East San Joaquin Water Quality Coalition Semi-Annual Report of Monitoring and Outreach Activities

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Prepared by
Michael L. Johnson, Ph.D.

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List of acronyms used in text

CVRWQCB	Central Valley Regional Water Quality Control Board
E	Environmental sample
ESJWQC	East San Joaquin Water Quality Coalition
FB	Field Blank
FD	Field Duplicate
MS	Matrix spike
MTRS	Meridian, township, range, section
NA	Not applicable
ND	Not Detected
NONAG	indicates that the sample was not submitted for QA by the ESJWQC. The sample was provided by an unknown source and included in the QA analysis with the QA samples from this project, and was included in the QA report from the laboratory to meet their QA criteria
NSG	Not significantly different than control; Greater than 80% threshold
PR	Percent Recovery
QA	Quality assurance
RPD	Relative Percent Difference
RS	Resample
SG	Statistically significantly different from control; Greater than 80% threshold
SL	Statistically significantly different from control; Less than 80% threshold
TIE	Toxicity Identification Evaluation
TRS	Township, range, section
TU	Toxic Unit

Executive Summary

The East San Joaquin Water Quality Coalition (ESJWQC) area includes Stanislaus, Merced, Madera, Tuolumne, and Mariposa Counties and the portion of Calaveras County that drains into the Stanislaus River. Apart from the San Joaquin River which forms the south and east boundary of the coalition, there are five major rivers in the watershed; Fresno River, Chowchilla River, Merced River, Tuolumne River and Stanislaus River. Irrigated agriculture is the predominant land use in the Coalition area although growth of the urban areas in the Valley has been a significant factor impacting water quality. Non-irrigated land uses include primarily urban land uses with some acreage in feedlots and impoundments.

Thirteen sites were monitored during the 2006 storm season. One of the objectives for dormant season monitoring was to characterize discharge from storm water runoff to determine the relative amount of dormant spray and early spring pesticide applications in the runoff. Toxicity testing was complementary to chemical analyses, and provided an independent and more direct assessment of the level of impairment in the water body. The objective of the Coalition was to use the toxicity testing along with water chemistry to assess the impact of discharges from irrigated agriculture. In addition, field and physical parameters, and E. coli were monitored during the 2006 dormant season.

During the 2006 storm season, there were 3 exceedances of the chlorpyrifos water quality objective. Two of these were in the Highline Canal during the first storm event, one at Lombardy Road (0.027 µg/L) and one at Highway 99 (0.021 µg/L), and the third at Ash Slough (0.029 µg/L) during the second storm event. The amount of chlorpyrifos in the water was barely over the level of exceedance in all three cases. A review of the pesticide use reports that are available for the Highline Canal sites indicate that in both cases chlorpyrifos was applied in the watershed in the period immediately preceeding the sampling. Both applications were made by ground on almonds. Both locations are immediately adjacent to the Highline Canal where spray drift could occur.

During the 2006 storm season, there were 5 sample with significant toxicity to *Ceriodaphnia* and 3 with significant reductions in growth to *Selenastrum*. *Selenastrum* toxicity was observed at two sites, Ash Slough @ Ave 21 and Highline Canal @ Highway 99 during the first event. The growth of the *Selenastrum* in the Ash Slough site was 67% and a TIE was not performed. The Highline Canal @ Highway 99 site growth was <1% of the control sample, but due to a miscommunication with the laboratory, a TIE was not initiated. *Selenastrum* toxicity was observed at Highline Canal @ Lombardy Road during the second event with the sample growth at 30% of the control. The TIE indicated that there was an organic contaminant with some cationic properties (e.g., a surfactant of an organic acid compound) or that there were two compounds responsible for the toxicity, one an organic compound and the second a cationic compound.

One sample from Duck Slough @ Gurr Road was toxic to *Ceriodaphnia* during the first event with the survival in the sample being 37% of the survival in the control. A TIE was performed on the sample but was inconclusive due to a lack of persistence in the sample. Four samples during the second event were toxic to *Ceriodaphnia*, Duck Slough @ Gurr Road, Merced River @ Santa Fe Drive, Prairie Flower Drain @ Crows Landing Road, and Highline Canal @ Highway 99. Toxicity Identification Evaluations (TIEs) were initiated on all samples except for the Prairie Flower Drain site which did not have survival less than 50% of the control.

Hilmar Drain @ Central Ave initially had 5% survival of *Ceriodaphnia*. The pH of the original Hilmar Drain sample was 9.46. When the pH was adjusted to 7.0, toxicity was eliminated indicating that the high pH was the probable source of the toxicity. The result reported for Hilmar Drain @ Central Ave is 100% survival with the notation that pH was adjusted to 7.0. The TIEs were inconclusive for the Highline Canal @ Highway 99, the Duck Slough @ Gurr Road, and the Merced River @ Santa Fe Drive sites because the toxicity was not persistent.

With one exception, in all cases in which toxicity was observed, there were chemicals identified through the pesticide use reports that have chemical properties that would allow them to be the cause of the toxicity. When sediment toxicity was observed, there were applications of chemicals that bind strongly to sediment and could run off during rain events. When water column toxicity was observed, there were soluble chemicals that could cause the toxicity.

E. coli remains a problem in the Coalition region with 14 exceedances over the two storm events, 6 in the first event and 8 in the second event. Cottonwood Creek @ Road 20, Dry Creek @ Wellsford Road, and Prairie Flower Drain @ Crows Landing Road all experienced exceedances during both storms. Ash Slough @ Ave 21, Jones Drain @ Oakdale Road, and the Merced River @ Santa Fe Drive all experienced exceedances during the first storm. Dusk Slough @ Gurr Road, Duck Slough @ Pioneer Road, Highline Canal @ Highway 99, and Highline Canal @ Lombardy Road experienced exceedances during the second storm event.

EC and TDS exceedances occured at the Prairie Flower Drain and Hilmar Drain sites. Both sites are located very close to the San Joaquin River and have the largest amount of field drains present in the nearby fields. Depth to ground water is very shallow and the field drains pump high salinity ground water to allow plant growth. In addition, the two main drains do not have a concrete liner and can be recharged directly from shallow ground water. Consequently, it is not clear if the high salts, which are also found on the west side of the river, are a function of agricultural inputs or recharge from local shallow ground water. The Coalition will perform a study this summer to determine the source of the water in the two main drains and consequently, the source of the salts in the two drains.

In spring 2006 prior to the beginning of the irrigation season, the Coalition sponsored a series of workshops (six events) at facilities close to subwatersheds where water quality exceedances or sediment toxicity had been found in 2005 irrigation season sampling. Both Coalition members and non-members were invited to the workshops. Because of the large number of irrigated acres in the Coalition region, many with no direct connecting for drainage to reach waters of the state, the Coalition took a targeted approach to organize the BMP workshops. Only growers with property adjacent to or near waterways were exceedances were detected in sampling were invited to the workshops, including both Coalition members and non-members.

Growers were told at the meetings that the region's most common "problem" detected in sampling was the exceedance of state water quality standard for *E. coli*. While the Coalition we have no definitive information on what caused these exceedances, *E. coli* can originate from commercial animal operations (feedlots, dairies or pastures), leaky urban septic systems or wildlife. In 2006, the coalition announced it would be performing special studies to try and determine the sources of the *E. coli*.

To anticipate the potential that high *E. coli* levels are caused by steer or poultry manure applications to irrigated crop land, the Coalition presented growers a compilation of management practices to minimize off site movement of animal manure. Little information on such management practices were available so the Coalition reprinted guidelines developed by the Almond Board of California. Attendees were also provided information for decomposing and stabilizing bulk manure before applications.

Also reported to landowners were the results of sediment sampling which showed toxicity at several sites. The sediment testing procedure only identifies toxicity but not what causes the toxicity. However, sediment testing in agricultural drains by University of California scientists has shown pyrethroid insecticides are a cause to toxicity in some streams draining high use agricultural areas.

As a precaution, the Coalition provided landowners with information on management practices to prevent off site movement of pyrethroids. These practices include: minimizing sediment transport from cropland treated with the insecticides (pyrethroids bind to sediment); leaving untreated buffer strips near waterways; and applying polyacrylamide (PAM) to irrigation water to reduce sediment transport. Booklets covering BMPs for pyrethroids and developed by CURES (www.curesworks.org) were handed out to orchard and row crop growers who use the products.

To better understand water quality problems identified through Coalition sampling, in particular widespread detections and exceedances of standards for Electrical Conductivity (EC) and *E. coli*, we will undertake several special studies in coming months.

Description of Watershed

The East San Joaquin Water Quality Coalition (ESJWQC) area includes Stanislaus, Merced, Madera, Tuolumne, and Mariposa Counties and the portion of Calaveras County that drains into the Stanislaus River (Figure 1). The region that drains into the Coalition area is bordered by the crest of the Sierra Nevada on the east and the San Joaquin River on the west, the Stanislaus River on the North to the San Joaquin River on the South. The southern portion of the Coalition area has been expanded from last year's description to now include the area that was formerly within the Root Creek Coalition area. Additionally, there are landholdings in the vicinity of the Lone Willow Slough watershed (west of the Eastside Bypass) that have joined the Westside Coalition. The only change in the coalition boundaries since the December 2005 Semi-Annual Monitoring Report is that the area that was formerly the Root Creek Coalition has become part of the ESJWQC. The growers in the Root Creek region have had the option to join the Coalition since the Root Creek Coalition ceased to function.

The only surface water export from the Coalition area is northward via the San Joaquin River (SJR). This river drains east and west side California Central Valley (Valley) watersheds, though only east side watersheds are relevant with respect to the Coalition area. San Joaquin River water is eventually either exported to the San Francisco Bay through the Delta, or conveyed southward via the State Water Project and the Delta Mendota Canal. The Coalition area also includes within its boundaries six irrigation districts: Oakdale Irrigation District, Merced Irrigation District, Turlock Irrigation District, Modesto Irrigation District, Chowchilla Irrigation District and Madera Irrigation District. Water bodies may have both irrigation district and Coalition jurisdiction only when they convey both irrigation supply and agriculture return water. All land within the boundaries of the irrigation districts is part of the coalition, and the growers in those areas may join the coalition if they want.

Apart from the San Joaquin River which forms the south and east boundary of the coalition, there are five major rivers in the watershed; Fresno River, Chowchilla River, Merced River, Tuolumne River and Stanislaus River. These east side tributaries of the San Joaquin River drain the relatively larger Sierra Nevada range from east to west. Typically, only the Stanislaus, Merced, and Tuolumne Rivers maintain flow during the summer months. Flow in the Chowchilla and Fresno Rivers are intermittent to nonexistent as the irrigation season progresses into the fall and remains dry unless major storm events produce sufficient precipitation in the immediate vicinity of the River. Intermediate sized water bodies in the Coalition area (e.g. Dry Creek, Duck Slough, and Highline Canal) originate either in the Sierra Nevada foothills or the Valley itself and are tributaries to the major rivers. The remaining water bodies are small in size (e.g. Prairie Flower Drain, Jones Drain, Mustang Creek) and are primarily agricultural canals and ditches that either convey water to one of the larger rivers or intermediate creeks/sloughs (Figure 2).

Figure 1. Coalition boundaries of the ESJWQC region. The map provided here is in jpg format and consequently does not support a reasonable level of detail. These maps are available as an ArcGIS coverage and can be manipulated to provide any level of detail desired. ArcGIS coverage is provided electronically along with this report. Where not indicated in the maps, North is towards the top of the page.

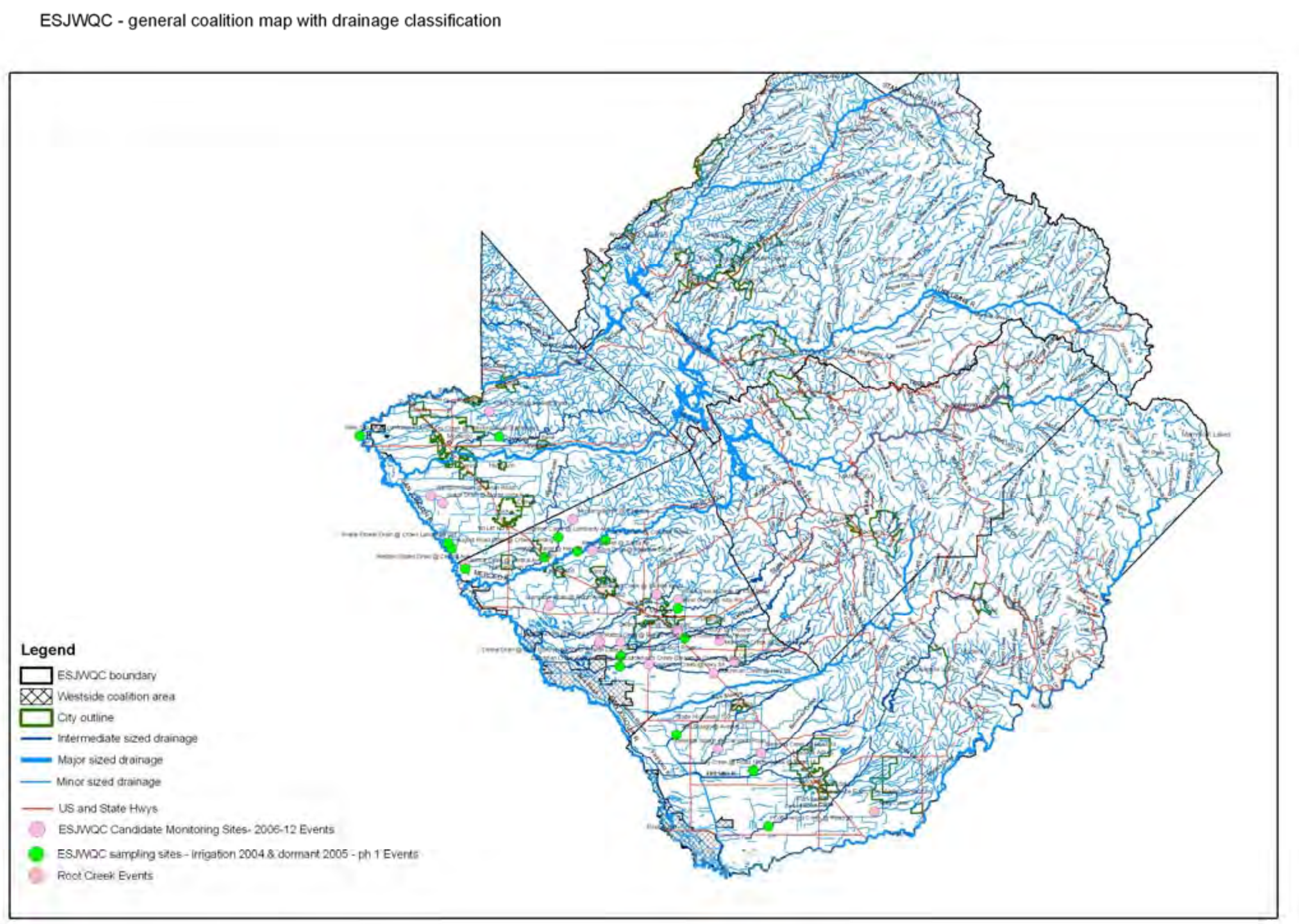
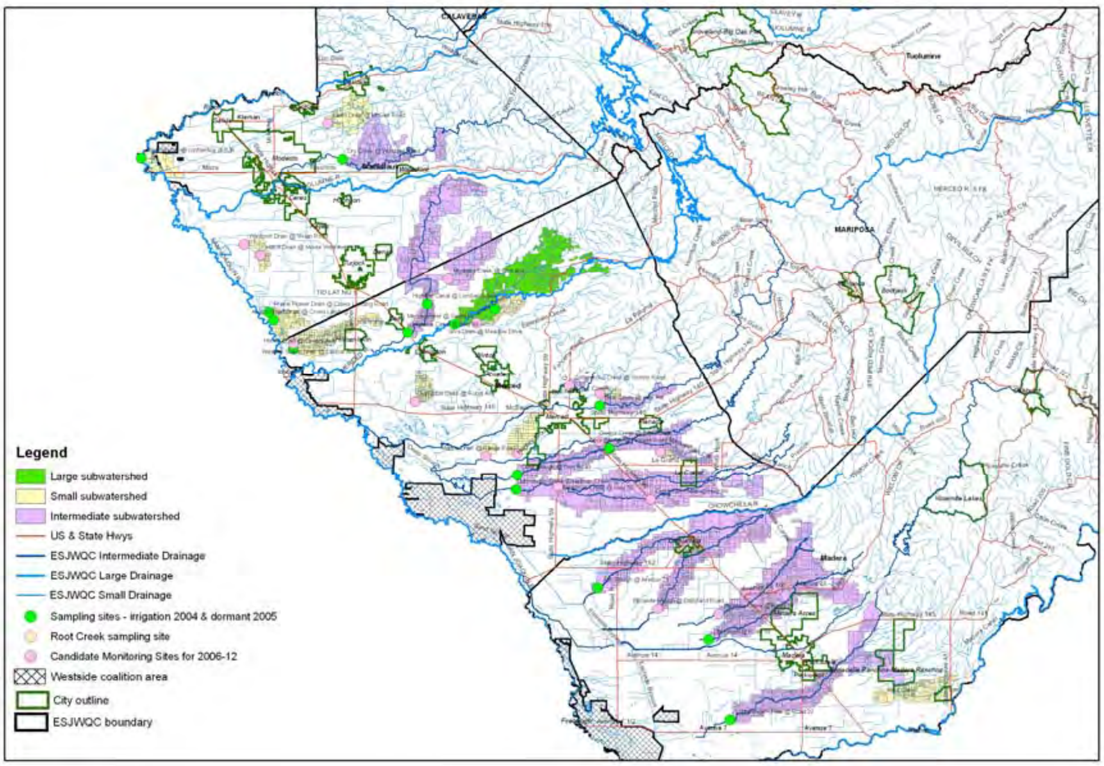


Figure 2. Drainage designation showing all subwatersheds in the coalition region. The map provided here is in jpg format and consequently does not support a reasonable level of detail. These maps were provided as an ArcGIS coverage with the first semi-annual report and can be manipulated to provide any level of detail desired.

ESJWQC - Subwatershed size designation



Land Use

Irrigated agriculture is the predominant land use in the Coalition area although growth of the urban areas in the Valley has been a significant factor impacting water quality. Non-irrigated land uses include primarily urban land uses with some acreage in feedlots and impoundments.

A variety of crops are grown and are often found in regions specific to microclimate, soil type, and local farming history. A more detailed discussion of crop type occurs in this report when each subwatershed is described. Over 50 types of commercial crops are produced within the coalition area (Table 3 in the East San Joaquin Water Quality Coalition Watershed Evaluation Report, March 8, 2006). The most common crops by acres are almonds, tomatoes, hay, sweet potatoes, cotton, silage, beans, wheat, peaches, melons, and grapes. In general agriculture varies geographically as one travels from the north to south and from east to west. In the eastern foothills, deciduous orchards and grapes are the dominant crops, though there is also considerable irrigated pasture and dairy farm. Crop type is more diverse in the northern Coalition area and includes row crops (e.g. tomatoes, sweet potatoes, melons, leafy green vegetables), alfalfa hay, and orchards. In the relatively drier southern area dominate crops include cotton, vineyard, and orchards (almonds and pistachios). The California Department of Pesticide Regulation database (http://calpip.cdpr.ca.gov/cfdocs/calpip/prod/main.cfm) is current through 2004. Although exact acreage is difficult to estimate due to rapidly changing land use, the Coalition area contains 1,186,889 acres that are considered irrigated agriculture (Table 1). For Stanislaus, Merced, Mariposa, Tuolumne, and Madera Counties, we used the DWR land use estimates for irrigated agriculture to determine total acreage. DWR does not provide land use data for Calaveras County. Instead, we used data from the County Agricultural Commissioner's office.

Table 1. Irrigated lands in ESJWQC - Stanislaus, Merced, Madera, Tuolumne, Calaveras and Mariposa Counties. Data from 2001 California Department of Water Resources (http://www.landwateruse.water.ca.gov/annualdata/landuse/2001/landuselevels.cfm)

County	Irrigated Land Area (acres)
Calaveras	976
Madera	295,000
Mariposa	297
Merced	510,500
Stanislaus	378,700
Tuolumne	1,416
Total	1,186,889

In the figures that are presented below, the irrigated agriculture is extremely difficult to find because the parcels are typically small and distributed throughout the foothills region of those three counties. Even using ArcGIS, the parcels are difficult to find, but can be identified on the coverages. Calaveras County does not have parcels with DWR land use data, so the location of the irrigated agriculture in the upper Stanislaus drainage was estimated by information on Pesticide Use Reports filed with the County Agricultural Commissioner using township, range and section.

Note that the estimates of irrigated acres are different from the estimates provided in the semi-annual report of January 3, 2006. The differences are the result of discussions with the Counties to gain a better understanding of exactly where and how much irrigated agriculture is present in the counties. We anticipate that as urban development increases over the next several years, the estimates will continue to change.

Land use maps for the coalition counties are provided in Figures 3-9.

Figure 3. Land use for counties in ESJWQC.

ESJWQC - Land use map

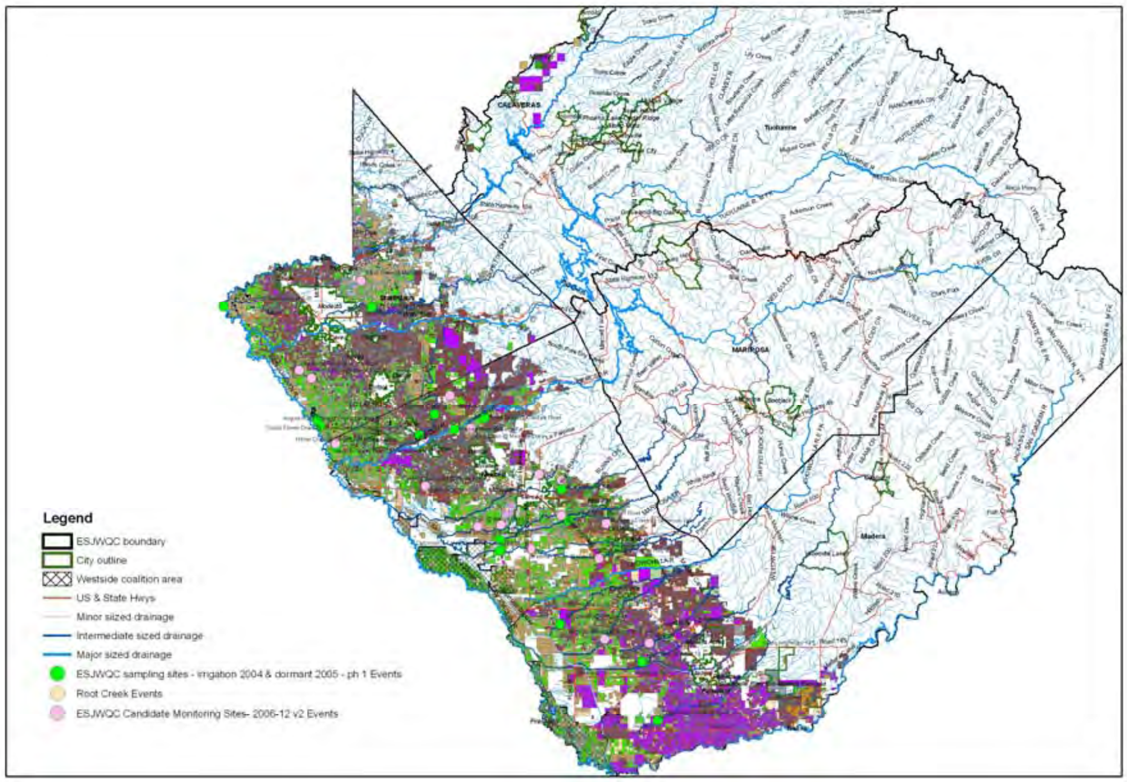


Figure 4. Land use for Stanislaus County.

