Lands Regulatory Program. A management plan requires that coalition members who use the product in the future make adjustments to practices to eliminate exceedances.

Past exceedances of chlorpyrifos on Orestimba Creek @ River Road

	0.015 mg/l State standard
May 13, '08	1.8
July 8, '08	0.42
August 12, '08	0.34

For information about this exceedance or Best Management Practices to use on your farm, please contact Joe McGahan, Watershed Coordinator, Westside San Joaquin River Watershed Coalition, 559-582-9237 or Parry Klassen with CURES at 559-288-8125

SAN JOAQUIN VALLEY
DRAINAGE AUTHORITY

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

MEMORANDUM

TO: ***Aerial Applicators, PCA's, Operators, Owners & Interested Parties***

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

DATE: May 1, 2009

SUBJECT: Ingram/Hospital Potential Aerial Overspray Maps

The Westside San Joaquin River Watershed Coalition has developed a management plan to address exceedances off certain constituents in waterways. Our first priority is the Ingram and Hospital Creek watersheds. Exceedances in these watersheds were measured for chlorpyrifos, dimethoate, methyl parathion and diazinon in 2008. Part of our management plan is to address potential overspray into sensitive waterways and to communicate those areas to potential applicators and other parties. Potential aerial overspray and sensitive areas of the Ingram and Hospital Creek areas have been identified on the attached map. The sensitive areas are listed as "Hospital Creek", "Ingram Creek" and "Canals, Creeks, Rivers".

Please be mindful of these areas when applying chemicals and avoid these areas in accordance with the pesticide label requirements, especially in areas where overspray may directly enter any drainage way, creek or other waterway.

If you should have any questions, please feel free to contact me directly at (559) 582 – 9237 or via email at: jmcgahan@summerseng.com.

Enclosure (1)

Westside San Joaquin River Watershed Coalition

Hospital and Ingram Creek Watersheds

April 2009

Hwy. 132

Kester Rd.

Blewett Rd.

Spencer Rd.

Welty Rd.

McCraken Rd.

Orchard Rd.

Center Rd.

Hospital Cr at River Road

Ingram Cr at River Road

River Road

Gaffery Rd.

4N

5N

6N

Highway 33

Delta-Mendota Canal

Calif. Aqueduct

WSID Main Lift

Hamilton Rd.

Interstate 5

Grayson

Grayson Rd.

Frank Cox Rd.

Westley

Howard Rd.

Westley Waste

N

0 0.25 0.5 1

Miles

Legend

- Hospital Creek
- Ingram Creek
- Canals, Creeks, Rivers
- Hospital Cr. Watershed
- Ingram Cr. Watershed
- APN Boundary

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

March 2009

Westside San Joaquin River Watershed Coalition

A Coalition of Westside water districts and the San Joaquin Valley Drainage Authority providing Irrigated Lands Regulatory Program coverage for farmers and landowners

UPDATE

Grants Could Bring Millions to Region for BMP Installations

Two potential and one definite source of funding to assist in installing farm practices to protect surface water are available to Westside San Joaquin Valley growers. The Westside San Joaquin River Watershed Coalition is offering its members a total of $30,000 for constructing new tailwater silt ponds or to clean out existing silt ponds. The program will fund 50% of the costs of any single project, up to a maximum of $1,500 per project. Applications for the finding are available from local water districts in the region. A second significant source of funding for BMP installations in the Central Valley is being held up by the state financial crisis. Nearly $8 million in funding approved by California voters under Proposition 84 was put on hold in December along with millions of dollars in grants earmarked for state highway construction and other projects.

Once the funds are released, possibly by mid 2009, growers will be able to seek 75% cost share funding (25% match required) for practices such as sediment ponds, recirculation systems or support to purchase equipment for use of water quality improvement technology (i.e. PAM or enzymes). Projects must be located in watersheds under a Coalition Management Plan. Project proposals will be reviewed by a panel of state agencies, coalition representatives and the Water Board. A third source of funding is being sought through a grant supported by the USDA Agricultural Watershed Enhancement Program. A funding proposal, submitted on March 2 and competing against other proposals nationwide, asks for $10 million over five years to be used in Stanislaus and Merced Counties for BMP installations. USDA is expected to select projects for funding by April 15.

Implentation of Focused Watershed Management Plans Beginning

Ingram and Hospital Creeks in the Westley area have been targeted for focused watershed management plans. The purpose is to address exceedances for aquatic toxicity, pesticides, sediment toxicity and sediment discharge. The first step was a survey to determine what management practices are currently being used. Follow up work will target increased utilization and installation of sediment ponds and use of PAM and continued outreach.