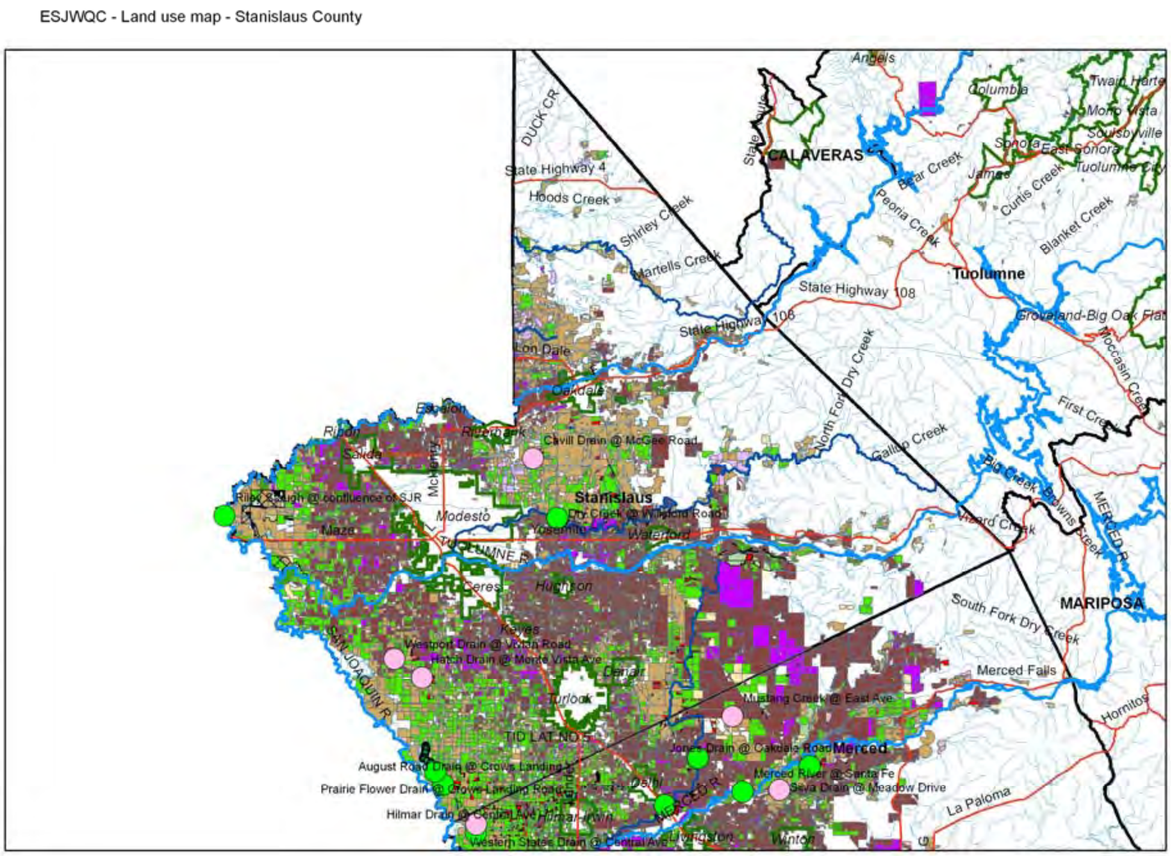


Figure 5. Land use for Merced County.

ESJWQC - Land use map - Merced County

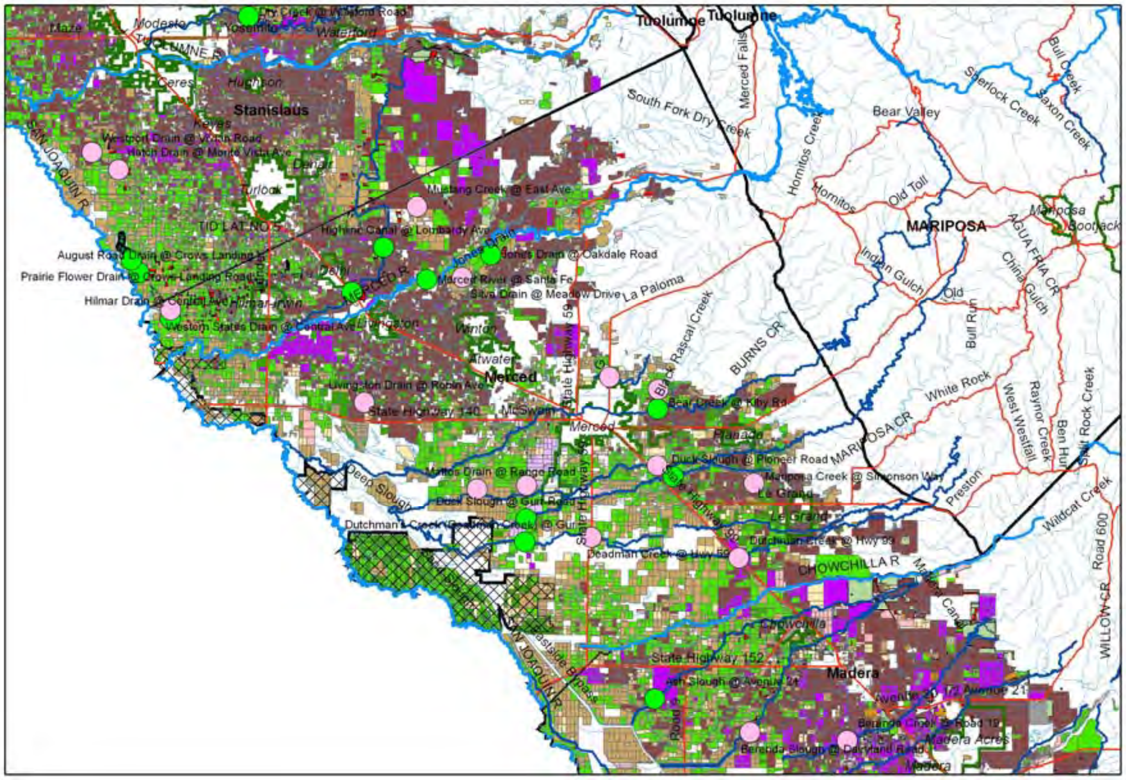


Figure 6. Land use for Madera County.

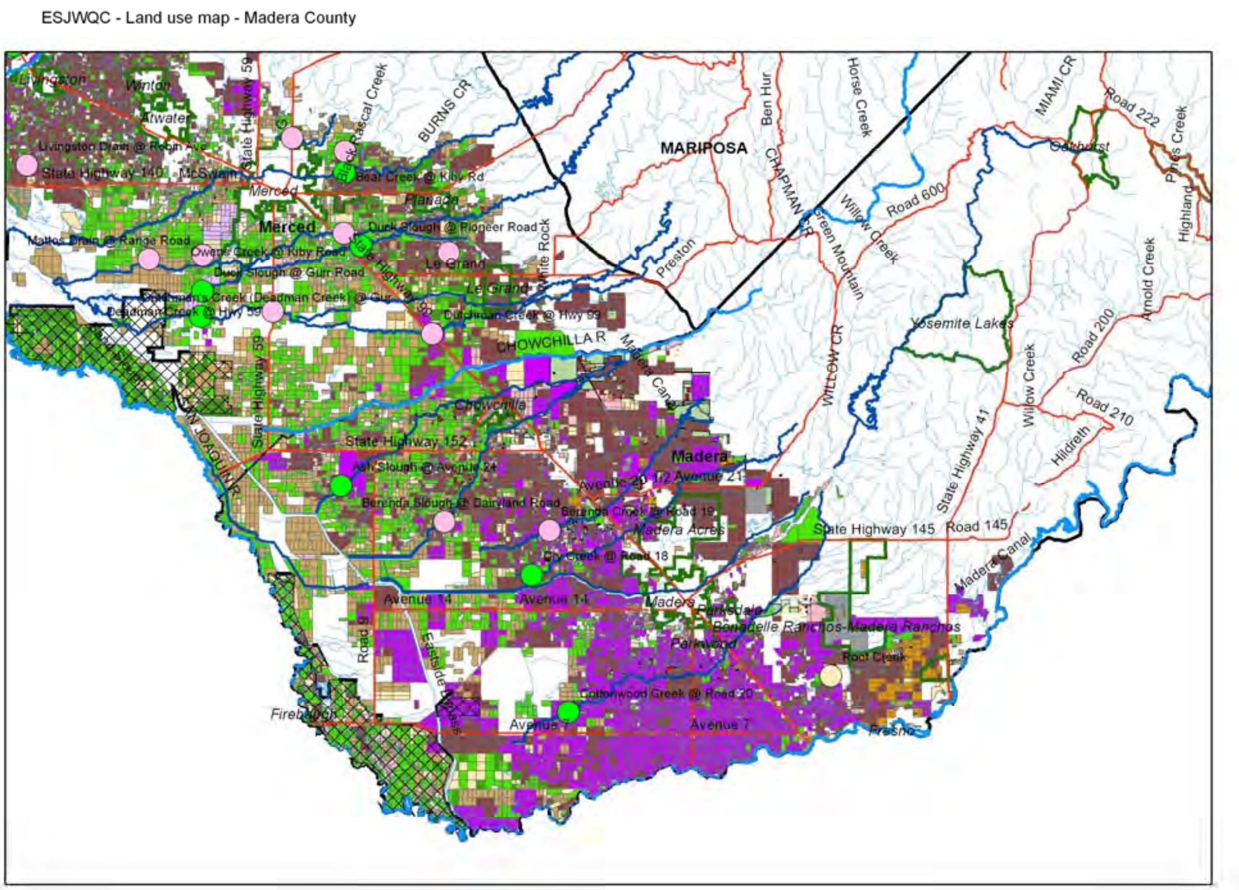


Figure 7. Land use for the upper Stanislaus River watershed in Calaveras County and Tuolumne County. Because the parcels of irrigated agriculture are so small, they are almost impossible to see against the non-irrigated land within the county.

ESJWQC - Land use map - Tuolumne & Calaveras Counties

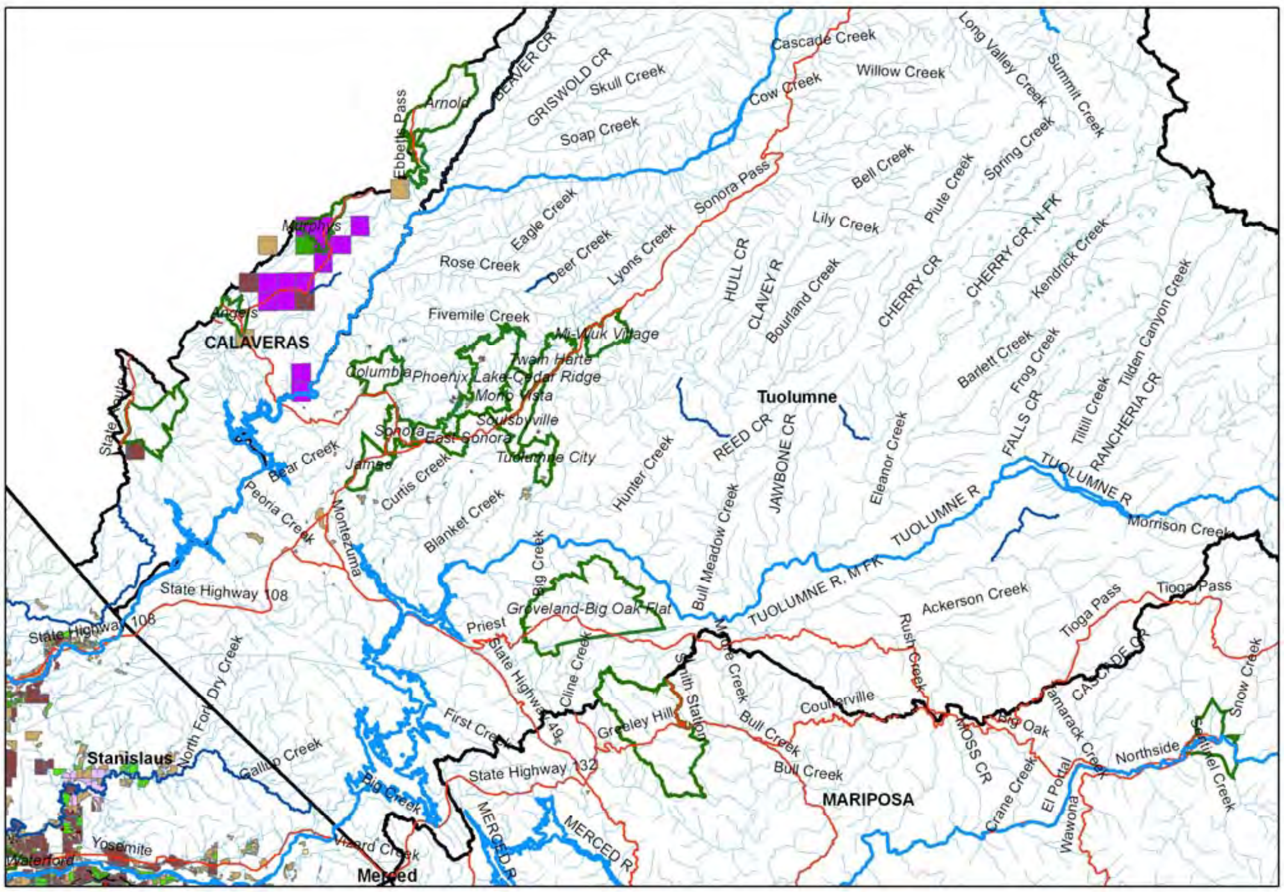


Figure 8. Land use for Mariposa County. Because the parcels of irrigated agriculture are so small, they are almost impossible to see against the non-irrigated land within the county.

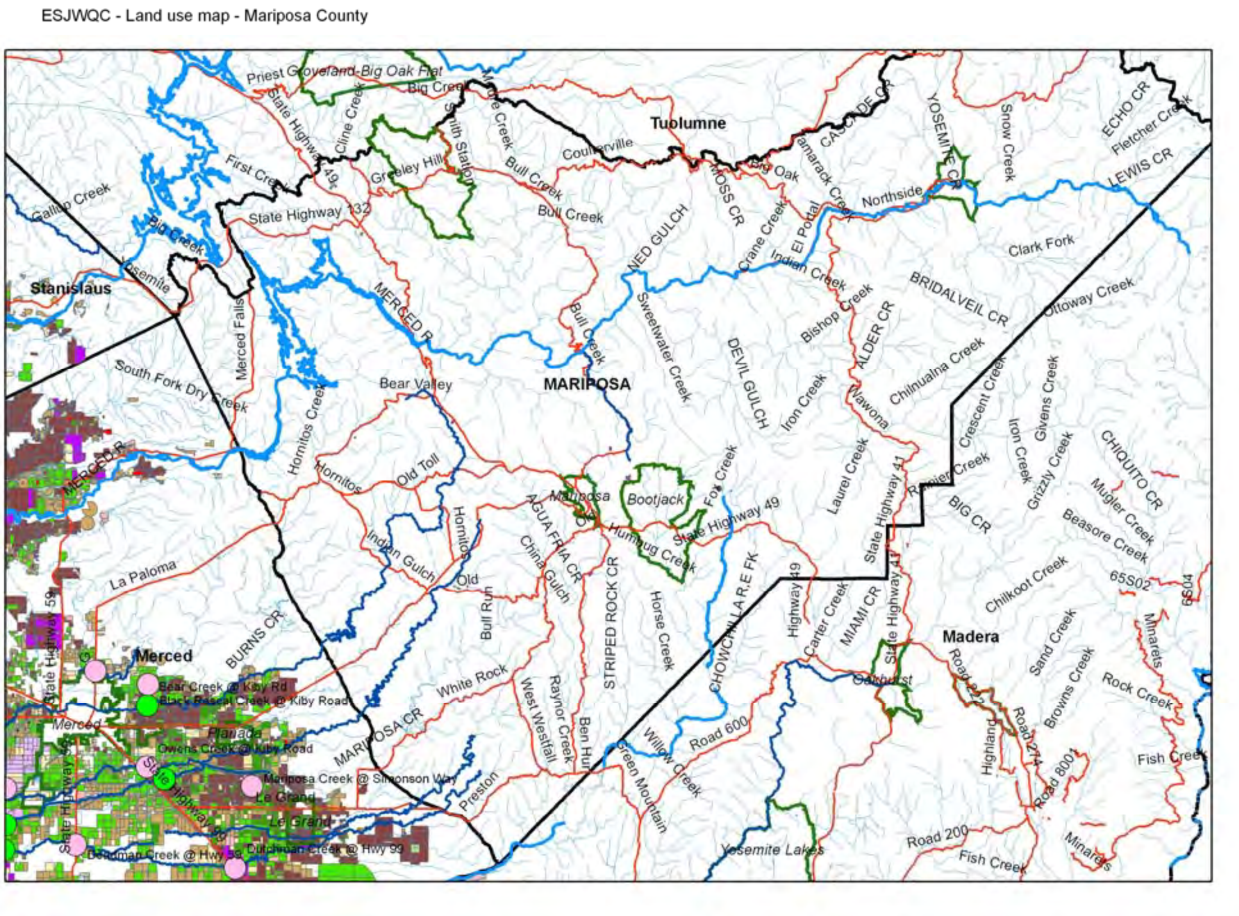


Figure 9. Legend for land use.

Climate

Summer temperatures are usually hot in the valley, ranging from the mid 80's to mid 90's (^{o}F) for average high temperatures and the mid to upper 50's (^{o}F) for average summer low temperatures. The upland areas are slightly cooler but generally remain hot throughout the summer. In the winter, temperatures are usually moderate in the valley with average high temperatures in the mid to upper 50's and average low temperatures in the low 40's. Annual precipitation on the valley floor in the Coalition region is variable but averages about 13-15 inches per year (City of Merced precipitation data). Rainfall occurs predominantly during the winter as is typical for a Mediterranean climate and rainfall is heterogeneously distributed throughout the winter period. There is also a significant gradient in rainfall from north to south in the coalition region, with the southernmost areas of the coalition experiencing significantly lower rainfall than the northernmost areas of the coalition region. Typical winters are characterized by several small storms with one or two major storms providing the bulk of the precipitation for the winter. There appears to be no discernible pattern as to when during the winter these large storms occur.

Soils

Soils maps reveal a complicated mosaic of soil types in the Coalition area. Generally, the Coalition area has sandy, well-drained soils. Exceptions to this are soils in the immediate proximity to the SJR that contain more clay and thus do not drain well. These areas are more likely to require surface drains to remove water during periods of high rainfall and occasionally during the irrigation season. Soil type combines with other factors such as slope, soil saturation, rainfall/irrigation water amount, and drainage patterns to control runoff. Soils maps and ArcGIS soils coverages have been delivered to the CVRWQCB previously and will not be provided as part of this document.

Hydrology

As indicated above, there are several main rivers that cross the Coalition area from east to west. These rivers have complex hydrologic systems due to both seasonal influence of precipitation, and management systems for water use (reservoirs, basin transfers, hydropower, municipal and irrigation supply, and anadromous fisheries, Table 2, Figure 1). In general flows are greatest during the winter and spring due to wintertime precipitation and subsequent springtime snowmelt. Summertime flows are now greater than historically due to reservoir releases during this period. The numerous small creeks that have their headwaters in the foothills and western portion of the Sierra Nevada mountain range are primarily ephemeral with no flow from early summer through the first rains of the winter. Later discussion of hydrology will be specific to each subwatershed.

There is an increased propensity for runoff with increased slope, soil water saturation, and volume of water, conditions that arise primarily due to large amounts of rainfall and are more likely in the relatively greater sloped valley margins. During the winter, runoff is drained through the myriad of creeks, rivers and drains for flood management and may be subject to efforts of larger geographic flood control programs. Runoff can also occur during the irrigation season if water entering the field is greater than the amount that can infiltrate the soil. Despite the fact that runoff may occur in both the winter and irrigation seasons, drainage patterns in the Coalition region do not always guarantee flow in the streams and sloughs. Recent sampling efforts indicate that many of the drainages in the southern portion of the Coalition region do not always carry runoff even during substantial rainfall events. Immediately after a storm in March of 2005, Ash Slough did not maintain sufficient flows to be sampled even when adjacent orchards were flooded. Also, the watersheds throughout the Coalition region tend to be "flashy" in that water from runoff events moves through the systems very quickly leaving very little flow shortly after the storm ends. For example, there was no flow remaining when crews visited the site for persistence sampling in the Lone Willow Slough subwatershed approximately a week after a winter 2005 storm event.

A complex system for water transfer, use, and re-use is utilized for irrigation purposes. Without precise methods of applying water for irrigation purposes some water may return to the source after being used on the field. In some cases, the volume of water applied to a field for irrigation may represent not only what is needed by the vegetative crop, but also a greater quantity used either to push the water over the field, or as a method of reducing the negative effects of evapotranspiration and consequent accumulation of salts. The system is designed to allow downstream irrigators to reuse the same water that was previously used upstream.

Table 2. Major rivers to which each subwatershed drains to, and the beneficial use for each of the major river reaches. The list below indicates both currently sampled subwatersheds and proposed subwatersheds, but represents the totality of watersheds within the coalition region. These subwatersheds are the coalition's designation as the farthest downstream location of a primarily agricultural subwatershed. The subwatershed is formed from the location of the sample site, not the location where the subwatershed has its confluence with a downstream water body.

Subwatershed	Immediate Downstream River	Beneficial Use of Immediate Downstream River *
Root Creek @ Rd 35 **	San Joaquin River[1]	1-4, 7-15
Cottonwood Creek @ Road 20**	None[6]	-
Ash Slough @ Avenue 21**	San Joaquin River[2]	1-4, 7-9, 11-15
Cottonwood Creek @ Six mile road		
Bear Creek @ Kibby Rd**		
Dry Creek @ Road 18**		
Duck Slough @ Gurr Road		
Duck Slough @ Pioneer Road		
Mattos Drain @ Range Road		
Black Rascal Creek @ Kibby road		
Berenda Slough @ Dairyland Road		
Mariposa Creek @ Simonson Way		
Deane Drain @ Gurr Road		
Owens Creek @ Kibby Road		
Dutchman Creek @ Highway 99		
Berenda Creek @ Road 19**		
Deadman Creek @ Highway 59		
Deadman Creek @ Gurr Rd.		
Livingston Drain @ Robin Ave		
Mustang Creek @ East Ave	San Joaquin River[3]	1-4, 7-9, 11-13, 15
August Rd. Drain @ Crows Landing[7]		
Highline Canal @ Hwy 99		
Highline Canal @ Lombardy Ave		
Hilmar Drain @ Central Ave		
Cavill Drain @ McGee Road		
Prairie Flower Drain @ Crows Landing Rd.		
Hatch Drain @ Monte Vista Ave		
Western States Drain @ Central Ave		
Westport Drain @ Vivian Road		
Dry Creek @ Wellsford Road	Tuolumne River[4]	1-3, 7-10, 12-15
Jones Drain @ Oakdale Road	Merced River[5]	1, 3-15
Merced River @ Santa Fe		
Silva Drain @ Meadow Drive		

[1] Friant Dam to Mendota Pool reach

[2] Sack Dam to Merced River reach (all waterbodies that drain to this reach enter via the East Side Bypass with the exception of Livingston Drain)
[3] Merced River to Delta reach
[4] New Don Pedro Reservoir to San Joaquin River reach
[5] McSwain Reservoir to San Joaquin River reach
[6] There is no natural course by which Cottonwood Creek flows to the San Joaquin River. Its course is diverted in any number of ways, generally through canals or to open areas for percolation, depending upon the current situation.
[7] August Rd. Drain @ Crows Landing subwatershed has been removed from the sampling plan due to safety concerns for the sampling crews.

* See below for Beneficial Use code list.

** Surface water flow in these water bodies terminates in subterranean flow except for periods of increased runoff during large winter storms.

Municipal and Domestic Supply - 1
Agriculture Supply (irrigation) - 2
Agriculture Supply (stock watering) - 3
Industrial Process Supply - 4
Industrial Service Supply - 5
Hydropower Generation - 6
Water Contact Recreation - 7
Non-contact Water Recreation - 8
Warm Freshwater Habitat - 9
Cold Freshwater Habitat - 10
Migration of Aquatic Organisms (warm) - 11
Migration of Aquatic Organisms (cold) - 12
Spawning, Reproduction, and/or Early Development (warm) - 13
Spawning, Reproduction, and/or Early Development (cold) - 14
Wildlife Habitat - 15

There are 33 subwatersheds in the Coalition area that are classified by three types (large, intermediate or small) based on water flow and subwatershed size (Figure 2, Table 3). The large watersheds within the Coalition area are the six major rivers (Chowchilla River, Fresno River, Merced River, Tuolumne River, Stanislaus River and San Joaquin River). With the exception of the Merced River, none of the large rivers are sampled. The Merced River is sampled but relatively high in the subwatershed to allow the integration of the sampling results from smaller water bodies (e.g., Jones Drain) that drain into the river upstream. Though the irrigated agriculture area within these watersheds is similar or even less than some of the watersheds classified as medium sized, water flow in these relatively larger watersheds is primarily a function of source water originating upstream of irrigated agriculture. These rivers have relatively greater base water flow due to snowmelt and reservoir releases. There are 15 intermediate sized subwatersheds in the Coalition Region (see Table 3 for listing). These are primarily natural creeks and sloughs that drain a large portion of the Coalition area. The 17 smaller watersheds in the Coalition area are either small-sized natural creeks, or agriculture canals and drains (see Table 3).

Table 3. Subwatersheds within the ESJWQC area, type (Large, Intermediate, Small) and total subwatershed size. The list below indicates both currently sampled subwatersheds and proposed subwatersheds, but represents the totality of watersheds within the coalition region. These subwatersheds are the coalition's designation as the farthest downstream location of a primarily agricultural subwatershed. The subwatershed is formed from the location of the sample site, not the location where the subwatershed has its confluence with a downstream water body. Also, some watersheds do not connect to downstream water bodies.

Subwatershed	Subwatershed size designation	Subwatershed Size (irrigated acres)
Ash Slough @ Avenue 21	Intermediate	21,015
Bear Creek @ Kibby Rd	Intermediate	6,279
Berenda Creek @ Road 19	Intermediate	16,789
Berenda Slough @ Dairyland Road	Intermediate	19,834
Cottonwood Creek @ Road 20	Intermediate	113,424
Deadman Creek @ Gurr Road	Intermediate	25,626
Deadman Creek @ Highway 59	Intermediate	22,354
Dry Creek @ Road 18	Intermediate	15,448
Dry Creek @ Wellsford Road	Intermediate	12,110
Duck Slough @ Gurr Road	Intermediate	17,116
Duck Slough @ Pioneer Road	Intermediate	6,895
Dutchman Creek @ Highway 99	Intermediate	8,734
Highline Canal @ Highway 99	Intermediate	14,585
Highline Canal @ Lombardy Ave	Intermediate	9,196
Mustang Creek @ East Ave	Intermediate	12,400
Merced River @ Santa Fe	Large	23,402
August Rd Drain @ Crows Landing[2]	Small	1,467
Black Rascal Creek @ Kibby road	Small	1,406
Cavill Drain @ McGee Road	Small	13,751
Cottonwood Creek @ Sixmile road	Small	442
Deane Drain @ Gurr Road	Small	4,701
Hatch Drain @ Monte Vista Ave	Small	1,411
Hilmar Drain @ Central Ave	Small	1,658
Jones Drain @ Oakdale Road	Small	2,140
Livingston Drain @ Robin Ave	Small	2,418
Mariposa Creek @ Simonson Way	Small	496
Mattos Drain @ Range Road	Small	1,130
Owens Creek @ Kibby Road	Small	4,828
Prairie Flower Drain @ Crows Landing Road	Small	2,610
Root Creek @ Rd 35	Small	8,378[1]
Silva Drain @ Meadow Drive	Small	476
Western States Drain @ Central Ave	Small	6,109
Westport Drain @ Vivian Road	Small	755

[1]Watershed documents have been requested from the Root Creek Coalition to determine if our estimates of area are similar to theirs. At this time, the total acreage for the Root Creek subwatershed is an estimate.
[2]August Rd. Drain @ Crows Landing subwatershed has been removed from the sampling plan due to safety concerns for the sampling crews.

Monitoring Objectives

The objectives of the ESJWQC monitoring program are to:

- Determine the concentration and load of waste in discharges to surface waters
- Evaluate compliance with existing narrative and numeric water quality objectives to determine if implementation of additional management practices is necessary to improve and/or protect water quality
- Assess the impact of waste discharges from irrigated agriculture to surface water
- Determine the degree of implementation of management practices to reduce discharge of specific wastes that impact water quality in watersheds within the coalition region
- Determine the effectiveness of management practices and strategies to reduce discharges of wastes that impact water quality

In order to achieve these objectives, the ESJWQC has established 13 initial sites at which to monitor water quality. Monitoring constituents include the list established by the Central Valley Regional Water Quality Control Board in its revised Monitoring and Reporting Plan Order No. R5-2005-0833. In addition, because diazinon and chlorpyrifos are listed as sources of water quality impairment for the major drainages in the coalition region, analysis of water samples for these two organophosphate pesticides is being conducted. And, because there is an increasing use of pyrethroids in the coalition region and because sediment toxicity test results from other studies indicate that sediment toxicity is becoming a significant factor in the coalition region, we are testing water for several pyrethroid insecticides.

Pesticides and Toxicity

Monitoring is conducted in both the winter and the summer. The winter sampling is designed to characterize the discharge from irrigated agriculture during rain event runoff. Agricultural activities during the winter are minimal, but dormant spraying of orchard crops is generally performed during the month of January after trees fully drop their leaves. The dormant spray season ends when trees initiate flowering which varies in timing from the upper regions of the valley to the lower regions. Dormant sprays have typically consisted of organophosphate pesticides, primarily diazinon or chlorpyrifos, but recently have been shifting to pyrethroid pesticides. Later during the winter, spraying can take place on early spring crops such as alfalfa, again using organophosphate pesticides such as chlorpyrifos. Consequently, one of our objectives is to characterize discharge from storm water runoff to determine the relative amount of dormant spray and early spring pesticide applications in the runoff.

Toxicity testing is complementary to chemical analyses, and can provide an independent and more direct assessment of the level of impairment in the water body. The objective of the Coalition is to use the toxicity testing along with water chemistry to assess the impact of discharges from irrigated agriculture. If water chemistry indicates an exceedance of water quality objectives and toxicity tests indicate significant toxicity, impairment of surface waters is clearly occurring. If water chemistry indicates an exceedance of water quality objectives and toxicity tests indicate no toxicity, there may be no impairment of beneficial uses at the point at which the testing occurred. However, downstream impairment is possible if additional chemicals reach the water body.

Additional Constituents

The Coalition monitored for toxicity, field and physical parameters as outlined in Table 1 of the Monitoring and Reporting Plan Order No. R5-2005-0833. Metals and nutrients were not monitored during the 2006 dormant season.

Sampling Sites Description

The sample sites and location of all sites monitored during the 2006 storm season are provided in Table 4. Thirteen sites were monitored during the 2006 storm season.

Table 4. Sample site locations for the 2006 storm season.

StationName	TargetLat	TargetLong
Ash Slough @ Ave 21	37.05448	-120.41575
Bear Creek @ Kibby Rd	37.3128	-120.41378
Cottonwood Creek @ Road 20	36.8686	-120.1818
Dry Creek @ Road 18	36.9818	-120.2195
Dry Creek @ Wellsford Road	37.66017	-120.87432
Duck Slough @ Gurr Rd	37.21423	-120.55958
Duck Slough @ Pioneer Road	37.2524	-120.39633
Highline Canal @ Hwy 99	37.4153	-120.75565
Highline Canal @ Lombardy Rd	37.4556	-120.72071
Hilmar Drain @ Central Ave	37.39058	-120.9582
Jones Drain @ Oakdale Road	37.44951	-120.60069
Merced River @ Santa Fe	37.42714	-120.67208
Prairie Flower Drain @ Crows Landing Road	37.4422	-121.00236

All subwatersheds in Tables 5-7 drain agricultural land in the Coalition region. The discussion below briefly describes each subwatershed with respect to hydrology and agricultural production. The maps provided as Figures 10-13 provide more detail on the crops grown on each of the parcels in the subwatershed and the hydrology within the subwatershed that drains through those parcels in sites monitored during the 2006 storm season. ArcGIS coverage of all subwatersheds has been provided electronically with previous reports. Not included are roadside ditches that may drain fields to the nearest surface water body. Ditches are constructed to move water draining from roads adjacent to the fields and are not generally constructed to move water draining from agricultural fields. Ditches are more common in the northern portion of the Coalition region where soils are somewhat more resistant to infiltration. In the southern portions of the Coalition region (e.g., southern Stanislaus, Merced and Madera Counties), sandy soils with a high infiltration rate do not require ditches to move water that has drained from the road surfaces. In the western portion of the Coalition region near the San Joaquin River, there is a shallow depth to ground water that requires drains to reduce the soil moisture.

Subwatersheds monitored through the 2006 winter storm water runoff season.

Highline Canal @ Lombardy Road (9,196 irrigated acres) – The Highline Canal is a conveyance of the Turlock Irrigation District and carries both clean irrigation water and irrigation return flow. The main upstream tributary of the Highline Canal is Mustang Creek. The Highline Canal flows west and eventually drains into the Merced River. Dairies are present upstream and the Mustang Creek, a major tributary during the dormant season, passes immediately to the southeast of the Turlock Airport. The main agricultural crop upstream is deciduous nuts (Table 5).

Duck Slough @ Gurr Road (17,116 irrigated acres) – This site is currently monitored and is proposed to be a core site. Located to the south and west of Merced, the site drains field crops immediately upstream and deciduous nuts farther upstream (Table 5). In addition, there is irrigated pasture upstream. We have recently learned that the city of Merced delivers treated water to Duck Slough a few miles upstream of the Gurr Road site. Duck Slough drains west flows eventually becoming Deadman Creek in the western portion of the coalition region. It continues to flow west feeding with a series of duck ponds near the Eastside Bypass and eventually drains into Deep Slough.

Merced River @ Santa Fe (23,402 irrigated acres) – This water body is designated as a major water body and is 303d listed. It was selected as an integrator site for several of the drains and tributaries in the vicinity. The Merced River originates in the high Sierra and flows through the Sierra's encountering several dams and impoundments. The Merced River eventually drains into the San Joaquin River near Hatfield State Park. Upstream agriculture includes some field crops in the immediate vicinity of the river and deciduous nuts, primarily almonds (Table 7).

Dry Creek @ Wellsford Road (12,110 irrigated acres) – This site is in the northern part of the Coalition region and drains a combination of field crops, deciduous nuts, and vineyards (Table 6). Dry Creek drains into the Tuolumne River in Modesto and this site represents the closest accessible location to Modesto that collects agricultural drainage. There appear to be dairies upstream and the town of Waterford may provide some urban signal but the site appears to be sufficiently far from Waterford to be used as a core site.

Ash Slough @ Avenue 21 (21,015 irrigated acres) – This site was used as a monitoring station during the 2004 irrigation season, although lack of flow did not allow samples to be collected. Agriculture upstream includes vineyards, field crops, and deciduous nuts (Table 6). Ash Creek flows just north of Chowchilla but there appears to be a buffer of agricultural land between Ash Slough and Chowchilla. As is true with most sites, there are dairies located upstream.

Prairie Flower Drain @ Crows Landing Road (2,610 irrigated acres) – Several drains exist in the western portion of the Coalition region and we are proposing Prairie Flower Drain as a core monitoring site. Relative to other drains in this part of the Coalition region, Prairie Flower Drain is longer and appears to drain a larger number of parcels of irrigated agriculture (Table 7). Dairies and feedlots are ubiquitous in this part of the Coalition region and this drain may receive runoff from several dairies immediately upstream. Upstream agriculture is field crops.

Cottonwood Creek @ Road 20 (113,424 irrigated acres) – This site is at the very southern edge of the Coalition region in Madera County and the creek drains into the Eastside Bypass (Table 6). The immediate upstream agriculture is vineyards and there are deciduous nuts farther to the east. Unlike other sites, there are few dairies on Cottonwood Creek.

Bear Creek @ Kibby Road (6,279 irrigated acres) – This subwatershed drains an eastern portion of the coalition region in Merced County. Bear Creek originates in the foothills of the Sierra's with Burn's Creek as one of the major tributaries. The Creek drains to the east just north of the towns of Planada, and eventually flows through Merced and eventually to the San Joaquin River.

The primary irrigated agriculture in the subwatershed includes deciduous nuts, field crops, truck crops, and irrigated pasture (Table 6).

Duck Slough @ Pioneer Road (6,895 irrigated acres) – This site is located upstream of the Duck Slough @ Gurr Road site and was selected to determine relative contribution of water quality impairments in the upstream portion of the Duck Slough subwatershed. Duck Slough originates in the Sierra foothills and flows west eventually joining with Deadman's Creek in the western portion of the coalition region. The Pioneer Road site is located just east of Highway 99 south of Planada and Merced. Irrigated agriculture in the subwatershed is primarily deciduous nuts, with truck crops and irrigated pasture the next most common land uses (Table 5).

Highline Canal @ Highway 99 (14,585 irrigated acres not including Highline Canal @ Lombardy Road subwatershed) – This site was selected as a downstream companion site to the Highline Canal @ Lombardy Road site. Selected for the same reason that the Duck Slough sites were selected, this site allows a determination of the relative contribution of the upstream and downstream subwatersheds to water quality impairments. The sampling site is located just south of Delhi as the canal crosses the highway. The irrigated agriculture is primarily deciduous nuts, and these are located at the lower end of the subwatershed. A small number of vineyards are also present (Table 5).

Hilmar Drain @ Central Ave (1,658 irrigated acres) – This site is located toward the western edge of the coalition region near the San Joaquin River. This is a small subwatershed that is primarily field crops. This subwatershed also contains a large number of dairies. Hilmar Drain originates at Williams Ave and Washington Road and eventually drains into the San Joaquin River. The primary irrigated agriculture is field crops and irrigated pasture (Table 7).

Jones Drain @ Oakdale Road (2,140 irrigated acres) – This is a small subwatershed with the primary irrigated agriculture being deciduous nuts, field crops, and irrigated pasture (Table 9). The Jones Drain is located just south of the Merced River and joins with the Silva Drain and both eventually drain into the Merced River just upstream of the Merced River @ Santa Fe monitoring site.

Dry Creek @ Road 18 (15,448 irrigated acres) – This site was selected for monitoring during the middle of the 2005 irrigation season as a replacement site for Lone Willow Slough. (We learned that growers in the Lone Willow Slough watershed had joined the Westside Coalition.) This Dry Creek originates in the Sierra foothills and flows to the north of the city of Madera eventually draining into the San Joaquin River. Deciduous crops are the primary irrigated agriculture in the upper portion of the watershed, and vineyards predominate in the lower portions of the watershed. There are field crops scattered throughout the watershed (Table 6).

Table 5. Acreages of various land use types in the subwatersheds selected for monitoring during the 2006 storm season. The land uses are designated as irrigated/non-irrigated, and within each subwatershed, the total length of the hydrologic features in meters is provided as the row labeled hydrology. See text for descriptions of the watersheds.

Land Use	I/NI	Duck Slough @ Gurr Rd.	Duck Slough @ Pioneer Rd.	Highline Canal @ Lombardy	Highline Canal @ Hwy 99
Citrus	I	3,841.0	3,592.8	4,537.6	8,178.2
Deciduous nut and fruit	I				
Field crop	I	5,188.1	1,426.9	1,502.7	2,218.9
Field crop	N				
Grain and hay	I	1,034.7	229.9	605.7	605.7
Grain and hay	N	182.8	177.4	701.3	721.6
Idle	I	653.2	145.9	38.0	122.6
Wild vegetation	N	43,488.3	39,254.2	207.0	236.0
Water surface	N	119.1	53.9		5.0
Pasture	I	4,694.5	1,104.2	1,084.7	1,360.1
Pasture	N	47.5	37.7	306.3	437.5
Rice	I	474.7			
Feedlot, dairy, farmstead	N	591.6	120.5	293.1	413.7
Truck, nursery, berry	I	1,229.5	395.1		212.4
Urban	N	530.4	172.2	130.5	937.8
Golf course, cemetery, landscape	N	2.7		22.4	81.4
Vineyard	I			1,427.3	1,886.7
Total acres		**62,078.3**	**46,710.7**	**10,856.5**	**17,417.6**
Hydrology (m)		74,920.7	31,234.6	40,762.5	48,407.5

Table 6. Acreages of various land use types in the subwatersheds selected for monitoring during the 2006 storm season. The land uses are designated as irrigated/non-irrigated, and within each subwatershed, the total length of the hydrologic features in meters is provided as the row labeled hydrology. See text for descriptions of the watersheds.

Land Use	I/N	Ash Slough @ Ave. 21	Bear Creek @ Kibby Rd.	Cottonwood Creek @ Rd. 20	Dry Creek @ Wellsford Rd	Dry Creek @ Rd. 18
Citrus	I		46.6	1,330.6	37.1	234.9
Deciduous nut and fruit	I	4,535.7	3,403.4	11,139.4	3,048.0	7,594.0
Field crop	I	4,233.9	738.3	5,391.1	2,498.0	899.6
Field crop	N					
Grain and hay	I	1,777.9	144.7	994.1		1,196.8
Grain and hay	N	586.9		1,144.6	48.6	
Idle	I	1,841.3	72.1	1,253.8	113.6	719.0
Wild vegetation	N	23,460.3	164.8	40,942.3	20,761.4	718.8
Water surface	N			419.3	47.8	11.9
Pasture	I	2,906.6	923.0	707.5	5,692.8	414.1
Pasture	N					
Rice	I				248.5	
Feedlot, dairy, farmstead	N	204.2	87.9	651.9	590.0	357.9
Truck, nursery, berry	I	193.4	951.3	244.0		17.4
Urban	N	3,829.6		7,904.9	157.5	1,968.3
Golf course, cemetery, landscape	N	18.2		146.5		28.9
Vineyard	I	5,526.1		92,363.1	472.3	4,372.1
Total acres		**49,114.1**	**6,531.9**	**164,633.1**	**33,715.5**	**18,533.5**
Hydrology (m)		77,091.7	26,096.0	290,362.4	116,807.2	72,673.9

Table 7. Acreages of various land use types in the subwatersheds selected for monitoring during the 2006 storm season. The land uses are designated as irrigated/non-irrigated, and within each subwatershed, the total length of the hydrologic features in meters is provided as the row labeled hydrology.

Land Use	I/N	Hilmar Drain @ Central Ave.	Jones Drain @ Oakdale Rd.	Merced River @ Santa Fe	Prairie Flower Drain @ Crows Landing Rd.
Citrus	I	31.7		45.4	3.8
Deciduous nut and fruit	I		1,209.1	11,903.5	
Field crop	I	1,038.0	289.6	4,749.0	1,558.8
Field crop	N			140.1	
Grain and hay	I			653.7	
Grain and hay	N			86.4	
Idle	I		370.9	141.1	
Wild vegetation	N		88.8	69,891.3	41.2
Water surface	N	13.9		214.2	22.0
Pasture	I	588.0	252.6	3,332.7	1,009.7
Pasture	N			97.1	
Rice	I				
Feedlot, dairy, farmstead	N	178.9	46.9	703.6	337.5
Truck, nursery, berry	I			400.8	37.6
Urban	N		102.0	78.8	26.9
Golf course, cemetery, landscape	N			176.6	
Vineyard	I		17.6	2,176.4	
Total acres		**1,850.5**	**2,377.4**	**94,790.8**	**3,037.4**
Hydrology (m)		5,205.0	6,493.4	162,288.4	9,985.0

Location Maps of Sample Sites and Land Use

Maps of all the sample sites and the land use upstream of the sites are provided below in Figures 10 - 13 with the legend in Figure 9. See text above for details of the sampling sites and land use.

Figure 10. Coalition map showing all subwatersheds identified for sampling.

ESJWQC storm 2006 sampling sites

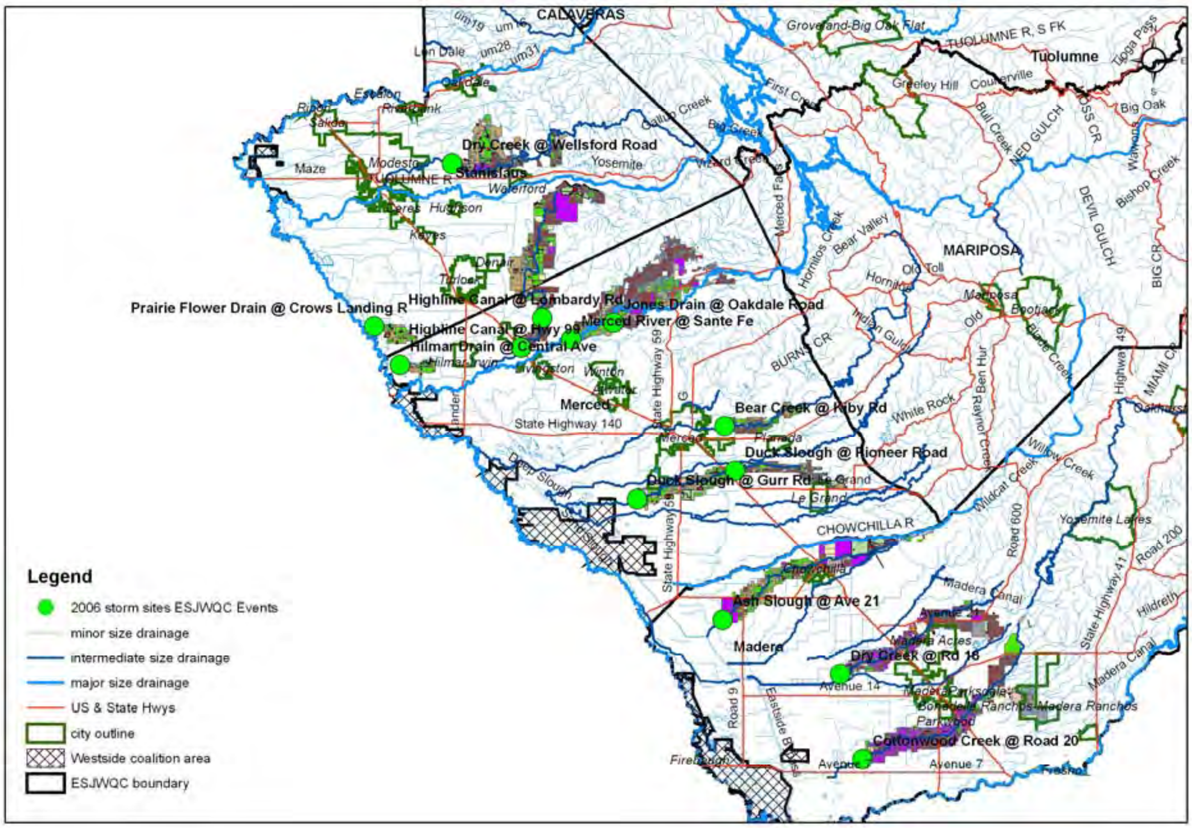


Figure 11. Land use for subwatersheds in Stanislaus County.