Monitoring for Fall 2008/Winter 2009 Finds Few Problems

Water monitoring in the Westside of the San Joaquin Valley in Fall 2008 found few exceedances of water quality standards and only one currently used pesticide above state standards. In sampling for September 2008, chlorpyrifos (Lorsban, Lock-On, Govern) was found above state standards in Mud and Salt Slough and the San Joaquin River at Sack Dam (the latter just slightly above the standard). Another chlorpyrifos exceedance was logged in November in the Delta Mendota Canal at
at a site near the Del Puerto Water District office. DDE, the breakdown product for the legacy pesticide DDT was found only once, in November 2008. That exceedance occurred in Mud Slough. DDT was found in January 2009, the lone pesticide exceedance for that month. Other than these four exceedances, no other currently used pesticides were found above standards in the 26 sites sampled on the Westside from September 2008 through January 2009. Sampling did find frequent exceedances of EC, a measurement of salt levels in the water. High EC levels are common on the Westside, a result of higher salinity soils and elevated levels in surface water supplies.

2008 Sampling Season Completed

The Fall sampling period completed the 2008 requirement to measure water and sediment quality compliance under the Irrigated Lands Regulatory Program. In the 2008 sampling period, the Westside Coalition tested for almost 3,700 pesticides. Pesticides were detected in 266 samples and 87 samples were above State Receiving Water Limits. Of the 87 exceedances, 47 were caused by legacy pesticides no longer in use (either DDT or the

breakdown products DDD and DDE). Nine pesticides accounted for all the remaining exceedances. These include the insecticides chlorpyrifos, diazinon, methyl parathion, dimethoate and methidithion. Also found was the herbicide diuron. The remainder of exceedances were from the legacy pesticides listed above.

Long Term Irrigated Lands Program In Development

Discussions have begun between state regulators, agriculture and environmental groups on the direction of a Long Term Irrigated Lands Regulatory Program. The current program is set to expire in 2011. The Regional Water Board is attempting to have a draft plan completed by December 2009. While much of the new program could end up looking similar to the existing ILRP, it appears groundwater regulation may be added. At a joint meeting of the State and Regional Water Boards in August 2007, members from both Boards directed staff to begin planning how to include groundwater in the long term program.

Coalition Management

A Regional Water Quality Management Steering Committee (part of San Joaquin Valley Drainage Authority) oversees the Coalition activities.

Coalition Goals

- To operate an efficient, economical program that enables members to be in compliance with the Irrigated Lands Waiver.
- File required reports with the Central Valley Regional Water Quality Control Board (Regional Board) to maintain conditional waiver coverage for Coalition members.
- Implement an economical and scientifically valid water monitoring program for area creeks and agricultural drains (as required by the waiver).
- Spread costs equitably among owner/ operators who are Coalition members.
- Communicate to landowners where water monitoring indicates problems and work to solve those problems.

Coalition Membership Responsibility

The individual farmers and landowners are ultimately responsible for the success of the Westside Coalition. Failure to meet deadlines, implement the proper monitoring programs or work to correct water quality problems would mean that individual land owners would be responsible for fulfilling those requirements. While San Joaquin Valley Drainage Authority representatives signed the notice of intent for the Coalition, it is the Coalition participants who are ultimately responsible for participating in Coalition activities, paying their fair share of all costs to carry out the Irrigated Lands Regulatory Program and participating in efforts to solve problems identified through water monitoring.

Coalition Member Districts

Your local water district was instrumental in forming the Westside Coalition. They are committed to assisting landowners and farmers in reaching its goals and include:

- Del Puerto Water District
- Patterson Irrigation District
- San Joaquin River Exchange Contractors Water Authority (including Central California Irrigation District, San Luis Canal Company, Firebaugh Canal Water District, and Columbia Canal Company)
- Tranquillity Irrigation District
- Fresno Slough Water District
- Twin Oaks Irrigation District
- West Stanislaus Irrigation District
- Oak Flat Water District
- Stevinson Water District
- White Lake Mutual Water Company
- Lone Tree Mutual Water Company
- Turner Island Water District
- San Luis Water District
- Grassland Water District and Grassland Resource Conservation District, the California Department of Fish and Game and the US Fish and Wildlife Service representing wetland areas

Watershed Coordinator

Joe McGahan, Summers Engineering 559-582-9237

Westside SJR Watershed Coalition
c/o San Joaquin Valley Drainage Authority
P. O. Box 2157, Los Banos, California 93635
209-826-9696

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 by Event

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

Appendix D
WETLAND SUBAREA WATER QUALITY DATA

Grassland Water District Real-time Water Quality Monitoring Program

Appendix E
Sampling Event Photos

Appendix F
Characterization of Benthic Communities and Physical Habitat in Agricultural Streams in California's San Joaquin Valley in 2009.