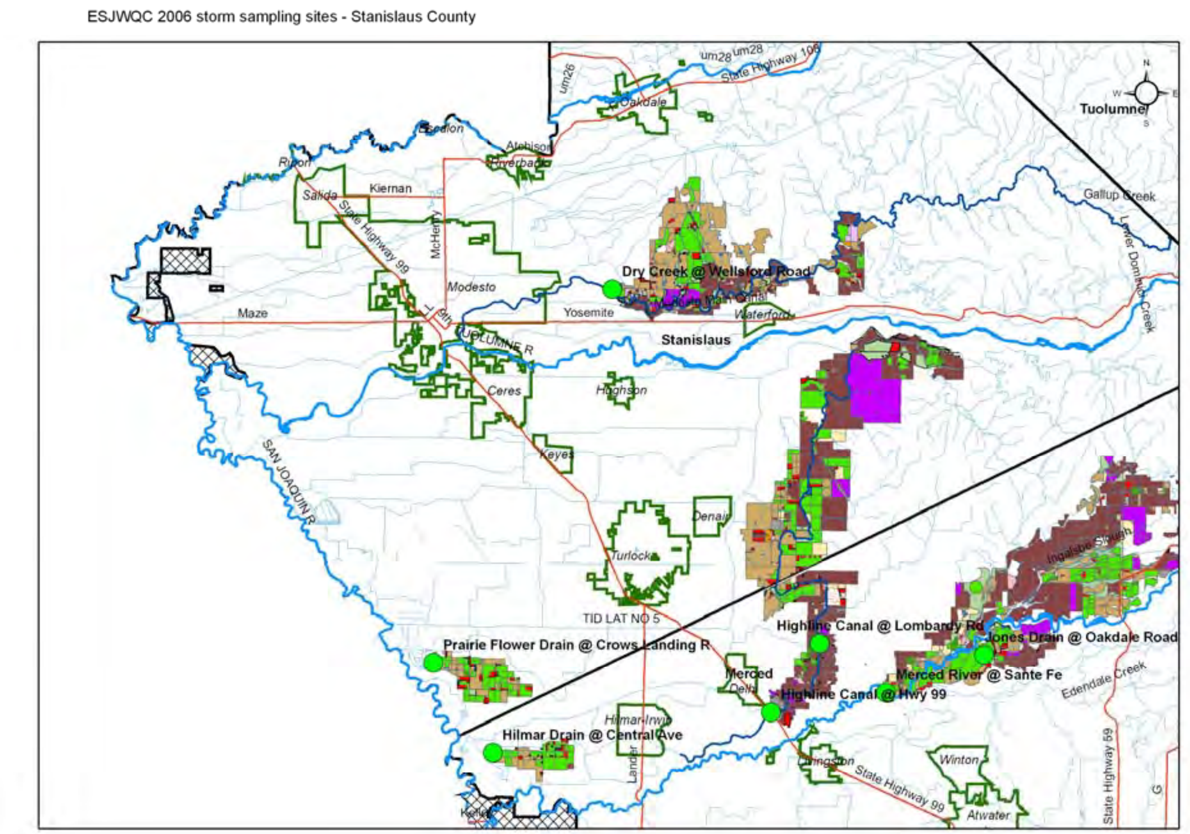


Figure 12. Land use for subwatersheds in Merced County.

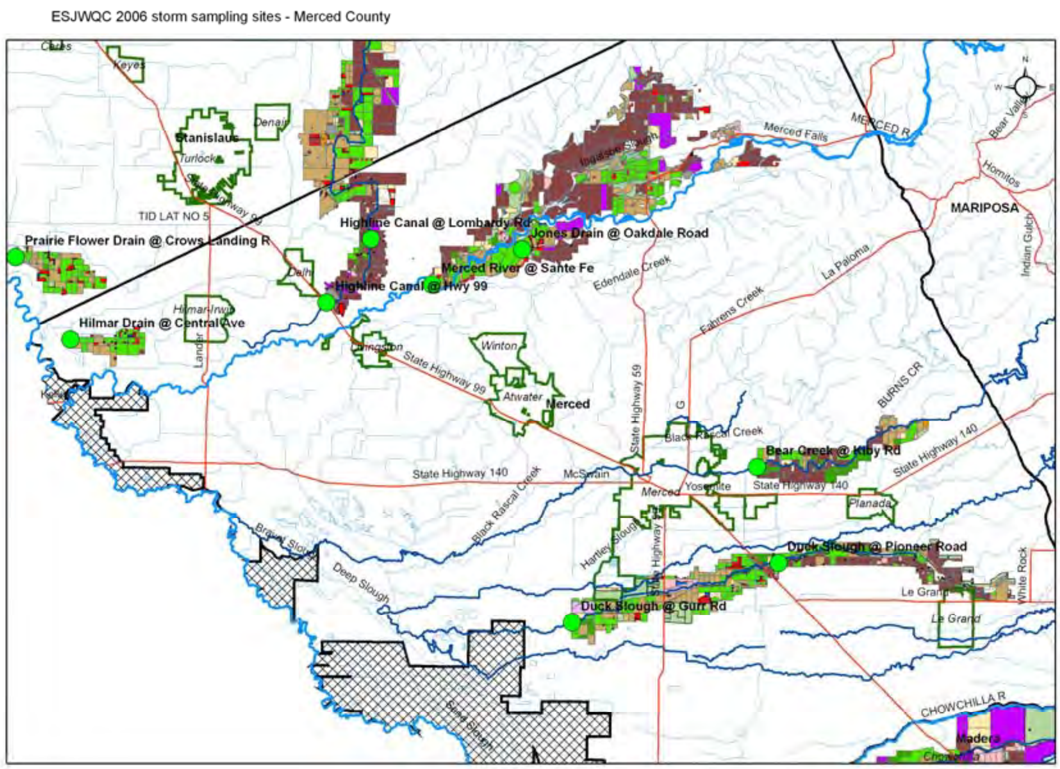
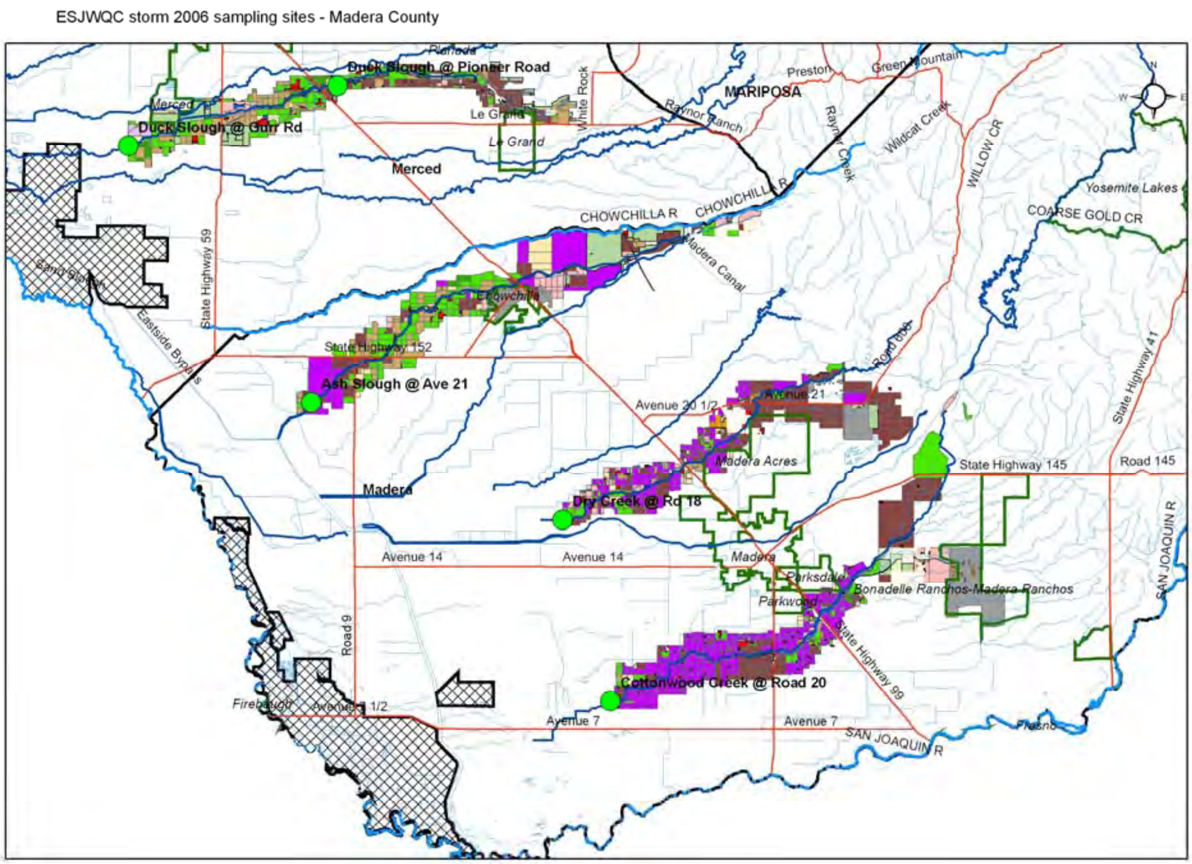


Figure 13. Land use for subwatersheds in Madera County.



Tabulated Results of all Analyses

Data summaries of the constituents monitored by the coalition are presented in the tables below. Full results are available in the SWAMP comparable database maintained by the ESJWQC. Field sheets from the monitoring sites for each event have not been provided due to the additional length of those documents. All data from the datasheets are also available in the ESJWQC database. The database has been placed on the Central Valley Regional Water Quality Control Board FTP site and is available for downloading and synchronizing with the Agricultural Waiver database maintained by the Regional Board. All data generated to date have been placed in the database.

Level IV data packages are appended to the end of the report.

All units of measure for the various constituents are as outlined in the current Monitoring and Reporting Plan and also provided in Table 13 of this report.

Table 8: ESJWQC field measurements recorded from storm sampling events in 2006 including re-sampling due to toxicity.

Station Name	Sample Date	Discharge cfs	DO mg/L	pH	EC µS/cm	Temperature °C	Field Result Comments
Ash Slough @ Ave 21	28/Feb/2006	5.93	9.3	7.22	46	17.6	
Ash Slough @ Ave 21	15/Mar/2006	11.24	12.4	7.33	45	19.1	
Bear Creek @ Kibby Rd	28/Feb/2006	8.98	15.2	8.41	303	16.7	
Bear Creek @ Kibby Rd	15/Mar/2006		12.8	8	138	11.5	Too deep and flow too fast to wade in to get depths or accurate flows
Cottonwood Creek @ Road 20	28/Feb/2006	0.26	9	7.36	315	13.1	
Cottonwood Creek @ Road 20	15/Mar/2006		11	7.14	121	9.1	Flow to slow for meter to measure
Dry Creek @ Wellsford Road	01/Mar/2006		11.5	7.94	213	11.8	Stream too deep and fast to get velocity measurements
Dry Creek @ Wellsford Road	16/Mar/2006		10.7	7.02	92	11.7	Creek too deep, flow too fast to safely wade
Duck Slough @ Gurr Rd	28/Feb/2006	20.3	10.2	8.28	378	14.5	Discharge = sum of right and left channel discharges
Duck Slough @ Gurr Rd	10/Mar/2006	168.42	13.4	8.09	168	12	Resampling due to FH minnow and Ceriodaphnia toxicity
Duck Slough @ Gurr Rd	15/Mar/2006	430.07	13.5	8.39	161	11.5	Old dam fully submerged. May have been washed out. No flow from pipe on left bank. Discharge value represents best estimate accounting for inaccurate depth measurement.
Duck Slough @ Gurr Rd	24/Mar/2006	277.12	11.6	7.7	126	15.5	Resampling event
Duck Slough @ Hwy 99	28/Feb/2006	9.72	10.7	8.22	276	15.2	
Duck Slough @ Hwy 99	15/Mar/2006		13.6	8.45	173	10.6	Too wide and deep to take discharge
Highline Canal @ Hwy 99	01/Mar/2006	0	5.6	7.33	162	9.62	Velocity too low to be measured
Highline Canal @ Hwy 99	10/Mar/2006	1.91	10.1	8.28	471	13.2	Resampling due to toxicity
Highline Canal @ Hwy 99	16/Mar/2006	0	9.1	7.3	406	10.9	Flow too slow for meter to register
Highline Canal @ Hwy 99	24/Mar/2006	1.35	8.4	7.6	85	14.5	Resampling event
Highline Canal @ Lombardy Rd	01/Mar/2006	0	8	7.59	608	9.3	
Highline Canal @ Lombardy Rd	16/Mar/2006	62.19	9.5	7.6	353	11.7	
Highline Canal @ Lombardy Rd	24/Mar/2006		9.5	7.59	47	15.4	Resampling event; flow too slow to measure discharge

Station Name	Sample Date	Discharge cfs	DO mg/L	pH	EC µS/cm	Temperature °C	Field Result Comments
Hilmar Drain @ Central Ave	01/Mar/2006	0	25.9	9.55	1058	24.1	Velocity too low to be measured
Hilmar Drain @ Central Ave	16/Mar/2006		15.8	8.3	1215	23	Water too shallow and flow too slow to get accurate discharge reading
Hilmar Drain @ Central Ave	24/Mar/2006		13.5	7.99	1400	16.7	Resampling event
Jones Drain @ Oakdale Road	01/Mar/2006	0	8.6	7.15	74	11.8	Velocity too low to be measured
Jones Drain @ Oakdale Road	16/Mar/2006	2.25	10.9	6.59	100	12.3	No flow in left channel; only measurable discharge in right channel
Merced River @ Sante Fe	01/Mar/2006		11.1	6.83	50	11.5	River too wide and fast to take velocity measurements
Merced River @ Sante Fe	16/Mar/2006		11.8	7.05	50	10.2	Too wide and deep to get flow measurements
Merced River @ Sante Fe	24/Mar/2006		12.9	7.31	54	11.3	Resampling event
Prairie Flower Drain @ Crows Landing Road	01/Mar/2006	0	23.9	8.45	2419	18.6	Flow too low to measure
Prairie Flower Drain @ Crows Landing Road	16/Mar/2006	0.316	19.4	8.77	2728	16.8	Used culvert calculator to calculate discharge
Prairie Flower Drain @ Crows Landing Road	24/Mar/2006		20.1	7.62	2782	14.1	Resampling event

DO = dissolved oxygen   EC = specific conductivity

Table 9: ESJWQC inorganic sample results including environmental samples, field blanks, field duplicates and matrix spikes. Samples were collected during the storm season of 2006.

Station Name	Replicate	Sample Date	Sample Time°	Sample Type	Analyte	Result	Unit	RL	Expected Value	PR	RPD	Quality Assurance	Data Acceptability Criteria	Lab Comments
Storm 1 Sampling (2/28/06- 3/01/06)														
Cottonwood Creek @ Road 20	1	2/28/2006	8:30	FB	Color	>1	color units	1				A holding time violation	48 hours	
Cottonwood Creek @ Road 20	2	2/28/2006	8:30	FB	Color	>1	color units	1			0	A holding time violation	48 hours	
Cottonwood Creek @ Road 20	1	2/28/2006	8:30	FB	E. coli	>2	MPN/100 mL	2				None - No QA Qualifier	<RL or sample result ÷ 5	AnalysisTime 20:40
Cottonwood Creek @ Road 20	1	2/28/2006	8:30	FB	Total Dissolved Solids	>5	mg/L	5				None - No QA Qualifier	<RL or sample result ÷ 5	
Cottonwood Creek @ Road 20	1	2/28/2006	8:30	FB	Total Organic Carbon	0.43	mg/L	0.2				Analyte detected in method,	<RL or sample result ÷ 5	Analyte detection less than 1/5 of sample
Cottonwood Creek @ Road 20	1	2/28/2006	8:30	FB	Turbidity	0.2	NTU	0.1				Analyte detected in method,	<RL or sample result ÷ 5	Analyte detection less than 1/5 of sample
Cottonwood Creek @ Road 20	2	2/28/2006	8:30	FB	Turbidity	0.2	NTU	0.1			0	Analyte detected in method,	<RL or sample result ÷ 5 RPD≤25	Analyte detection less than 1/5 of sample
Cottonwood Creek @ Road 20	1	2/28/2006	8:30	FD	Color	30	color units	2			FD 0	A holding time violation	48 hours	DF 2
Cottonwood Creek @ Road 20	1	2/28/2006	8:30	FD	E. coli	300	MPN/100 mL	2			FD 0	None - No QA Qualifier	No criteria listed	AnalysisTime 20:40
Cottonwood Creek @ Road 20	1	2/28/2006	8:30	FD	Total Dissolved Solids	210	mg/L	5			FD 0	None - No QA Qualifier	FD RPD < 25	
Cottonwood Creek @ Road 20	1	2/28/2006	8:30	FD	Total Organic Carbon	4.9	mg/L	0.2			FD 2	None - No QA Qualifier	FD RPD < 25	
Cottonwood Creek @ Road 20	1	2/28/2006	8:30	FD	Turbidity	9.5	NTU	0.1			FD 9	A holding time violation	FD RPD < 25	

Station Name	Replicate	Sample Date	Sample Time°	Sample Type	Analyte	Result	Unit	RL	Expected Value	PR	RPD	Quality Assurance	Data Acceptability Criteria	Lab Comments
Cottonwood Creek @ Road 20	1	2/28/2006	8:30	E	Color	30	color units	2				A holding time violation	48 hours	DF 2
Cottonwood Creek @ Road 20	1	2/28/2006	8:30	E	E. coli	300	MPN/100 mL	2				None - No QA Qualifier		AnalysisTime 20:40
Cottonwood Creek @ Road 20	1	2/28/2006	8:30	E	Total Dissolved Solids	210	mg/L	5				None - No QA Qualifier		
Cottonwood Creek @ Road 20	2	2/28/2006	8:30	E	Total Dissolved Solids	210	mg/L	5			0	None - No QA Qualifier		
Cottonwood Creek @ Road 20	1	2/28/2006	8:30	E	Total Organic Carbon	5	mg/L	0.2				None - No QA Qualifier		
Cottonwood Creek @ Road 20	1	2/28/2006	8:30	E	Turbidity	8.7	NTU	0.1				A holding time violation	48 hours	
Ash Slough @ Ave 21	1	2/28/2006	11:25	E	Color	60	color units	2				A holding time violation	48 hours	DF 2
Ash Slough @ Ave 21	1	2/28/2006	11:25	E	E. coli	500	MPN/100 mL	2				None - No QA Qualifier		AnalysisTime 20:40
Ash Slough @ Ave 21	2	2/28/2006	11:25	E	E. coli	130	MPN/100 mL	2			117	None - No QA Qualifier		AnalysisTime 20:40
Ash Slough @ Ave 21	1	2/28/2006	11:25	E	Total Dissolved Solids	57	mg/L	5				None - No QA Qualifier		
Ash Slough @ Ave 21	1	2/28/2006	11:25	E	Total Organic Carbon	3.3	mg/L	0.2				None - No QA Qualifier		
Ash Slough @ Ave 21	1	2/28/2006	11:25	E	Turbidity	20	NTU	0.2				A holding time violation	48 hours	DF 2
Duck Slough @ Gurr Rd	1	2/28/2006	12:45	E	Color	25	color units	1				None - No QA Qualifier		
Duck Slough @ Gurr Rd	2	2/28/2006	12:45	E	Color	25	color units	1			0	None - No QA Qualifier		
Duck Slough @ Gurr Rd	1	2/28/2006	12:45	E	E. coli	110	MPN/100 mL	2				None - No QA Qualifier		AnalysisTime 20:40

Station Name	Replicate	Sample Date	Sample Time°	Sample Type	Analyte	Result	Unit	RL	Expected Value	PR	RPD	Quality Assurance	Data Acceptability Criteria	Lab Comments
Duck Slough @ Gurr Rd	1	2/28/2006	12:45	E	Total Dissolved Solids	230	mg/L	5				None - No QA Qualifier		
Duck Slough @ Gurr Rd	1	2/28/2006	12:45	E	Total Organic Carbon	4.4	mg/L	0.2				None - No QA Qualifier		
Duck Slough @ Gurr Rd	1	2/28/2006	12:45	E	Turbidity	2.9	NTU	0.1				None - No QA Qualifier		
Duck Slough @ Gurr Rd	2	2/28/2006	12:45	E	Turbidity	2.9	NTU	0.1			0	None - No QA Qualifier		
Duck Slough @ Hwy 99	1	2/28/2006	14:20	E	Color	25	color units	1				None - No QA Qualifier		
Duck Slough @ Hwy 99	1	2/28/2006	14:20	E	E. coli	80	MPN/100 mL	2				None - No QA Qualifier		AnalysisTime 20:40
Duck Slough @ Hwy 99	1	2/28/2006	14:20	E	Total Dissolved Solids	170	mg/L	5				None - No QA Qualifier		
Duck Slough @ Hwy 99	1	2/28/2006	14:20	E	Total Organic Carbon	3.1	mg/L	0.2				None - No QA Qualifier		
Duck Slough @ Hwy 99	1	2/28/2006	14:20	E	Turbidity	2.8	NTU	0.1				None - No QA Qualifier		
Duck Slough @ Hwy 99	1	2/28/2006	14:20	MS	Total Organic Carbon	11.6	mg/L	0.2	13.1	85		None - No QA Qualifier	PR 80-120	
Duck Slough @ Hwy 99	2	2/28/2006	14:20	MS	Total Organic Carbon	11.6	mg/L	0.2	13.1	85	0	None - No QA Qualifier	PRR 80-120 RPD≤20	
Bear Creek @ Kibby Rd	1	2/28/2006	15:30	E	Color	20	color units	1				None - No QA Qualifier		
Bear Creek @ Kibby Rd	1	2/28/2006	15:30	E	E. coli	70	MPN/100 mL	2				None - No QA Qualifier		AnalysisTime 20:40
Bear Creek @ Kibby Rd	1	2/28/2006	15:30	E	Total Dissolved Solids	190	mg/L	5				None - No QA Qualifier		
Bear Creek @ Kibby Rd	1	2/28/2006	15:30	E	Total Organic Carbon	2.8	mg/L	0.2				None - No QA Qualifier		

Station Name	Replicate	Sample Date	Sample Time°	Sample Type	Analyte	Result	Unit	RL	Expected Value	PR	RPD	Quality Assurance	Data Acceptability Criteria	Lab Comments
Bear Creek @ Kibby Rd	1	2/28/2006	15:30	E	Turbidity	3	NTU	0.1				None - No QA Qualifier		
Highline Canal @ Hwy 99	1	3/1/2006	7:40	E	Color	50	color units	2				A holding time violation	48 hours	DF 2; AnalysisTime 09:12
Highline Canal @ Hwy 99	1	3/1/2006	7:40	E	E. coli	50	MPN/100 mL	2				None - No QA Qualifier		AnalysisTime 20:15
Highline Canal @ Hwy 99	1	3/1/2006	7:40	E	Total Dissolved Solids	180	mg/L	5				None - No QA Qualifier		
Highline Canal @ Hwy 99	2	3/1/2006	7:40	E	Total Dissolved Solids	180	mg/L	5			0	None - No QA Qualifier		
Highline Canal @ Hwy 99	1	3/1/2006	7:40	E	Total Organic Carbon	7.2	mg/L	0.2				None - No QA Qualifier		
Highline Canal @ Hwy 99	1	3/1/2006	7:40	E	Turbidity	6.5	NTU	0.2				A holding time violation	48 hours	DF 2; AnalysisTime 09:09
Highline Canal @ Lombardy	1	3/1/2006	9:10	E	Color	60	color units	2				None - No QA Qualifier		DF 2
Highline Canal @ Lombardy	1	3/1/2006	9:10	E	E. coli	110	MPN/100 mL	2				None - No QA Qualifier		AnalysisTime 20:15
Highline Canal @ Lombardy	1	3/1/2006	9:10	E	Total Dissolved Solids	440	mg/L	5				None - No QA Qualifier		
Highline Canal @ Lombardy	1	3/1/2006	9:10	E	Total Organic Carbon	13	mg/L	0.2				None - No QA Qualifier		
Highline Canal @ Lombardy	1	3/1/2006	9:10	E	Turbidity	2.8	NTU	0.1				None - No QA Qualifier		
Merced River @ Santa Fe	1	3/1/2006	10:15	E	Color	75	color units	5				None - No QA Qualifier		DF 5
Merced River @ Santa Fe	2	3/1/2006	10:15	E	Color	75	color units	1			0	None - No QA Qualifier		
Merced River @ Santa Fe	1	3/1/2006	10:15	E	E. coli	1600	MPN/100 mL	2				None - No QA Qualifier		AnalysisTime 20:15

Station Name	Replicate	Sample Date	Sample Time°	Sample Type	Analyte	Result	Unit	RL	Expected Value	PR	RPD	Quality Assurance	Data Acceptability Criteria	Lab Comments
Merced River @ Santa Fe	1	3/1/2006	10:15	E	Total Dissolved Solids	43	mg/L	5				None - No QA Qualifier		
Merced River @ Santa Fe	1	3/1/2006	10:15	E	Total Organic Carbon	2.8	mg/L	0.2				None - No QA Qualifier		
Merced River @ Santa Fe	1	3/1/2006	10:15	E	Turbidity	18	NTU	0.5				None - No QA Qualifier		DF 5
Merced River @ Santa Fe	2	3/1/2006	10:15	E	Turbidity	18	NTU	0.5			0	None - No QA Qualifier		DF 5
Jones Drain @ Oakdale Road	1	3/1/2006	11:00	E	Color	200	color units	10				None - No QA Qualifier		DF 10
Jones Drain @ Oakdale Road	1	3/1/2006	11:00	E	E. coli	900	MPN/100 mL	2				None - No QA Qualifier		AnalysisTime 20:15
Jones Drain @ Oakdale Road	1	3/1/2006	11:00	E	Total Dissolved Solids	68	mg/L	5				None - No QA Qualifier		
Jones Drain @ Oakdale Road	1	3/1/2006	11:00	E	Total Organic Carbon	4.7	mg/L	0.2				None - No QA Qualifier		
Jones Drain @ Oakdale Road	1	3/1/2006	11:00	E	Turbidity	48	NTU	1				None - No QA Qualifier		DF 10
Dry Creek @ Wellsford	1	3/1/2006	13:00	E	Color	70	color units	2				None - No QA Qualifier		DF 2
Dry Creek @ Wellsford	1	3/1/2006	13:00	E	E. coli	300	MPN/100 mL	2				None - No QA Qualifier		AnalysisTime 20:15
Dry Creek @ Wellsford	1	3/1/2006	13:00	E	Total Dissolved Solids	140	mg/L	5				None - No QA Qualifier		
Dry Creek @ Wellsford	1	3/1/2006	13:00	E	Total Organic Carbon	7.5	mg/L	0.2				None - No QA Qualifier		
Dry Creek @ Wellsford	1	3/1/2006	13:00	E	Turbidity	11	NTU	0.2				None - No QA Qualifier		DF 2
Prairie Flower Drain @	1	3/1/2006	13:30	E	Color	150	color units	5				None - No QA Qualifier		DF 5

Station Name	Replicate	Sample Date	Sample Time°	Sample Type	Analyte	Result	Unit	RL	Expected Value	PR	RPD	Quality Assurance	Data Acceptability Criteria	Lab Comments
Prairie Flower Drain @	1	3/1/2006	13:30	E	E. coli	900	MPN/100 mL	2				None - No QA Qualifier		AnalysisTime 20:15
Prairie Flower Drain @	1	3/1/2006	13:30	E	Total Dissolved Solids	1600	mg/L	5				None - No QA Qualifier		
Prairie Flower Drain @	1	3/1/2006	13:30	E	Total Organic Carbon	20	mg/L	0.2				None - No QA Qualifier		
Prairie Flower Drain @	1	3/1/2006	13:30	E	Turbidity	13	NTU	0.5				None - No QA Qualifier		DF 5
Hilmar Drain @ Central Ave	1	3/1/2006	15:10	E	Color	120	color units	5				None - No QA Qualifier		DF 5
Hilmar Drain @ Central Ave	1	3/1/2006	15:10	E	E. coli	30	MPN/100 mL	2				None - No QA Qualifier		AnalysisTime 20:15
Hilmar Drain @ Central Ave	2	3/1/2006	15:10	E	E. coli	13	MPN/100 mL	2			79	None - No QA Qualifier		AnalysisTime 20:15
Hilmar Drain @ Central Ave	1	3/1/2006	15:10	E	Total Dissolved Solids	670	mg/L	5				None - No QA Qualifier		
Hilmar Drain @ Central Ave	1	3/1/2006	15:10	E	Total Organic Carbon	14	mg/L	0.2				None - No QA Qualifier		
Hilmar Drain @ Central Ave	1	3/1/2006	15:10	E	Turbidity	17	NTU	0.5				None - No QA Qualifier		DF 5
Storm 2 Sampling (3/15/06-3/16/06)														
Cottonwood Creek @ Road 20	1	3/15/2006	11:40	FB	Color	>1	color units	1				None - No QA Qualifier	<RL or sample result ÷ 5	
Cottonwood Creek @ Road 20	1	3/15/2006	11:40	FB	E. coli	>2	MPN/100 mL	2				None - No QA Qualifier	<RL or sample result ÷ 5	AnalysisTime 21:50
Cottonwood Creek @ Road 20	1	3/15/2006	11:40	FB	Total Dissolved Solids	>5	mg/L	5				None - No QA Qualifier	<RL or sample result ÷ 5	
Cottonwood Creek @ Road 20	1	3/15/2006	11:40	FB	Total Organic Carbon	0.48	mg/L	0.2				Analyte detected in method,	<RL or sample result ÷ 5	

Station Name	Replicate	Sample Date	Sample Time°	Sample Type	Analyte	Result	Unit	RL	Expected Value	PR	RPD	Quality Assurance	Data Acceptability Criteria	Lab Comments
Cottonwood Creek @ Road 20	1	3/15/2006	11:40	FB	Turbidity	>0.1	NTU	0.1				None - No QA Qualifier	<RL or sample result ÷ 5	
Cottonwood Creek @ Road 20	1	3/15/2006	11:40	FD	Color	350	color units	1			FD 0	None - No QA Qualifier	FD RPD < 25	DF 10
Cottonwood Creek @ Road 20	1	3/15/2006	11:40	FD	E. coli	900	MPN/100 mL	2			FD 56	None - No QA Qualifier	No criteria listed	AnalysisTime 21:50
Cottonwood Creek @ Road 20	1	3/15/2006	11:40	FD	Total Dissolved Solids	130	mg/L	5			3.7	None - No QA Qualifier	FD RPD < 25	
Cottonwood Creek @ Road 20	1	3/15/2006	11:40	FD	Total Organic Carbon	13	mg/L	0.2			FD 0	None - No QA Qualifier	FD RPD < 25	
Cottonwood Creek @ Road 20	1	3/15/2006	11:40	FD	Turbidity	53	NTU	1			FD 6	None - No QA Qualifier	FD RPD < 25	DF 10
Cottonwood Creek @ Road 20	1	3/15/2006	11:40	E	Color	350	color units	10				None - No QA Qualifier		DF 10
Cottonwood Creek @ Road 20	1	3/15/2006	11:40	E	E. coli	1600	MPN/100 mL	2				None - No QA Qualifier		AnalysisTime 21:50
Cottonwood Creek @ Road 20	2	3/15/2006	11:40	E	E. coli	1600	MPN/100 mL	2			0	None - No QA Qualifier		AnalysisTime 21:50
Cottonwood Creek @ Road 20	1	3/15/2006	11:40	E	Total Dissolved Solids	140	mg/L	5				None - No QA Qualifier		
Cottonwood Creek @ Road 20	1	3/15/2006	11:40	E	Total Organic Carbon	13	mg/L	0.2				None - No QA Qualifier		
Cottonwood Creek @ Road 20	1	3/15/2006	11:40	E	Turbidity	56	NTU	1				None - No QA Qualifier		DF 10
Ash Slough @ Ave 21	1	3/15/2006	13:30	E	Color	60	color units	4				None - No QA Qualifier		DF 4
Ash Slough @ Ave 21	2	3/15/2006	13:30	E	Color	60	color units	4			0	None - No QA Qualifier		DF 4
Ash Slough @ Ave 21	1	3/15/2006	13:30	E	E. coli	11	MPN/100 mL	2				None - No QA Qualifier		AnalysisTime 21:50

Station Name	Replicate	Sample Date	Sample Time°	Sample Type	Analyte	Result	Unit	RL	Expected Value	PR	RPD	Quality Assurance	Data Acceptability Criteria	Lab Comments
Ash Slough @ Ave 21	1	3/15/2006	13:30	E	Total Dissolved Solids	39	mg/L	5				None - No QA Qualifier		
Ash Slough @ Ave 21	1	3/15/2006	13:30	E	Total Organic Carbon	2.9	mg/L	0.2				None - No QA Qualifier		
Ash Slough @ Ave 21	1	3/15/2006	13:30	E	Turbidity	14	NTU	0.4				None - No QA Qualifier		DF 4
Ash Slough @ Ave 21	2	3/15/2006	13:30	E	Turbidity	14	NTU	0.4			0	None - No QA Qualifier		DF 4
Duck Slough @ Gurr Rd	1	3/15/2006	15:00	E	Color	100	color units	5				None - No QA Qualifier		DF 5
Duck Slough @ Gurr Rd	1	3/15/2006	15:00	E	E. coli	300	MPN/100 mL	2				None - No QA Qualifier		AnalysisTime 21:50
Duck Slough @ Gurr Rd	1	3/15/2006	15:00	E	Total Dissolved Solids	110	mg/L	5				None - No QA Qualifier		
Duck Slough @ Gurr Rd	1	3/15/2006	15:00	MS	Total Organic Carbon	14	mg/L	0.2	13.9	104		None - No QA Qualifier	PR 80-120	
Duck Slough @ Gurr Rd	2	3/15/2006	15:00	MS	Total Organic Carbon	14	mg/L	0.2	13.9	104	0.14	None - No QA Qualifier	PR 80-120 RPD≤20	
Duck Slough @ Gurr Rd	1	3/15/2006	15:00	E	Turbidity	32	NTU	1				None - No QA Qualifier		DF 5
Duck Slough @ Hwy 99	1	3/15/2006	16:15	E	Color	100	color units	5				None - No QA Qualifier		DF 5
Duck Slough @ Hwy 99	1	3/15/2006	16:15	E	E. coli	900	MPN/100 mL	2				None - No QA Qualifier		AnalysisTime 21:50
Duck Slough @ Hwy 99	1	3/15/2006	16:15	E	Total Dissolved Solids	120	mg/L	5				None - No QA Qualifier		
Duck Slough @ Hwy 99	1	3/15/2006	16:15	E	Total Organic Carbon	4	mg/L	0.2				None - No QA Qualifier		
Duck Slough @ Hwy 99	1	3/15/2006	16:15	E	Turbidity	25	NTU	0.5				None - No QA Qualifier		DF 5

Station Name	Replicate	Sample Date	Sample Time°	Sample Type	Analyte	Result	Unit	RL	Expected Value	PR	RPD	Quality Assurance	Data Acceptability Criteria	Lab Comments
Bear Creek @ Kibby Rd	1	3/15/2006	17:15	E	Color	100	color units	5				None - No QA Qualifier		DF 5
Bear Creek @ Kibby Rd	1	3/15/2006	17:15	E	E. coli	1600	MPN/100 mL	2				None - No QA Qualifier		AnalysisTime 21:50
Bear Creek @ Kibby Rd	1	3/15/2006	17:15	E	Total Dissolved Solids	100	mg/L	5				None - No QA Qualifier		
Bear Creek @ Kibby Rd	1	3/15/2006	17:15	E	Total Organic Carbon	5.5	mg/L	0.2				None - No QA Qualifier		
Bear Creek @ Kibby Rd	1	3/15/2006	17:15	E	Turbidity	22	NTU	0.5				None - No QA Qualifier		DF 5
Highline Canal @ Hwy 99	1	3/16/2006	7:30	E	Color	15	color units	1				None - No QA Qualifier		
Highline Canal @ Hwy 99	1	3/16/2006	7:30	E	E. coli	300	MPN/100 mL	2				None - No QA Qualifier		AnalysisTime 22:10
Highline Canal @ Hwy 99	1	3/16/2006	7:30	E	Total Dissolved Solids	290	mg/L	5				None - No QA Qualifier		
Highline Canal @ Hwy 99	1	3/16/2006	7:30	E	Total Organic Carbon	2.7	mg/L	0.2				None - No QA Qualifier		
Highline Canal @ Hwy 99	1	3/16/2006	7:30	E	Turbidity	1.3	NTU	0.1				None - No QA Qualifier		
Highline Canal @ Lombardy	1	3/16/2006	8:35	E	Color	600	color units	20				None - No QA Qualifier		DF 20
Highline Canal @ Lombardy	1	3/16/2006	8:35	E	E. coli	900	MPN/100 mL	2				None - No QA Qualifier		AnalysisTime 22:10
Highline Canal @ Lombardy	2	3/16/2006	8:35	E	E. coli	500	MPN/100 mL	2			57	None - No QA Qualifier		AnalysisTime 22:10
Highline Canal @ Lombardy	1	3/16/2006	8:35	E	Total Dissolved Solids	210	mg/L	5				None - No QA Qualifier		
Highline Canal @ Lombardy	1	3/16/2006	8:35	E	Total Organic Carbon	13	mg/L	0.2				None - No QA Qualifier		

Station Name	Replicate	Sample Date	Sample Time°	Sample Type	Analyte	Result	Unit	RL	Expected Value	PR	RPD	Quality Assurance	Data Acceptability Criteria	Lab Comments
Highline Canal @ Lombardy	1	3/16/2006	8:35	E	Turbidity	120	NTU	2				None - No QA Qualifier		DF 20
Merced River @ Santa Fe	1	3/16/2006	9:40	E	Color	30	color units	1				None - No QA Qualifier		
Merced River @ Santa Fe	1	3/16/2006	9:40	E	E. coli	80	MPN/100 mL	2				None - No QA Qualifier		AnalysisTime 22:10
Merced River @ Santa Fe	1	3/16/2006	9:40	E	Total Dissolved Solids	40	mg/L	5				None - No QA Qualifier		
Merced River @ Santa Fe	2	3/16/2006	9:40	E	Total Dissolved Solids	40	mg/L	5			0	None - No QA Qualifier		
Merced River @ Santa Fe	1	3/16/2006	9:40	E	Total Organic Carbon	2.7	mg/L	0.2				None - No QA Qualifier		
Merced River @ Santa Fe	1	3/16/2006	9:40	E	Turbidity	4	NTU	0.1				None - No QA Qualifier		
Merced River @ Santa Fe	1	3/16/2006	9:40	MS	Total Organic Carbon	12.8	mg/L	0.2	12.7	100		None - No QA Qualifier	PR 80-120	
Merced River @ Santa Fe	2	3/16/2006	9:40	MS	Total Organic Carbon	12.6	mg/L	0.2	12.7	99	1.2	None - No QA Qualifier	PR 80-120 RPD≤20	
Jones Drain @ Oakdale Road	1	3/16/2006	10:25	E	Color	200	color units	10				None - No QA Qualifier		DF 10
Jones Drain @ Oakdale Road	1	3/16/2006	10:25	E	E. coli	70	MPN/100 mL	2				None - No QA Qualifier		AnalysisTime 22:10
Jones Drain @ Oakdale Road	1	3/16/2006	10:25	E	Total Dissolved Solids	85	mg/L	5				None - No QA Qualifier		
Jones Drain @ Oakdale Road	1	3/16/2006	10:25	E	Total Organic Carbon	0.64	mg/L	0.2				None - No QA Qualifier		
Jones Drain @ Oakdale Road	1	3/16/2006	10:25	E	Turbidity	40	NTU	1				None - No QA Qualifier		DF 10
Dry Creek @ Wellsford	1	3/16/2006	11:45	E	Color	150	color units	10				None - No QA Qualifier		DF 10

Station Name	Replicate	Sample Date	Sample Time°	Sample Type	Analyte	Result	Unit	RL	Expected Value	PR	RPD	Quality Assurance	Data Acceptability Criteria	Lab Comments
Dry Creek @ Wellsford	1	3/16/2006	11:45	E	E. coli	1600	MPN/100 mL	2				None - No QA Qualifier		AnalysisTime 22:10
Dry Creek @ Wellsford	1	3/16/2006	11:45	E	Total Dissolved Solids	83	mg/L	5				None - No QA Qualifier		
Dry Creek @ Wellsford	1	3/16/2006	11:45	E	Total Organic Carbon	6	mg/L	0.2				None - No QA Qualifier		
Dry Creek @ Wellsford	1	3/16/2006	11:45	E	Turbidity	28	NTU	1				None - No QA Qualifier		DF 10
Dry Creek @ Wellsford	1	3/16/2006	11:45	MS	Total Organic Carbon	17	mg/L	0.2	16	104		None - No QA Qualifier	PR 80-120	
Dry Creek @ Wellsford	2	3/16/2006	11:45	MS	Total Organic Carbon	15	mg/L	0.2	16	93	11	None - No QA Qualifier	PR 80-120 RPD≤20	
Prairie Flower Drain @	1	3/16/2006	13:10	E	Color	75	color units	5				None - No QA Qualifier		DF 5
Prairie Flower Drain @	1	3/16/2006	13:10	E	E. coli	300	MPN/100 mL	2				None - No QA Qualifier		AnalysisTime 22:10
Prairie Flower Drain @	1	3/16/2006	13:10	E	Total Dissolved Solids	1600	mg/L	5				None - No QA Qualifier		
Prairie Flower Drain @	1	3/16/2006	13:10	E	Total Organic Carbon	16	mg/L	0.2				None - No QA Qualifier		
Prairie Flower Drain @	1	3/16/2006	13:10	E	Turbidity	5.6	NTU	0.1				None - No QA Qualifier		
Prairie Flower Drain @	1	3/16/2006	13:10	MS	Total Organic Carbon	25	mg/L	0.2	26	97		None - No QA Qualifier	PR 80-120	
Prairie Flower Drain @	2	3/16/2006	13:10	MS	Total Organic Carbon	26	mg/L	0.2	26	99	1.7	None - No QA Qualifier	PR 80-120 RPD≤20	
Hilmar Drain @ Central Ave	1	3/16/2006	13:55	E	Color	100	color units	5				None - No QA Qualifier		DF 5
Hilmar Drain @ Central Ave	1	3/16/2006	13:55	E	E. coli	140	MPN/100 mL	2				None - No QA Qualifier		AnalysisTime 22:10

Station Name	Replicate	Sample Date	Sample Time°	Sample Type	Analyte	Result	Unit	RL	Expected Value	PR	RPD	Quality Assurance	Data Acceptability Criteria	Lab Comments
Hilmar Drain @ Central Ave	1	3/16/2006	13:55	E	Total Dissolved Solids	710	mg/L	5				None - No QA Qualifier		
Hilmar Drain @ Central Ave	1	3/16/2006	13:55	E	Total Organic Carbon	12	mg/L	0.2				None - No QA Qualifier		
Hilmar Drain @ Central Ave	1	3/16/2006	13:55	E	Turbidity	12	NTU	0.5				None - No QA Qualifier		DF 5

E = Environmental sample FD = Field Duplicate sample FB = Field Blank sample QA = Quality Assuarnce MS = Matrix Spike PR = Percent Recovery RPD = Relative Percent Difference
FD RPD = Relative Percent Difference between the environmental sample and the field duplicate NA = Not Applicable DF = dilution factor

*sample time for all constituents sampled has been adjusted to reflect the time of the first sample collected at that site for that date; this may not be the exact same time as recorded on the COCs

Table 10: ESJWQC sample results including environmental samples, field blanks, field duplicates and matrix spikes. Samples were collected during the storm season of 2006.

Station Name	Replicate	Sample Date	Sample Time*	Sample Type	Analyte	Result	Unit	RL	Expected Value	PR	RPD	Quality Assurance	Data Acceptability Criteria
Storm 1 Sampling (2/28/06- 3/1/06)													
Cottonwood Creek @ Road 20	1	2/28/2006	8:30	FB	Bifenthrin	<0.006	µg/L	0.02				None - No QA Qualifier	<MDL or sample result ÷ 5
Cottonwood Creek @ Road 20	1	2/28/2006	8:30	FB	Chlorpyrifos	<0.00259	µg/L	0.02				None - No QA Qualifier	<MDL or sample result ÷ 5
Cottonwood Creek @ Road 20	1	2/28/2006	8:30	FB	Cyfluthrin	<0.003	µg/L	0.03				None - No QA Qualifier	<MDL or sample result ÷ 5
Cottonwood Creek @ Road 20	1	2/28/2006	8:30	FB	Cyhalothrin, lambda	<0.001	µg/L	0.02				None - No QA Qualifier	<MDL or sample result ÷ 5
Cottonwood Creek @ Road 20	1	2/28/2006	8:30	FB	Cypermethrin	<0.004	µg/L	0.05				None - No QA Qualifier	<MDL or sample result ÷ 5
Cottonwood Creek @ Road 20	1	2/28/2006	8:30	FB	Decachlorobiphenyl (Surrogate)	97	%	NA	100			None - No QA Qualifier	PR 41-117
Cottonwood Creek @ Road 20	1	2/28/2006	8:30	FB	Diazinon	<0.00353	µg/L	0.02				None - No QA Qualifier	<MDL or sample result ÷ 5
Cottonwood Creek @ Road 20	1	2/28/2006	8:30	FB	Esfenvalerate/ Fenvalerate	<0.002	µg/L	0.02				None - No QA Qualifier	<MDL or sample result ÷ 5
Cottonwood Creek @ Road 20	1	2/28/2006	8:30	FB	Permethrin	<0.009	µg/L	0.02				None - No QA Qualifier	<MDL or sample result ÷ 5
Cottonwood Creek @ Road 20	1	2/28/2006	8:30	FB	Tetrachloro-m-xylene (Surrogate)	91	%	NA	100			None - No QA Qualifier	PR 38-113
Cottonwood Creek @ Road 20	1	2/28/2006	8:30	FB	Tributylphosphate (Surrogate)	134	%	NA	100			None - No QA Qualifier	PR 60-150
Cottonwood Creek @ Road 20	1	2/28/2006	8:30	FB	Triphenyl phosphate (Surrogate)	129	%	NA	100			None - No QA Qualifier	PR 56-129
Cottonwood Creek @ Road 20	1	2/28/2006	8:30	FD	Bifenthrin	<0.006	µg/L	0.02			FD 0	None - No QA Qualifier	FD RPD < 25
Cottonwood Creek @ Road 20	1	2/28/2006	8:30	FD	Chlorpyrifos	<0.00259	µg/L	0.02			FD 0	None - No QA Qualifier	FD RPD < 25

Station Name	Replicate	Sample Date	Sample Time*	Sample Type	Analyte	Result	Unit	RL	Expected Value	PR	RPD	Quality Assurance	Data Acceptability Criteria
Cottonwood Creek @ Road 20	1	2/28/2006	8:30	FD	Cyfluthrin	<0.003	µg/L	0.03			FD 0	None - No QA Qualifier	FD RPD < 25
Cottonwood Creek @ Road 20	1	2/28/2006	8:30	FD	Cyhalothrin, lambda	<0.001	µg/L	0.02			FD 0	None - No QA Qualifier	FD RPD < 25
Cottonwood Creek @ Road 20	1	2/28/2006	8:30	FD	Cypermethrin	<0.004	µg/L	0.05			FD 0	None - No QA Qualifier	FD RPD < 25
Cottonwood Creek @ Road 20	1	2/28/2006	8:30	FD	Decachlorobiphenyl (Surrogate)	84.9	%	NA	100			None - No QA Qualifier	PR 41-117
Cottonwood Creek @ Road 20	1	2/28/2006	8:30	FD	Diazinon	0.023	µg/L	0.02			FD 14	None - No QA Qualifier	FD RPD < 25
Cottonwood Creek @ Road 20	1	2/28/2006	8:30	FD	Esfenvalerate/ Fenvalerate	<0.002	µg/L	0.02			FD 0	None - No QA Qualifier	FD RPD < 25
Cottonwood Creek @ Road 20	1	2/28/2006	8:30	FD	Permethrin	<0.009	µg/L	0.02			FD 0	None - No QA Qualifier	FD RPD < 25
Cottonwood Creek @ Road 20	1	2/28/2006	8:30	FD	Tetrachloro-m-xylene (Surrogate)	94.4	%	NA	100			None - No QA Qualifier	PR 38-113
Cottonwood Creek @ Road 20	1	2/28/2006	8:30	FD	Tributylphosphate (Surrogate)	117	%	NA	100			None - No QA Qualifier	PR 60-150
Cottonwood Creek @ Road 20	1	2/28/2006	8:30	FD	Triphenyl phosphate (Surrogate)	109	%	NA	100			None - No QA Qualifier	PR 56-129
Cottonwood Creek @ Road 20	1	2/28/2006	8:30	E	Bifenthrin	<0.006	µg/L	0.02				None - No QA Qualifier	
Cottonwood Creek @ Road 20	1	2/28/2006	8:30	E	Chlorpyrifos	<0.00259	µg/L	0.02				None - No QA Qualifier	
Cottonwood Creek @ Road 20	1	2/28/2006	8:30	E	Cyfluthrin	<0.003	µg/L	0.03				None - No QA Qualifier	
Cottonwood Creek @ Road 20	1	2/28/2006	8:30	E	Cyhalothrin, lambda	<0.001	µg/L	0.02				None - No QA Qualifier	
Cottonwood Creek @ Road 20	1	2/28/2006	8:30	E	Cypermethrin	<0.004	µg/L	0.05				None - No QA Qualifier	
Cottonwood Creek @ Road 20	1	2/28/2006	8:30	E	Decachlorobiphenyl (Surrogate)	67.1	%	NA	100			None - No QA Qualifier	PR 41-117
Cottonwood Creek @ Road 20	1	2/28/2006	8:30	E	Diazinon	0.02	µg/L	0.02				None - No QA Qualifier	
Cottonwood Creek @ Road 20	1	2/28/2006	8:30	E	Esfenvalerate/ Fenvalerate	<0.002	µg/L	0.02				None - No QA Qualifier	
Cottonwood Creek @ Road 20	1	2/28/2006	8:30	E	Permethrin	<0.009	µg/L	0.02				None - No QA Qualifier	

Station Name	Replicate	Sample Date	Sample Time*	Sample Type	Analyte	Result	Unit	RL	Expected Value	PR	RPD	Quality Assurance	Data Acceptability Criteria
Cottonwood Creek @ Road 20	1	2/28/2006	8:30	E	Tetrachloro-m-xylene (Surrogate)	70.8	%	NA	100			None - No QA Qualifier	PR 38-113
Cottonwood Creek @ Road 20	1	2/28/2006	8:30	E	Tributylphosphate (Surrogate)	95.8	%	NA	100			None - No QA Qualifier	PR 60-150
Cottonwood Creek @ Road 20	1	2/28/2006	8:30	E	Triphenyl phosphate (Surrogate)	93	%	NA	100			None - No QA Qualifier	PR 56-129
Cottonwood Creek @ Road 20	1	2/28/2006	8:30	MS	Bifenthrin	0.421	µg/L	0.02	0.45	93.6		None - No QA Qualifier	PR 52-117
Cottonwood Creek @ Road 20	2	2/28/2006	8:30	MS	Bifenthrin	0.433	µg/L	0.02	0.45	96.2	2.8	None - No QA Qualifier	PR 52-117 RPD<25
Cottonwood Creek @ Road 20	1	2/28/2006	8:30	MS	Chlorpyrifos	0.521	µg/L	0.02	0.5	104		None - No QA Qualifier	PR 61-125
Cottonwood Creek @ Road 20	2	2/28/2006	8:30	MS	Chlorpyrifos	0.527	µg/L	0.02	0.5	105	1.1	None - No QA Qualifier	PR 61-125 RPD<25
Cottonwood Creek @ Road 20	1	2/28/2006	8:30	MS	Cyfluthrin	0.473	µg/L	0.03	0.45	105		None - No QA Qualifier	PR 53-125
Cottonwood Creek @ Road 20	2	2/28/2006	8:30	MS	Cyfluthrin	0.495	µg/L	0.03	0.45	110	4.5	None - No QA Qualifier	PR 53-125 RPD<25
Cottonwood Creek @ Road 20	1	2/28/2006	8:30	MS	Cyhalothrin, lambda	0.501	µg/L	0.02	0.45	111		Matrix spike recovery not within control limits	PR 62-104
Cottonwood Creek @ Road 20	2	2/28/2006	8:30	MS	Cyhalothrin, lambda	0.534	µg/L	0.02	0.45	119	6.4	Matrix spike recovery not within control limits	PR 62-104 RPD<25
Cottonwood Creek @ Road 20	1	2/28/2006	8:30	MS	Cypermethrin	2.41	µg/L	0.05	2.25	107		None - No QA Qualifier	PR 55-107
Cottonwood Creek @ Road 20	2	2/28/2006	8:30	MS	Cypermethrin	2.45	µg/L	0.05	2.25	109	1.6	Matrix spike recovery not within control limits	PR 55-107 RPD<25
Cottonwood Creek @ Road 20	1	2/28/2006	8:30	MS	Decachlorobiphenyl (Surrogate)	89	%	NA	100			None - No QA Qualifier	PR 41-117
Cottonwood Creek @ Road 20	2	2/28/2006	8:30	MS	Decachlorobiphenyl (Surrogate)	91.7	%	NA	100			None - No QA Qualifier	PR 41-117
Cottonwood Creek @ Road 20	1	2/28/2006	8:30	MS	Diazinon	0.506	µg/L	0.02	0.5	97.2		None - No QA Qualifier	PR 57-130
Cottonwood Creek @ Road 20	2	2/28/2006	8:30	MS	Diazinon	0.529	µg/L	0.02	0.5	102	4.4	None - No QA Qualifier	PR 57-130 RPD<21

Station Name	Replicate	Sample Date	Sample Time*	Sample Type	Analyte	Result	Unit	RL	Expected Value	PR	RPD	Quality Assurance	Data Acceptability Criteria
Cottonwood Creek @ Road 20	1	2/28/2006	8:30	MS	Esfenvalerate/ Fenvalerate	0.475	µg/L	0.02	0.45	106		None - No QA Qualifier	PR 52-117
Cottonwood Creek @ Road 20	2	2/28/2006	8:30	MS	Esfenvalerate/ Fenvalerate	0.516	µg/L	0.02	0.45	115	8.3	None - No QA Qualifier	PR 52-117 RPD<21
Cottonwood Creek @ Road 20	1	2/28/2006	8:30	MS	Permethrin	0.409	µg/L	0.02	0.45	90.9		None - No QA Qualifier	PR 24-166
Cottonwood Creek @ Road 20	2	2/28/2006	8:30	MS	Permethrin	0.429	µg/L	0.02	0.45	95.3	4.8	None - No QA Qualifier	PR 24-166 RPD<21
Cottonwood Creek @ Road 20	1	2/28/2006	8:30	MS	Tetrachloro-m-xylene (Surrogate)	75.3	%	NA	100			None - No QA Qualifier	PR 38-113
Cottonwood Creek @ Road 20	2	2/28/2006	8:30	MS	Tetrachloro-m-xylene (Surrogate)	78	%	NA	100			None - No QA Qualifier	PR 38-113
Cottonwood Creek @ Road 20	1	2/28/2006	8:30	MS	Tributylphosphate (Surrogate)	121	%	NA	100			None - No QA Qualifier	PR 60-150
Cottonwood Creek @ Road 20	2	2/28/2006	8:30	MS	Tributylphosphate (Surrogate)	123	%	NA	100			None - No QA Qualifier	PR 60-150
Cottonwood Creek @ Road 20	1	2/28/2006	8:30	MS	Triphenyl phosphate (Surrogate)	119	%	NA	100			None - No QA Qualifier	PR 56-129
Cottonwood Creek @ Road 20	2	2/28/2006	8:30	MS	Triphenyl phosphate (Surrogate)	122	%	NA	100			None - No QA Qualifier	PR 56-129
Ash Slough @ Ave 21	1	2/28/2006	11:25	E	Bifenthrin	<0.006	µg/L	0.02				None - No QA Qualifier	
Ash Slough @ Ave 21	1	2/28/2006	11:25	E	Chlorpyrifos	0.016	µg/L	0.02				None - No QA Qualifier	
Ash Slough @ Ave 21	1	2/28/2006	11:25	E	Cyfluthrin	<0.003	µg/L	0.03				None - No QA Qualifier	
Ash Slough @ Ave 21	1	2/28/2006	11:25	E	Cyhalothrin, lambda	<0.001	µg/L	0.02				None - No QA Qualifier	
Ash Slough @ Ave 21	1	2/28/2006	11:25	E	Cypermethrin	<0.004	µg/L	0.05				None - No QA Qualifier	
Ash Slough @ Ave 21	1	2/28/2006	11:25	E	Decachlorobiphenyl (Surrogate)	78.8	%	NA	100			None - No QA Qualifier	PR 41-117
Ash Slough @ Ave 21	1	2/28/2006	11:25	E	Diazinon	<0.00353	µg/L	0.02				None - No QA Qualifier	
Ash Slough @ Ave 21	1	2/28/2006	11:25	E	Esfenvalerate/ Fenvalerate	<0.002	µg/L	0.02				None - No QA Qualifier	
Ash Slough @ Ave 21	1	2/28/2006	11:25	E	Permethrin	<0.009	µg/L	0.02				None - No QA Qualifier	

Station Name	Replicate	Sample Date	Sample Time*	Sample Type	Analyte	Result	Unit	RL	Expected Value	PR	RPD	Quality Assurance	Data Acceptability Criteria
Ash Slough @ Ave 21	1	2/28/2006	11:25	E	Tetrachloro-m-xylene (Surrogate)	92.3	%	NA	100			None - No QA Qualifier	PR 38-113
Ash Slough @ Ave 21	1	2/28/2006	11:25	E	Tributylphosphate (Surrogate)	125	%	NA	100			None - No QA Qualifier	PR 60-150
Ash Slough @ Ave 21	1	2/28/2006	11:25	E	Triphenyl phosphate (Surrogate)	126	%	NA	100			None - No QA Qualifier	PR 56-129
Duck Slough @ Gurr Rd	1	2/28/2006	12:45	E	Bifenthrin	<0.006	µg/L	0.02				None - No QA Qualifier	
Duck Slough @ Gurr Rd	1	2/28/2006	12:45	E	Chlorpyrifos	<0.00259	µg/L	0.02				None - No QA Qualifier	
Duck Slough @ Gurr Rd	1	2/28/2006	12:45	E	Cyfluthrin	<0.003	µg/L	0.03				None - No QA Qualifier	
Duck Slough @ Gurr Rd	1	2/28/2006	12:45	E	Cyhalothrin, lambda	<0.001	µg/L	0.02				None - No QA Qualifier	
Duck Slough @ Gurr Rd	1	2/28/2006	12:45	E	Cypermethrin	<0.004	µg/L	0.05				None - No QA Qualifier	
Duck Slough @ Gurr Rd	1	2/28/2006	12:45	E	Decachlorobiphenyl (Surrogate)	83.2	%	NA	100			None - No QA Qualifier	PR 41-117
Duck Slough @ Gurr Rd	1	2/28/2006	12:45	E	Diazinon	<0.00353	µg/L	0.02				None - No QA Qualifier	
Duck Slough @ Gurr Rd	1	2/28/2006	12:45	E	Esfenvalerate/ Fenvalerate	<0.002	µg/L	0.02				None - No QA Qualifier	
Duck Slough @ Gurr Rd	1	2/28/2006	12:45	E	Permethrin	<0.009	µg/L	0.02				None - No QA Qualifier	
Duck Slough @ Gurr Rd	1	2/28/2006	12:45	E	Tetrachloro-m-xylene (Surrogate)	88.7	%	NA	100			None - No QA Qualifier	PR 38-113
Duck Slough @ Gurr Rd	1	2/28/2006	12:45	E	Tributylphosphate (Surrogate)	119	%	NA	100			None - No QA Qualifier	PR 60-150
Duck Slough @ Gurr Rd	1	2/28/2006	12:45	E	Triphenyl phosphate (Surrogate)	117	%	NA	100			None - No QA Qualifier	PR 56-129
Duck Slough @ Hwy 99	1	2/28/2006	14:20	E	Bifenthrin	<0.006	µg/L	0.02				None - No QA Qualifier	
Duck Slough @ Hwy 99	1	2/28/2006	14:20	E	Chlorpyrifos	<0.00259	µg/L	0.02				None - No QA Qualifier	
Duck Slough @ Hwy 99	1	2/28/2006	14:20	E	Cyfluthrin	<0.003	µg/L	0.03				None - No QA Qualifier	
Duck Slough @ Hwy 99	1	2/28/2006	14:20	E	Cyhalothrin, lambda	<0.001	µg/L	0.02				None - No QA Qualifier	

Station Name	Replicate	Sample Date	Sample Time*	Sample Type	Analyte	Result	Unit	RL	Expected Value	PR	RPD	Quality Assurance	Data Acceptability Criteria
Duck Slough @ Hwy 99	1	2/28/2006	14:20	E	Cypermethrin	<0.004	µg/L	0.05				None - No QA Qualifier	
Duck Slough @ Hwy 99	1	2/28/2006	14:20	E	Decachlorobiphenyl (Surrogate)	85.5	%	NA	100			None - No QA Qualifier	PR 41-117
Duck Slough @ Hwy 99	1	2/28/2006	14:20	E	Diazinon	<0.00353	µg/L	0.02				None - No QA Qualifier	
Duck Slough @ Hwy 99	1	2/28/2006	14:20	E	Esfenvalerate/ Fenvalerate	<0.002	µg/L	0.02				None - No QA Qualifier	
Duck Slough @ Hwy 99	1	2/28/2006	14:20	E	Permethrin	<0.009	µg/L	0.02				None - No QA Qualifier	
Duck Slough @ Hwy 99	1	2/28/2006	14:20	E	Tetrachloro-m-xylene (Surrogate)	90.1	%	NA	100			None - No QA Qualifier	PR 38-113
Duck Slough @ Hwy 99	1	2/28/2006	14:20	E	Tributylphosphate (Surrogate)	120	%	NA	100			None - No QA Qualifier	PR 60-150
Duck Slough @ Hwy 99	1	2/28/2006	14:20	E	Triphenyl phosphate (Surrogate)	120	%	NA	100			None - No QA Qualifier	PR 56-129
Bear Creek @ Kibby Rd	1	2/28/2006	15:30	E	Bifenthrin	<0.006	µg/L	0.02				None - No QA Qualifier	
Bear Creek @ Kibby Rd	1	2/28/2006	15:30	E	Chlorpyrifos	<0.00259	µg/L	0.02				None - No QA Qualifier	
Bear Creek @ Kibby Rd	1	2/28/2006	15:30	E	Cyfluthrin	<0.003	µg/L	0.03				None - No QA Qualifier	
Bear Creek @ Kibby Rd	1	2/28/2006	15:30	E	Cyhalothrin, lambda	<0.001	µg/L	0.02				None - No QA Qualifier	
Bear Creek @ Kibby Rd	1	2/28/2006	15:30	E	Cypermethrin	<0.004	µg/L	0.05				None - No QA Qualifier	
Bear Creek @ Kibby Rd	1	2/28/2006	15:30	E	Decachlorobiphenyl (Surrogate)	77	%	NA	100			None - No QA Qualifier	PR 41-117
Bear Creek @ Kibby Rd	1	2/28/2006	15:30	E	Diazinon	<0.00353	µg/L	0.02				None - No QA Qualifier	
Bear Creek @ Kibby Rd	1	2/28/2006	15:30	E	Esfenvalerate/ Fenvalerate	<0.002	µg/L	0.02				None - No QA Qualifier	
Bear Creek @ Kibby Rd	1	2/28/2006	15:30	E	Permethrin	<0.009	µg/L	0.02				None - No QA Qualifier	
Bear Creek @ Kibby Rd	1	2/28/2006	15:30	E	Tetrachloro-m-xylene (Surrogate)	78.8	%	NA	100			None - No QA Qualifier	PR 38-113
Bear Creek @ Kibby Rd	1	2/28/2006	15:30	E	Tributylphosphate (Surrogate)	98.2	%	NA	100			None - No QA Qualifier	PR 60-150

Station Name	Replicate	Sample Date	Sample Time*	Sample Type	Analyte	Result	Unit	RL	Expected Value	PR	RPD	Quality Assurance	Data Acceptability Criteria
Bear Creek @ Kibby Rd	1	2/28/2006	15:30	E	Triphenyl phosphate (Surrogate)	96.9	%	NA	100			None - No QA Qualifier	PR 56-129
Highline Canal @ Hwy 99	1	3/1/2006	7:40	E	Bifenthrin	<0.006	µg/L	0.02				None - No QA Qualifier	
Highline Canal @ Hwy 99	1	3/1/2006	7:40	E	Chlorpyrifos	0.021	µg/L	0.02				None - No QA Qualifier	
Highline Canal @ Hwy 99	1	3/1/2006	7:40	E	Cyfluthrin	<0.003	µg/L	0.03				None - No QA Qualifier	
Highline Canal @ Hwy 99	1	3/1/2006	7:40	E	Cyhalothrin, lambda	<0.001	µg/L	0.02				None - No QA Qualifier	
Highline Canal @ Hwy 99	1	3/1/2006	7:40	E	Cypermethrin	<0.004	µg/L	0.05				None - No QA Qualifier	
Highline Canal @ Hwy 99	1	3/1/2006	7:40	E	Decachlorobiphenyl (Surrogate)	72.6	%	NA	100			None - No QA Qualifier	PR 41-117
Highline Canal @ Hwy 99	1	3/1/2006	7:40	E	Diazinon	0.048	µg/L	0.02				None - No QA Qualifier	
Highline Canal @ Hwy 99	1	3/1/2006	7:40	E	Esfenvalerate/ Fenvalerate	<0.002	µg/L	0.02				None - No QA Qualifier	
Highline Canal @ Hwy 99	1	3/1/2006	7:40	E	Permethrin	<0.009	µg/L	0.02				None - No QA Qualifier	
Highline Canal @ Hwy 99	1	3/1/2006	7:40	E	Tetrachloro-m-xylene (Surrogate)	81.2	%	NA	100			None - No QA Qualifier	PR 38-113
Highline Canal @ Hwy 99	1	3/1/2006	7:40	E	Tributylphosphate (Surrogate)	97.6	%	NA	100			None - No QA Qualifier	PR 60-150
Highline Canal @ Hwy 99	1	3/1/2006	7:40	E	Triphenyl phosphate (Surrogate)	94.9	%	NA	100			None - No QA Qualifier	PR 56-129
Highline Canal @ Lombardy Rd	1	3/1/2006	9:10	E	Bifenthrin	<0.006	µg/L	0.02				None - No QA Qualifier	
Highline Canal @ Lombardy Rd	1	3/1/2006	9:10	E	Chlorpyrifos	0.027	µg/L	0.02				None - No QA Qualifier	
Highline Canal @ Lombardy Rd	1	3/1/2006	9:10	E	Cyfluthrin	<0.003	µg/L	0.03				None - No QA Qualifier	
Highline Canal @ Lombardy Rd	1	3/1/2006	9:10	E	Cyhalothrin, lambda	<0.001	µg/L	0.02				None - No QA Qualifier	
Highline Canal @ Lombardy Rd	1	3/1/2006	9:10	E	Cypermethrin	<0.004	µg/L	0.05				None - No QA Qualifier	
Highline Canal @ Lombardy Rd	1	3/1/2006	9:10	E	Decachlorobiphenyl (Surrogate)	89.7	%	NA	100			None - No QA Qualifier	PR 41-117

Station Name	Replicate	Sample Date	Sample Time*	Sample Type	Analyte	Result	Unit	RL	Expected Value	PR	RPD	Quality Assurance	Data Acceptability Criteria
Highline Canal @ Lombardy Rd	1	3/1/2006	9:10	E	Diazinon	0.03	µg/L	0.02				None - No QA Qualifier	
Highline Canal @ Lombardy Rd	1	3/1/2006	9:10	E	Esfenvalerate/ Fenvalerate	<0.002	µg/L	0.02				None - No QA Qualifier	
Highline Canal @ Lombardy Rd	1	3/1/2006	9:10	E	Permethrin	<0.009	µg/L	0.02				None - No QA Qualifier	
Highline Canal @ Lombardy Rd	1	3/1/2006	9:10	E	Tetrachloro-m-xylene (Surrogate)	98.9	%	NA	100			None - No QA Qualifier	PR 38-113
Highline Canal @ Lombardy Rd	1	3/1/2006	9:10	E	Tributylphosphate (Surrogate)	102	%	NA	100			None - No QA Qualifier	PR 60-150
Highline Canal @ Lombardy Rd	1	3/1/2006	9:10	E	Triphenyl phosphate (Surrogate)	102	%	NA	100			None - No QA Qualifier	PR 56-129
Merced River @ Santa Fe	1	3/1/2006	10:15	E	Bifenthrin	<0.006	µg/L	0.02				None - No QA Qualifier	
Merced River @ Santa Fe	1	3/1/2006	10:15	E	Chlorpyrifos	<0.00259	µg/L	0.02				None - No QA Qualifier	
Merced River @ Santa Fe	1	3/1/2006	10:15	E	Cyfluthrin	<0.003	µg/L	0.03				None - No QA Qualifier	
Merced River @ Santa Fe	1	3/1/2006	10:15	E	Cyhalothrin, lambda	<0.001	µg/L	0.02				None - No QA Qualifier	
Merced River @ Santa Fe	1	3/1/2006	10:15	E	Cypermethrin	<0.004	µg/L	0.05				None - No QA Qualifier	
Merced River @ Santa Fe	1	3/1/2006	10:15	E	Decachlorobiphenyl (Surrogate)	85.1	%	NA	100			None - No QA Qualifier	PR 41-117
Merced River @ Santa Fe	1	3/1/2006	10:15	E	Diazinon	<0.00353	µg/L	0.02				None - No QA Qualifier	
Merced River @ Santa Fe	1	3/1/2006	10:15	E	Esfenvalerate/ Fenvalerate	<0.002	µg/L	0.02				None - No QA Qualifier	
Merced River @ Santa Fe	1	3/1/2006	10:15	E	Permethrin	<0.009	µg/L	0.02				None - No QA Qualifier	
Merced River @ Santa Fe	1	3/1/2006	10:15	E	Tetrachloro-m-xylene (Surrogate)	102	%	NA	100			None - No QA Qualifier	PR 38-113
Merced River @ Santa Fe	1	3/1/2006	10:15	E	Tributylphosphate (Surrogate)	110	%	NA	100			None - No QA Qualifier	PR 60-150
Merced River @ Santa Fe	1	3/1/2006	10:15	E	Triphenyl phosphate (Surrogate)	105	%	NA	100			None - No QA Qualifier	PR 56-129
Jones Drain @ Oakdale Road	1	3/1/2006	11:00	E	Bifenthrin	<0.006	µg/L	0.02				None - No QA Qualifier	

Station Name	Replicate	Sample Date	Sample Time*	Sample Type	Analyte	Result	Unit	RL	Expected Value	PR	RPD	Quality Assurance	Data Acceptability Criteria
Jones Drain @ Oakdale Road	1	3/1/2006	11:00	E	Chlorpyrifos	<0.00259	µg/L	0.02				None - No QA Qualifier	
Jones Drain @ Oakdale Road	1	3/1/2006	11:00	E	Cyfluthrin	<0.003	µg/L	0.03				None - No QA Qualifier	
Jones Drain @ Oakdale Road	1	3/1/2006	11:00	E	Cyhalothrin, lambda	<0.001	µg/L	0.02				None - No QA Qualifier	
Jones Drain @ Oakdale Road	1	3/1/2006	11:00	E	Cypermethrin	<0.004	µg/L	0.05				None - No QA Qualifier	
Jones Drain @ Oakdale Road	1	3/1/2006	11:00	E	Decachlorobiphenyl (Surrogate)	73.5	%	NA	100			None - No QA Qualifier	PR 41-117
Jones Drain @ Oakdale Road	1	3/1/2006	11:00	E	Diazinon	<0.00353	µg/L	0.02				None - No QA Qualifier	
Jones Drain @ Oakdale Road	1	3/1/2006	11:00	E	Esfenvalerate/ Fenvalerate	<0.002	µg/L	0.02				None - No QA Qualifier	
Jones Drain @ Oakdale Road	1	3/1/2006	11:00	E	Permethrin	<0.009	µg/L	0.02				None - No QA Qualifier	
Jones Drain @ Oakdale Road	1	3/1/2006	11:00	E	Tetrachloro-m-xylene (Surrogate)	88.4	%	NA	100			None - No QA Qualifier	PR 38-113
Jones Drain @ Oakdale Road	1	3/1/2006	11:00	E	Tributylphosphate (Surrogate)	96.3	%	NA	100			None - No QA Qualifier	PR 60-150
Jones Drain @ Oakdale Road	1	3/1/2006	11:00	E	Triphenyl phosphate (Surrogate)	96.1	%	NA	100			None - No QA Qualifier	PR 56-129
Dry Creek @ Wellsford Road	1	3/1/2006	13:00	E	Bifenthrin	<0.006	µg/L	0.02				None - No QA Qualifier	
Dry Creek @ Wellsford Road	1	3/1/2006	13:00	E	Chlorpyrifos	<0.00259	µg/L	0.02				None - No QA Qualifier	
Dry Creek @ Wellsford Road	1	3/1/2006	13:00	E	Cyfluthrin	<0.003	µg/L	0.03				None - No QA Qualifier	
Dry Creek @ Wellsford Road	1	3/1/2006	13:00	E	Cyhalothrin, lambda	<0.001	µg/L	0.02				None - No QA Qualifier	
Dry Creek @ Wellsford Road	1	3/1/2006	13:00	E	Cypermethrin	<0.004	µg/L	0.05				None - No QA Qualifier	
Dry Creek @ Wellsford Road	1	3/1/2006	13:00	E	Decachlorobiphenyl (Surrogate)	81.1	%	NA	100			None - No QA Qualifier	PR 41-117
Dry Creek @ Wellsford Road	1	3/1/2006	13:00	E	Diazinon	<0.00353	µg/L	0.02				None - No QA Qualifier	
Dry Creek @ Wellsford Road	1	3/1/2006	13:00	E	Esfenvalerate/ Fenvalerate	<0.002	µg/L	0.02				None - No QA Qualifier	

Station Name	Replicate	Sample Date	Sample Time*	Sample Type	Analyte	Result	Unit	RL	Expected Value	PR	RPD	Quality Assurance	Data Acceptability Criteria
Dry Creek @ Wellsford Road	1	3/1/2006	13:00	E	Permethrin	<0.009	µg/L	0.02				None - No QA Qualifier	
Dry Creek @ Wellsford Road	1	3/1/2006	13:00	E	Tetrachloro-m-xylene (Surrogate)	96.9	%	NA	100			None - No QA Qualifier	PR 38-113
Dry Creek @ Wellsford Road	1	3/1/2006	13:00	E	Tributylphosphate (Surrogate)	106	%	NA	100			None - No QA Qualifier	PR 60-150
Dry Creek @ Wellsford Road	1	3/1/2006	13:00	E	Triphenyl phosphate (Surrogate)	109	%	NA	100			None - No QA Qualifier	PR 56-129
Prairie Flower Drain @ Crows Landing Road	1	3/1/2006	13:30	E	Bifenthrin	<0.006	µg/L	0.02				None - No QA Qualifier	
Prairie Flower Drain @ Crows Landing Road	1	3/1/2006	13:30	E	Chlorpyrifos	<0.00259	µg/L	0.02				None - No QA Qualifier	
Prairie Flower Drain @ Crows Landing Road	1	3/1/2006	13:30	E	Cyfluthrin	<0.003	µg/L	0.03				None - No QA Qualifier	
Prairie Flower Drain @ Crows Landing Road	1	3/1/2006	13:30	E	Cyhalothrin, lambda	<0.001	µg/L	0.02				None - No QA Qualifier	
Prairie Flower Drain @ Crows Landing Road	1	3/1/2006	13:30	E	Cypermethrin	<0.004	µg/L	0.05				None - No QA Qualifier	
Prairie Flower Drain @ Crows Landing Road	1	3/1/2006	13:30	E	Decachlorobiphenyl (Surrogate)	79.3	%	NA	100			None - No QA Qualifier	PR 41-117
Prairie Flower Drain @ Crows Landing Road	1	3/1/2006	13:30	E	Diazinon	<0.00353	µg/L	0.02				None - No QA Qualifier	
Prairie Flower Drain @ Crows Landing Road	1	3/1/2006	13:30	E	Esfenvalerate/ Fenvalerate	<0.002	µg/L	0.02				None - No QA Qualifier	
Prairie Flower Drain @ Crows Landing Road	1	3/1/2006	13:30	E	Permethrin	<0.009	µg/L	0.02				None - No QA Qualifier	
Prairie Flower Drain @ Crows Landing Road	1	3/1/2006	13:30	E	Tetrachloro-m-xylene (Surrogate)	103	%	NA	100			None - No QA Qualifier	PR 38-113
Prairie Flower Drain @ Crows Landing Road	1	3/1/2006	13:30	E	Tributylphosphate (Surrogate)	110	%	NA	100			None - No QA Qualifier	PR 60-150
Prairie Flower Drain @ Crows Landing Road	1	3/1/2006	13:30	E	Triphenyl phosphate (Surrogate)	110	%	NA	100			None - No QA Qualifier	PR 56-129
Hilmar Drain @ Central Ave	1	3/1/2006	15:10	E	Bifenthrin	<0.006	µg/L	0.02				None - No QA Qualifier	
Hilmar Drain @ Central Ave	1	3/1/2006	15:10	E	Chlorpyrifos	<0.00259	µg/L	0.02				None - No QA Qualifier	
Hilmar Drain @ Central Ave	1	3/1/2006	15:10	E	Cyfluthrin	<0.003	µg/L	0.03				None - No QA Qualifier	

Station Name	Replicate	Sample Date	Sample Time*	Sample Type	Analyte	Result	Unit	RL	Expected Value	PR	RPD	Quality Assurance	Data Acceptability Criteria
Hilmar Drain @ Central Ave	1	3/1/2006	15:10	E	Cyhalothrin, lambda	<0.001	µg/L	0.02				None - No QA Qualifier	
Hilmar Drain @ Central Ave	1	3/1/2006	15:10	E	Cypermethrin	<0.004	µg/L	0.05				None - No QA Qualifier	
Hilmar Drain @ Central Ave	1	3/1/2006	15:10	E	Decachlorobiphenyl (Surrogate)	69.7	%	NA	100			None - No QA Qualifier	PR 41-117
Hilmar Drain @ Central Ave	1	3/1/2006	15:10	E	Diazinon	<0.00353	µg/L	0.02				None - No QA Qualifier	
Hilmar Drain @ Central Ave	1	3/1/2006	15:10	E	Esfenvalerate/ Fenvalerate	<0.002	µg/L	0.02				None - No QA Qualifier	
Hilmar Drain @ Central Ave	1	3/1/2006	15:10	E	Permethrin	<0.009	µg/L	0.02				None - No QA Qualifier	
Hilmar Drain @ Central Ave	1	3/1/2006	15:10	E	Tetrachloro-m-xylene (Surrogate)	78.8	%	NA	100			None - No QA Qualifier	PR 38-113
Hilmar Drain @ Central Ave	1	3/1/2006	15:10	E	Tributylphosphate (Surrogate)	93.7	%	NA	100			None - No QA Qualifier	PR 60-150
Hilmar Drain @ Central Ave	1	3/1/2006	15:10	E	Triphenyl phosphate (Surrogate)	93.9	%	NA	100			None - No QA Qualifier	PR 56-129

Storm 2 Sampling (3/15/06- 3/16/06)

Station Name	Replicate	Sample Date	Sample Time*	Sample Type	Analyte	Result	Unit	RL	Expected Value	PR	RPD	Quality Assurance	Data Acceptability Criteria
Cottonwood Creek @ Road 20	1	3/15/2006	11:40	FB	Chlorpyrifos	<0.00259	µg/L	0.02				None - No QA Qualifier	<MDL or sample result ÷ 5
Cottonwood Creek @ Road 20	1	3/15/2006	11:40	FB	Cyfluthrin	<0.003	µg/L	0.03				None - No QA Qualifier	<MDL or sample result ÷ 5
Cottonwood Creek @ Road 20	1	3/15/2006	11:40	FB	Cyhalothrin, lambda	<0.001	µg/L	0.02				None - No QA Qualifier	<MDL or sample result ÷ 5
Cottonwood Creek @ Road 20	1	3/15/2006	11:40	FB	Cypermethrin	<0.004	µg/L	0.05				None - No QA Qualifier	<MDL or sample result ÷ 5
Cottonwood Creek @ Road 20	1	3/15/2006	11:40	FB	Decachlorobiphenyl (Surrogate)	97.1	%	NA	100			None - No QA Qualifier	PR 41-117
Cottonwood Creek @ Road 20	1	3/15/2006	11:40	FB	Diazinon	<0.00353	µg/L	0.02				None - No QA Qualifier	<MDL or sample result ÷ 5
Cottonwood Creek @ Road 20	1	3/15/2006	11:40	FB	Esfenvalerate/ Fenvalerate	<0.002	µg/L	0.02				None - No QA Qualifier	<MDL or sample result ÷ 5
Cottonwood Creek @ Road 20	1	3/15/2006	11:40	FB	Permethrin	<0.009	µg/L	0.02				None - No QA Qualifier	<MDL or sample result ÷

Station Name	Replicate	Sample Date	Sample Time*	Sample Type	Analyte	Result	Unit	RL	Expected Value	PR	RPD	Quality Assurance	Data Acceptability Criteria 5
Cottonwood Creek @ Road 20	1	3/15/2006	11:40	FB	Tetrachloro-m-xylene (Surrogate)	72.8	%	NA	100			None - No QA Qualifier	PR 38-113
Cottonwood Creek @ Road 20	1	3/15/2006	11:40	FB	Tributylphosphate (Surrogate)	110	%	NA	100			None - No QA Qualifier	PR 60-150
Cottonwood Creek @ Road 20	1	3/15/2006	11:40	FB	Triphenyl phosphate (Surrogate)	112	%	NA	100			None - No QA Qualifier	PR 56-129
Cottonwood Creek @ Road 20	1	3/15/2006	11:40	FD	Bifenthrin	<0.006	µg/L	0.02			FD 0	None - No QA Qualifier	FD RPD < 25
Cottonwood Creek @ Road 20	1	3/15/2006	11:40	FD	Chlorpyrifos	0.012	µg/L	0.02			FD 9	None - No QA Qualifier	FD RPD < 25
Cottonwood Creek @ Road 20	1	3/15/2006	11:40	FD	Cyfluthrin	<0.003	µg/L	0.03			FD 0	None - No QA Qualifier	FD RPD < 25
Cottonwood Creek @ Road 20	1	3/15/2006	11:40	FD	Cyhalothrin, lambda	<0.001	µg/L	0.02			FD 0	None - No QA Qualifier	FD RPD < 25
Cottonwood Creek @ Road 20	1	3/15/2006	11:40	FD	Cypermethrin	<0.004	µg/L	0.05			FD 0	None - No QA Qualifier	FD RPD < 25
Cottonwood Creek @ Road 20	1	3/15/2006	11:40	FD	Decachlorobiphenyl (Surrogate)	72.8	%	NA	100			None - No QA Qualifier	PR 41-117
Cottonwood Creek @ Road 20	1	3/15/2006	11:40	FD	Diazinon	<0.00353	µg/L	0.02			FD 0	None - No QA Qualifier	FD RPD < 25
Cottonwood Creek @ Road 20	1	3/15/2006	11:40	FD	Esfenvalerate/ Fenvalerate	<0.002	µg/L	0.02			FD 0	None - No QA Qualifier	FD RPD < 25
Cottonwood Creek @ Road 20	1	3/15/2006	11:40	FD	Permethrin	<0.009	µg/L	0.02			FD 0	None - No QA Qualifier	FD RPD < 25
Cottonwood Creek @ Road 20	1	3/15/2006	11:40	FD	Tetrachloro-m-xylene (Surrogate)	70.5	%	NA	100			None - No QA Qualifier	PR 38-113
Cottonwood Creek @ Road 20	1	3/15/2006	11:40	FD	Tributylphosphate (Surrogate)	104	%	NA	100			None - No QA Qualifier	PR 60-150
Cottonwood Creek @ Road 20	1	3/15/2006	11:40	FD	Triphenyl phosphate (Surrogate)	100	%	NA	100			None - No QA Qualifier	PR 56-129
Cottonwood Creek @ Road 20	1	3/15/2006	11:40	E	Bifenthrin	<0.006	µg/L	0.02				None - No QA Qualifier	
Cottonwood Creek @ Road 20	1	3/15/2006	11:40	E	Chlorpyrifos	0.011	µg/L	0.02				None - No QA Qualifier	
Cottonwood Creek @ Road 20	1	3/15/2006	11:40	E	Cyfluthrin	<0.003	µg/L	0.03				None - No QA Qualifier	

Station Name	Replicate	Sample Date	Sample Time*	Sample Type	Analyte	Result	Unit	RL	Expected Value	PR	RPD	Quality Assurance	Data Acceptability Criteria
Cottonwood Creek @ Road 20	1	3/15/2006	11:40	E	Cyhalothrin, lambda	<0.001	µg/L	0.02				None - No QA Qualifier	
Cottonwood Creek @ Road 20	1	3/15/2006	11:40	E	Cypermethrin	<0.004	µg/L	0.05				None - No QA Qualifier	
Cottonwood Creek @ Road 20	1	3/15/2006	11:40	E	Decachlorobiphenyl (Surrogate)	74	%	NA	100			None - No QA Qualifier	PR 41-117
Cottonwood Creek @ Road 20	1	3/15/2006	11:40	E	Diazinon	<0.00353	µg/L	0.02				None - No QA Qualifier	
Cottonwood Creek @ Road 20	1	3/15/2006	11:40	E	Esfenvalerate/ Fenvalerate	<0.002	µg/L	0.02				None - No QA Qualifier	
Cottonwood Creek @ Road 20	1	3/15/2006	11:40	E	Permethrin	<0.009	µg/L	0.02				None - No QA Qualifier	
Cottonwood Creek @ Road 20	1	3/15/2006	11:40	E	Tetrachloro-m-xylene (Surrogate)	65.4	%	NA	100			None - No QA Qualifier	PR 38-113
Cottonwood Creek @ Road 20	1	3/15/2006	11:40	E	Tributylphosphate (Surrogate)	97.3	%	NA	100			None - No QA Qualifier	PR 60-150
Cottonwood Creek @ Road 20	1	3/15/2006	11:40	E	Triphenyl phosphate (Surrogate)	98.8	%	NA	100			None - No QA Qualifier	PR 56-129
Cottonwood Creek @ Road 20	1	3/15/2006	11:40	MS	Bifenthrin	0.502	µg/L	0.02	0.81	62.0		None - No QA Qualifier	PR 52-117
Cottonwood Creek @ Road 20	2	3/15/2006	11:40	MS	Bifenthrin	0.495	µg/L	0.02	0.81	61.1	1.4	None - No QA Qualifier	PR 52-117 RPD<25
Cottonwood Creek @ Road 20	1	3/15/2006	11:40	MS	Chlorpyrifos	0.467	µg/L	0.02	0.5	91.2		None - No QA Qualifier	PR 61-125
Cottonwood Creek @ Road 20	2	3/15/2006	11:40	MS	Chlorpyrifos	0.538	µg/L	0.02	0.5	105	14.1	None - No QA Qualifier	PR 61-125 RPD<25
Cottonwood Creek @ Road 20	1	3/15/2006	11:40	MS	Cyfluthrin	0.549	µg/L	0.03	0.833	65.9		None - No QA Qualifier	PR 53-125
Cottonwood Creek @ Road 20	2	3/15/2006	11:40	MS	Cyfluthrin	0.542	µg/L	0.03	0.833	65.1	1.3	None - No QA Qualifier	PR 53-125 RPD<25
Cottonwood Creek @ Road 20	1	3/15/2006	11:40	MS	Cyhalothrin, lambda	0.571	µg/L	0.02	0.875	65.3		None - No QA Qualifier	PR 62-104
Cottonwood Creek @ Road 20	2	3/15/2006	11:40	MS	Cyhalothrin, lambda	0.579	µg/L	0.02	0.875	66.2	1.4	None - No QA Qualifier	PR 62-104 RPD<25
Cottonwood Creek @ Road 20	1	3/15/2006	11:40	MS	Cypermethrin	2.72	µg/L	0.05	4.07	66.8		None - No QA Qualifier	PR 55-107
Cottonwood Creek @ Road 20	2	3/15/2006	11:40	MS	Cypermethrin	2.67	µg/L	0.05	4.07	65.6	1.9	None - No QA Qualifier	PR 55-107 RPD<25

Station Name	Replicate	Sample Date	Sample Time*	Sample Type	Analyte	Result	Unit	RL	Expected Value	PR	RPD	Quality Assurance	Data Acceptability Criteria
Cottonwood Creek @ Road 20	1	3/15/2006	11:40	MS	Decachlorobiphenyl (Surrogate)	73.7	%	NA	100			None - No QA Qualifier	PR 41-117
Cottonwood Creek @ Road 20	2	3/15/2006	11:40	MS	Decachlorobiphenyl (Surrogate)	75	%	NA	100			None - No QA Qualifier	PR 41-117
Cottonwood Creek @ Road 20	1	3/15/2006	11:40	MS	Diazinon	0.473	µg/L	0.02	0.5	94.6		None - No QA Qualifier	PR 57-130
Cottonwood Creek @ Road 20	2	3/15/2006	11:40	MS	Diazinon	0.541	µg/L	0.02	0.5	108	13.4	None - No QA Qualifier	PR 57-130 RPD<21
Cottonwood Creek @ Road 20	1	3/15/2006	11:40	MS	Esfenvalerate/ Fenvalerate	0.551	µg/L	0.02	0.788	69.9		None - No QA Qualifier	PR 52-117
Cottonwood Creek @ Road 20	2	3/15/2006	11:40	MS	Esfenvalerate/ Fenvalerate	0.523	µg/L	0.02	0.788	66.4	5.2	None - No QA Qualifier	PR 52-117 RPD<21
Cottonwood Creek @ Road 20	1	3/15/2006	11:40	MS	Permethrin	0.456	µg/L	0.02	0.765	59.6		None - No QA Qualifier	PR 24-166
Cottonwood Creek @ Road 20	2	3/15/2006	11:40	MS	Permethrin	0.457	µg/L	0.02	0.765	59.7	0.22	None - No QA Qualifier	PR 24-166 RPD<21
Cottonwood Creek @ Road 20	1	3/15/2006	11:40	MS	Tetrachloro-m-xylene (Surrogate)	72	%	NA	100			None - No QA Qualifier	PR 38-113
Cottonwood Creek @ Road 20	2	3/15/2006	11:40	MS	Tetrachloro-m-xylene (Surrogate)	72.3	%	NA	100			None - No QA Qualifier	PR 38-113
Cottonwood Creek @ Road 20	1	3/15/2006	11:40	MS	Tributylphosphate (Surrogate)	89.3	%	NA	100			None - No QA Qualifier	PR 60-150
Cottonwood Creek @ Road 20	2	3/15/2006	11:40	MS	Tributylphosphate (Surrogate)	109	%	NA	100			None - No QA Qualifier	PR 60-150
Cottonwood Creek @ Road 20	1	3/15/2006	11:40	MS	Triphenyl phosphate (Surrogate)	91.6	%	NA	100			None - No QA Qualifier	PR 56-129
Cottonwood Creek @ Road 20	2	3/15/2006	11:40	MS	Triphenyl phosphate (Surrogate)	107	%	NA	100			None - No QA Qualifier	PR 56-129
Ash Slough @ Ave 21	1	3/15/2006	13:30	E	Bifenthrin	<0.006	µg/L	0.02				None - No QA Qualifier	
Ash Slough @ Ave 21	1	3/15/2006	13:30	E	Chlorpyrifos	0.029	µg/L	0.02				None - No QA Qualifier	
Ash Slough @ Ave 21	1	3/15/2006	13:30	E	Cyfluthrin	<0.003	µg/L	0.03				None - No QA Qualifier	
Ash Slough @ Ave 21	1	3/15/2006	13:30	E	Cyhalothrin, lambda	<0.001	µg/L	0.02				None - No QA Qualifier	
Ash Slough @ Ave 21	1	3/15/2006	13:30	E	Cypermethrin	<0.004	µg/L	0.05				None - No QA Qualifier	

Station Name	Replicate	Sample Date	Sample Time*	Sample Type	Analyte	Result	Unit	RL	Expected Value	PR	RPD	Quality Assurance	Data Acceptability Criteria
Ash Slough @ Ave 21	1	3/15/2006	13:30	E	Decachlorobiphenyl (Surrogate)	76.7	%	NA	100			None - No QA Qualifier	PR 41-117
Ash Slough @ Ave 21	1	3/15/2006	13:30	E	Diazinon	<0.00353	µg/L	0.02				None - No QA Qualifier	
Ash Slough @ Ave 21	1	3/15/2006	13:30	E	Esfenvalerate/ Fenvalerate	<0.002	µg/L	0.02				None - No QA Qualifier	
Ash Slough @ Ave 21	1	3/15/2006	13:30	E	Permethrin	<0.009	µg/L	0.02				None - No QA Qualifier	
Ash Slough @ Ave 21	1	3/15/2006	13:30	E	Tetrachloro-m-xylene (Surrogate)	63.4	%	NA	100			None - No QA Qualifier	PR 38-113
Ash Slough @ Ave 21	1	3/15/2006	13:30	E	Tributylphosphate (Surrogate)	101	%	NA	100			None - No QA Qualifier	PR 60-150
Ash Slough @ Ave 21	1	3/15/2006	13:30	E	Triphenyl phosphate (Surrogate)	99	%	NA	100			None - No QA Qualifier	PR 56-129
Duck Slough @ Gurr Rd	1	3/15/2006	15:00	E	Bifenthrin	<0.006	µg/L	0.02				None - No QA Qualifier	
Duck Slough @ Gurr Rd	1	3/15/2006	15:00	E	Chlorpyrifos	<0.00259	µg/L	0.02				None - No QA Qualifier	
Duck Slough @ Gurr Rd	1	3/15/2006	15:00	E	Cyfluthrin	<0.003	µg/L	0.03				None - No QA Qualifier	
Duck Slough @ Gurr Rd	1	3/15/2006	15:00	E	Cyhalothrin, lambda	<0.001	µg/L	0.02				None - No QA Qualifier	
Duck Slough @ Gurr Rd	1	3/15/2006	15:00	E	Cypermethrin	<0.004	µg/L	0.05				None - No QA Qualifier	
Duck Slough @ Gurr Rd	1	3/15/2006	15:00	E	Decachlorobiphenyl (Surrogate)	89.3	%	NA	100			None - No QA Qualifier	PR 41-117
Duck Slough @ Gurr Rd	1	3/15/2006	15:00	E	Diazinon	<0.00353	µg/L	0.02				None - No QA Qualifier	
Duck Slough @ Gurr Rd	1	3/15/2006	15:00	E	Esfenvalerate/ Fenvalerate	<0.002	µg/L	0.02				None - No QA Qualifier	
Duck Slough @ Gurr Rd	1	3/15/2006	15:00	E	Permethrin	<0.009	µg/L	0.02				None - No QA Qualifier	
Duck Slough @ Gurr Rd	1	3/15/2006	15:00	E	Tetrachloro-m-xylene (Surrogate)	68.6	%	NA	100			None - No QA Qualifier	PR 38-113
Duck Slough @ Gurr Rd	1	3/15/2006	15:00	E	Tributylphosphate (Surrogate)	107	%	NA	100			None - No QA Qualifier	PR 60-150
Duck Slough @ Gurr Rd	1	3/15/2006	15:00	E	Triphenyl phosphate (Surrogate)	104	%	NA	100			None - No QA Qualifier	PR 56-129

Station Name	Replicate	Sample Date	Sample Time*	Sample Type	Analyte	Result	Unit	RL	Expected Value	PR	RPD	Quality Assurance	Data Acceptability Criteria
Duck Slough @ Hwy 99	1	3/15/2006	16:15	E	Bifenthrin	<0.006	µg/L	0.02				None - No QA Qualifier	
Duck Slough @ Hwy 99	1	3/15/2006	16:15	E	Chlorpyrifos	<0.00259	µg/L	0.02				None - No QA Qualifier	
Duck Slough @ Hwy 99	1	3/15/2006	16:15	E	Cyfluthrin	<0.003	µg/L	0.03				None - No QA Qualifier	
Duck Slough @ Hwy 99	1	3/15/2006	16:15	E	Cyhalothrin, lambda	<0.001	µg/L	0.02				None - No QA Qualifier	
Duck Slough @ Hwy 99	1	3/15/2006	16:15	E	Cypermethrin	<0.004	µg/L	0.05				None - No QA Qualifier	
Duck Slough @ Hwy 99	1	3/15/2006	16:15	E	Decachlorobiphenyl (Surrogate)	92.9	%	NA	100			None - No QA Qualifier	PR 41-117
Duck Slough @ Hwy 99	1	3/15/2006	16:15	E	Diazinon	<0.00353	µg/L	0.02				None - No QA Qualifier	
Duck Slough @ Hwy 99	1	3/15/2006	16:15	E	Esfenvalerate/ Fenvalerate	<0.002	µg/L	0.02				None - No QA Qualifier	
Duck Slough @ Hwy 99	1	3/15/2006	16:15	E	Permethrin	<0.009	µg/L	0.02				None - No QA Qualifier	
Duck Slough @ Hwy 99	1	3/15/2006	16:15	E	Tetrachloro-m-xylene (Surrogate)	74.6	%	NA	100			None - No QA Qualifier	PR 38-113
Duck Slough @ Hwy 99	1	3/15/2006	16:15	E	Tributylphosphate (Surrogate)	107	%	NA	100			None - No QA Qualifier	PR 60-150
Duck Slough @ Hwy 99	1	3/15/2006	16:15	E	Triphenyl phosphate (Surrogate)	106	%	NA	100			None - No QA Qualifier	PR 56-129
Bear Creek @ Kibby Rd	1	3/15/2006	17:15	E	Bifenthrin	<0.006	µg/L	0.02				None - No QA Qualifier	
Bear Creek @ Kibby Rd	1	3/15/2006	17:15	E	Chlorpyrifos	<0.00259	µg/L	0.02				None - No QA Qualifier	
Bear Creek @ Kibby Rd	1	3/15/2006	17:15	E	Cyfluthrin	<0.003	µg/L	0.03				None - No QA Qualifier	
Bear Creek @ Kibby Rd	1	3/15/2006	17:15	E	Cyhalothrin, lambda	<0.001	µg/L	0.02				None - No QA Qualifier	
Bear Creek @ Kibby Rd	1	3/15/2006	17:15	E	Cypermethrin	<0.004	µg/L	0.05				None - No QA Qualifier	
Bear Creek @ Kibby Rd	1	3/15/2006	17:15	E	Decachlorobiphenyl (Surrogate)	85.5	%	NA	100			None - No QA Qualifier	PR 41-117
Bear Creek @ Kibby Rd	1	3/15/2006	17:15	E	Diazinon	<0.00353	µg/L	0.02				None - No QA Qualifier	

Station Name	Replicate	Sample Date	Sample Time*	Sample Type	Analyte	Result	Unit	RL	Expected Value	PR	RPD	Quality Assurance	Data Acceptability Criteria
Bear Creek @ Kibby Rd	1	3/15/2006	17:15	E	Esfenvalerate/ Fenvalerate	<0.002	µg/L	0.02				None - No QA Qualifier	
Bear Creek @ Kibby Rd	1	3/15/2006	17:15	E	Permethrin	<0.009	µg/L	0.02				None - No QA Qualifier	
Bear Creek @ Kibby Rd	1	3/15/2006	17:15	E	Tetrachloro-m-xylene (Surrogate)	69.5	%	NA	100			None - No QA Qualifier	PR 38-113
Bear Creek @ Kibby Rd	1	3/15/2006	17:15	E	Tributylphosphate (Surrogate)	98.7	%	NA	100			None - No QA Qualifier	PR 60-150
Bear Creek @ Kibby Rd	1	3/15/2006	17:15	E	Triphenyl phosphate (Surrogate)	101	%	NA	100			None - No QA Qualifier	PR 56-129
Highline Canal @ Hwy 99	1	3/16/2006	7:30	E	Bifenthrin	<0.006	µg/L	0.02				None - No QA Qualifier	
Highline Canal @ Hwy 99	1	3/16/2006	7:30	E	Chlorpyrifos	<0.00259	µg/L	0.02				None - No QA Qualifier	
Highline Canal @ Hwy 99	1	3/16/2006	7:30	E	Cyfluthrin	<0.003	µg/L	0.03				None - No QA Qualifier	
Highline Canal @ Hwy 99	1	3/16/2006	7:30	E	Cyhalothrin, lambda	<0.001	µg/L	0.02				None - No QA Qualifier	
Highline Canal @ Hwy 99	1	3/16/2006	7:30	E	Cypermethrin	<0.004	µg/L	0.05				None - No QA Qualifier	
Highline Canal @ Hwy 99	1	3/16/2006	7:30	E	Decachlorobiphenyl (Surrogate)	109	%	NA	100			None - No QA Qualifier	PR 41-117
Highline Canal @ Hwy 99	1	3/16/2006	7:30	E	Diazinon	<0.00353	µg/L	0.02				None - No QA Qualifier	
Highline Canal @ Hwy 99	1	3/16/2006	7:30	E	Esfenvalerate/ Fenvalerate	<0.002	µg/L	0.02				None - No QA Qualifier	
Highline Canal @ Hwy 99	1	3/16/2006	7:30	E	Permethrin	<0.009	µg/L	0.02				None - No QA Qualifier	
Highline Canal @ Hwy 99	1	3/16/2006	7:30	E	Tetrachloro-m-xylene (Surrogate)	86.9	%	NA	100			None - No QA Qualifier	PR 38-113
Highline Canal @ Hwy 99	1	3/16/2006	7:30	E	Tributylphosphate (Surrogate)	108	%	NA	100			None - No QA Qualifier	PR 60-150
Highline Canal @ Hwy 99	1	3/16/2006	7:30	E	Triphenyl phosphate (Surrogate)	117	%	NA	100			None - No QA Qualifier	PR 56-129
Highline Canal @ Lombardy Rd	1	3/16/2006	8:35	E	Bifenthrin	<0.006	µg/L	0.02				None - No QA Qualifier	
Highline Canal @ Lombardy Rd	1	3/16/2006	8:35	E	Chlorpyrifos	0.018	µg/L	0.02				None - No QA Qualifier	

Station Name	Replicate	Sample Date	Sample Time*	Sample Type	Analyte	Result	Unit	RL	Expected Value	PR	RPD	Quality Assurance	Data Acceptability Criteria
Highline Canal @ Lombardy Rd	1	3/16/2006	8:35	E	Cyfluthrin	<0.003	µg/L	0.03				None - No QA Qualifier	
Highline Canal @ Lombardy Rd	1	3/16/2006	8:35	E	Cyhalothrin, lambda	<0.001	µg/L	0.02				None - No QA Qualifier	
Highline Canal @ Lombardy Rd	1	3/16/2006	8:35	E	Cypermethrin	<0.004	µg/L	0.05				None - No QA Qualifier	
Highline Canal @ Lombardy Rd	1	3/16/2006	8:35	E	Decachlorobiphenyl (Surrogate)	59.2	%	NA	100			None - No QA Qualifier	PR 41-117
Highline Canal @ Lombardy Rd	1	3/16/2006	8:35	E	Diazinon	<0.00353	µg/L	0.02				None - No QA Qualifier	
Highline Canal @ Lombardy Rd	1	3/16/2006	8:35	E	Esfenvalerate/ Fenvalerate	<0.002	µg/L	0.02				None - No QA Qualifier	
Highline Canal @ Lombardy Rd	1	3/16/2006	8:35	E	Permethrin	<0.009	µg/L	0.02				None - No QA Qualifier	
Highline Canal @ Lombardy Rd	1	3/16/2006	8:35	E	Tetrachloro-m-xylene (Surrogate)	60.6	%	NA	100			None - No QA Qualifier	PR 38-113
Highline Canal @ Lombardy Rd	1	3/16/2006	8:35	E	Tributylphosphate (Surrogate)	83.8	%	NA	100			None - No QA Qualifier	PR 60-150
Highline Canal @ Lombardy Rd	1	3/16/2006	8:35	E	Triphenyl phosphate (Surrogate)	89.6	%	NA	100			None - No QA Qualifier	PR 56-129
Merced River @ Santa Fe	1	3/16/2006	9:40	E	Bifenthrin	<0.006	µg/L	0.02				None - No QA Qualifier	
Merced River @ Santa Fe	1	3/16/2006	9:40	E	Chlorpyrifos	<0.00259	µg/L	0.02				None - No QA Qualifier	
Merced River @ Santa Fe	1	3/16/2006	9:40	E	Cyfluthrin	<0.003	µg/L	0.03				None - No QA Qualifier	
Merced River @ Santa Fe	1	3/16/2006	9:40	E	Cyhalothrin, lambda	<0.001	µg/L	0.02				None - No QA Qualifier	
Merced River @ Sante Fe	1	3/16/2006	9:40	E	Cypermethrin	<0.004	µg/L	0.05				None - No QA Qualifier	
Merced River @ Santa Fe	1	3/16/2006	9:40	E	Decachlorobiphenyl (Surrogate)	91.9	%	NA	100			None - No QA Qualifier	PR 41-117
Merced River @ Santa Fe	1	3/16/2006	9:40	E	Diazinon	<0.00353	µg/L	0.02				None - No QA Qualifier	
Merced River @ Santa Fe	1	3/16/2006	9:40	E	Esfenvalerate/ Fenvalerate	<0.002	µg/L	0.02				None - No QA Qualifier	
Merced River @ Santa Fe	1	3/16/2006	9:40	E	Permethrin	<0.009	µg/L	0.02				None - No QA Qualifier	

Station Name	Replicate	Sample Date	Sample Time*	Sample Type	Analyte	Result	Unit	RL	Expected Value	PR	RPD	Quality Assurance	Data Acceptability Criteria
Merced River @ Santa Fe	1	3/16/2006	9:40	E	Tetrachloro-m-xylene (Surrogate)	77.6	%	NA	100			None - No QA Qualifier	PR 38-113
Merced River @ Santa Fe	1	3/16/2006	9:40	E	Tributylphosphate (Surrogate)	97.9	%	NA	100			None - No QA Qualifier	PR 60-150
Merced River @ Santa Fe	1	3/16/2006	9:40	E	Triphenyl phosphate (Surrogate)	108	%	NA	100			None - No QA Qualifier	PR 56-129
Jones Drain @ Oakdale Road	1	3/16/2006	10:25	E	Bifenthrin	<0.006	µg/L	0.02				None - No QA Qualifier	
Jones Drain @ Oakdale Road	1	3/16/2006	10:25	E	Chlorpyrifos	<0.00259	µg/L	0.02				None - No QA Qualifier	
Jones Drain @ Oakdale Road	1	3/16/2006	10:25	E	Cyfluthrin	<0.003	µg/L	0.03				None - No QA Qualifier	
Jones Drain @ Oakdale Road	1	3/16/2006	10:25	E	Cyhalothrin, lambda	<0.001	µg/L	0.02				None - No QA Qualifier	
Jones Drain @ Oakdale Road	1	3/16/2006	10:25	E	Cypermethrin	<0.004	µg/L	0.05				None - No QA Qualifier	
Jones Drain @ Oakdale Road	1	3/16/2006	10:25	E	Decachlorobiphenyl (Surrogate)	86.2	%	NA	100			None - No QA Qualifier	PR 41-117
Jones Drain @ Oakdale Road	1	3/16/2006	10:25	E	Diazinon	<0.00353	µg/L	0.02				None - No QA Qualifier	
Jones Drain @ Oakdale Road	1	3/16/2006	10:25	E	Esfenvalerate/ Fenvalerate	<0.002	µg/L	0.02				None - No QA Qualifier	
Jones Drain @ Oakdale Road	1	3/16/2006	10:25	E	Permethrin	<0.009	µg/L	0.02				None - No QA Qualifier	
Jones Drain @ Oakdale Road	1	3/16/2006	10:25	E	Tetrachloro-m-xylene (Surrogate)	73.9	%	NA	100			None - No QA Qualifier	PR 38-113
Jones Drain @ Oakdale Road	1	3/16/2006	10:25	E	Tributylphosphate (Surrogate)	102	%	NA	100			None - No QA Qualifier	PR 60-150
Jones Drain @ Oakdale Road	1	3/16/2006	10:25	E	Triphenyl phosphate (Surrogate)	112	%	NA	100			None - No QA Qualifier	PR 56-129
Dry Creek @ Wellsford Road	1	3/16/2006	11:45	E	Bifenthrin	<0.006	µg/L	0.02				None - No QA Qualifier	
Dry Creek @ Wellsford Road	1	3/16/2006	11:45	E	Chlorpyrifos	<0.00259	µg/L	0.02				None - No QA Qualifier	
Dry Creek @ Wellsford Road	1	3/16/2006	11:45	E	Cyfluthrin	<0.003	µg/L	0.03				None - No QA Qualifier	
Dry Creek @ Wellsford Road	1	3/16/2006	11:45	E	Cyhalothrin, lambda	<0.001	µg/L	0.02				None - No QA Qualifier	

Station Name	Replicate	Sample Date	Sample Time*	Sample Type	Analyte	Result	Unit	RL	Expected Value	PR	RPD	Quality Assurance	Data Acceptability Criteria
Dry Creek @ Wellsford Road	1	3/16/2006	11:45	E	Cypermethrin	<0.004	µg/L	0.05				None - No QA Qualifier	
Dry Creek @ Wellsford Road	1	3/16/2006	11:45	E	Decachlorobiphenyl (Surrogate)	87.6	%	NA	100			None - No QA Qualifier	PR 41-117
Dry Creek @ Wellsford Road	1	3/16/2006	11:45	E	Diazinon	<0.00353	µg/L	0.02				None - No QA Qualifier	
Dry Creek @ Wellsford Road	1	3/16/2006	11:45	E	Esfenvalerate/ Fenvalerate	<0.002	µg/L	0.02				None - No QA Qualifier	
Dry Creek @ Wellsford Road	1	3/16/2006	11:45	E	Permethrin	<0.009	µg/L	0.02				None - No QA Qualifier	
Dry Creek @ Wellsford Road	1	3/16/2006	11:45	E	Tetrachloro-m-xylene (Surrogate)	78.6	%	NA	100			None - No QA Qualifier	PR 38-113
Dry Creek @ Wellsford Road	1	3/16/2006	11:45	E	Tributylphosphate (Surrogate)	105	%	NA	100			None - No QA Qualifier	PR 60-150
Dry Creek @ Wellsford Road	1	3/16/2006	11:45	E	Triphenyl phosphate (Surrogate)	114	%	NA	100			None - No QA Qualifier	PR 56-129
Prairie Flower Drain @ Crows Landing Road	1	3/16/2006	13:10	E	Bifenthrin	<0.006	µg/L	0.02				None - No QA Qualifier	
Prairie Flower Drain @ Crows Landing Road	1	3/16/2006	13:10	E	Chlorpyrifos	<0.00259	µg/L	0.02				None - No QA Qualifier	
Prairie Flower Drain @ Crows Landing Road	1	3/16/2006	13:10	E	Cyfluthrin	<0.003	µg/L	0.03				None - No QA Qualifier	
Prairie Flower Drain @ Crows Landing Road	1	3/16/2006	13:10	E	Cyhalothrin, lambda	<0.001	µg/L	0.02				None - No QA Qualifier	
Prairie Flower Drain @ Crows Landing Road	1	3/16/2006	13:10	E	Cypermethrin	<0.004	µg/L	0.05				None - No QA Qualifier	
Prairie Flower Drain @ Crows Landing Road	1	3/16/2006	13:10	E	Decachlorobiphenyl (Surrogate)	92.5	%	NA	100			None - No QA Qualifier	PR 41-117
Prairie Flower Drain @ Crows Landing Road	1	3/16/2006	13:10	E	Diazinon	<0.00353	µg/L	0.02				None - No QA Qualifier	
Prairie Flower Drain @ Crows Landing Road	1	3/16/2006	13:10	E	Esfenvalerate/ Fenvalerate	<0.002	µg/L	0.02				None - No QA Qualifier	
Prairie Flower Drain @ Crows Landing Road	1	3/16/2006	13:10	E	Permethrin	<0.009	µg/L	0.02				None - No QA Qualifier	
Prairie Flower Drain @ Crows Landing Road	1	3/16/2006	13:10	E	Tetrachloro-m-xylene (Surrogate)	82.1	%	NA	100			None - No QA Qualifier	PR 38-113
Prairie Flower Drain @ Crows Landing Road	1	3/16/2006	13:10	E	Tributylphosphate (Surrogate)	100	%	NA	100			None - No QA Qualifier	PR 60-150

Station Name	Replicate	Sample Date	Sample Time*	Sample Type	Analyte	Result	Unit	RL	Expected Value	PR	RPD	Quality Assurance	Data Acceptability Criteria
Prairie Flower Drain @ Crows Landing Road	1	3/16/2006	13:10	E	Triphenyl phosphate (Surrogate)	116	%	NA	100			None - No QA Qualifier	PR 56-129
Hilmar Drain @ Central Ave	1	3/16/2006	13:55	E	Bifenthrin	<0.006	µg/L	0.02				None - No QA Qualifier	
Hilmar Drain @ Central Ave	1	3/16/2006	13:55	E	Chlorpyrifos	<0.00259	µg/L	0.02				None - No QA Qualifier	
Hilmar Drain @ Central Ave	1	3/16/2006	13:55	E	Cyfluthrin	<0.003	µg/L	0.03				None - No QA Qualifier	
Hilmar Drain @ Central Ave	1	3/16/2006	13:55	E	Cyhalothrin, lambda	<0.001	µg/L	0.02				None - No QA Qualifier	
Hilmar Drain @ Central Ave	1	3/16/2006	13:55	E	Cypermethrin	<0.004	µg/L	0.05				None - No QA Qualifier	
Hilmar Drain @ Central Ave	1	3/16/2006	13:55	E	Decachlorobiphenyl (Surrogate)	73.9	%	NA	100			None - No QA Qualifier	PR 41-117
Hilmar Drain @ Central Ave	1	3/16/2006	13:55	E	Diazinon	<0.00353	µg/L	0.02				None - No QA Qualifier	
Hilmar Drain @ Central Ave	1	3/16/2006	13:55	E	Esfenvalerate/ Fenvalerate	<0.002	µg/L	0.02				None - No QA Qualifier	
Hilmar Drain @ Central Ave	1	3/16/2006	13:55	E	Permethrin	<0.009	µg/L	0.02				None - No QA Qualifier	
Hilmar Drain @ Central Ave	1	3/16/2006	13:55	E	Tetrachloro-m-xylene (Surrogate)	69.6	%	NA	100			None - No QA Qualifier	PR 38-113
Hilmar Drain @ Central Ave	1	3/16/2006	13:55	E	Tributylphosphate (Surrogate)	92	%	NA	100			None - No QA Qualifier	PR 60-150
Hilmar Drain @ Central Ave	1	3/16/2006	13:55	E	Triphenyl phosphate (Surrogate)	107	%	NA	100			None - No QA Qualifier	PR 56-129

Table 10d: ESJWQC toxicity testing results for *Ceriodaphnia dubia, Pimephales promelas,* and *Selenastrum capricornutum* for samples collected during the storm season 2006 including field duplicates. Re-samples were collected within 72 hrs of being notified that the original sample was toxic. Toxicity tests are initiated within 36 hours of sampling and re-tests are performed if lab control does not meet method criteria (see toxicity test comments).

Station Name	Sample Date	Sample Time*	Sample Type	Toxicity Start Date	Species	Toxicity End Point	Control Mean	Sample Mean	Percent Control	Toxicity Significance	Toxicity Test Comments
Storm 1 Sampling (2/28/06-3/01/06)											
Cottonwood Creek @ Road 20	2/28/2006	8:30	E	3/13/2006	Ceriodaphnia dubia	Survival (%)	100	100	100	NSG	Following original test on 3/1/06, re-test run to check toxicity in FD due to original RPD >25.
Cottonwood Creek @ Road 20	2/28/2006	8:30	FD	3/13/2006	Ceriodaphnia dubia	Survival (%)	100	100	100	NSG	FD RPD 0
Cottonwood Creek @ Road 20	2/28/2006	8:30	E	3/1/2006	Pimephales promelas	Survival (%)	98	100	103	NSG	
Cottonwood Creek @ Road 20	2/28/2006	8:30	FD	3/1/2006	Pimephales promelas	Survival (%)	98	100	103	NSG	FD RPD 0
Cottonwood Creek @ Road 20	2/28/2006	8:30	E	3/13/2006	Selenastrum capricornutum	Total Cell Count	1803250	3049500	169	NSG	CV >20% for Lab Control treatment in 3/1/06 test. As a result, this retest was run outside of standard hold time for sample.
Cottonwood Creek @ Road 20	2/28/2006	8:30	FD	3/13/2006	Selenastrum capricornutum	Total Cell Count	1803250	2813750	156	NSG	FD RPD 9; CV >20% for Lab Control treatment in 3/1/06 test. As a result, this retest was run outside of standard hold time for sample.
Ash Slough @ Ave 21	2/28/2006	11:25	E	3/1/2006	Ceriodaphnia dubia	Survival (%)	95	95	100	NSG	
Ash Slough @ Ave 21	2/28/2006	11:25	E	3/1/2006	Pimephales promelas	Survival (%)	98	100	103	NSG	
Ash Slough @ Ave 21	2/28/2006	11:25	E	3/13/2006	Selenastrum capricornutum	Total Cell Count	1803250	1197250	66	SL	CV >20% for Lab Cotnrol treatment in 3/1/06 test. Retest was run outside of standard hold time for sample. Toxicity differs from earlier test, toxicity of this sample increasing over time
Duck Slough @ Gurr Rd	2/28/2006	12:45	E	3/1/2006	Ceriodaphnia dubia	Survival (%)	95	35	37	SL	TIE run due to toxicity, there was no toxicity in the Baseline water sample. Labile contaminants.
Duck Slough @ Gurr Rd	2/28/2006	12:45	E	3/1/2006	Pimephales promelas	Survival (%)	98	100	103	NSG	

Station Name	Sample Date	Sample Time*	Sample Type	Toxicity Start Date	Species	Toxicity End Point	Control Mean	Sample Mean	Percent Control	Toxicity Significance	Toxicity Test Comments
Duck Slough @ Gurr Rd	2/28/2006	12:45	E	3/13/2006	Selenastrum capricornutum	Total Cell Count	1447250	2485250	172	NSG	CV >20% for Lab Control treatment in 3/1/06 test. As a result, this retest was run outside of standard hold time for sample.
Duck Slough @ Hwy 99	2/28/2006	14:20	E	3/1/2006	Ceriodaphnia dubia	Survival (%)	95	100	105	NSG	
Duck Slough @ Hwy 99	2/28/2006	14:20	E	3/1/2006	Pimephales promelas	Survival (%)	98	100	103	NSG	
Duck Slough @ Hwy 99	2/28/2006	14:20	E	3/13/2006	Selenastrum capricornutum	Total Cell Count	1447250	2906500	201	NSG	CV >20% for Lab Control treatment in 3/1/06 test. As a result, this retest was run outside of standard hold time for sample.
Bear Creek @ Kibby Rd	2/28/2006	15:30	E	3/6/2006	Ceriodaphnia dubia	Survival (%)	100	100	100	NSG	Control survival below acceptable limits in 3/1/06 test. As a result, retest run on sample outside standard hold time.
Bear Creek @ Kibby Rd	2/28/2006	15:30	E	3/1/2006	Pimephales promelas	Survival (%)	100	100	100	NSG	
Bear Creek @ Kibby Rd	2/28/2006	15:30	E	3/13/2006	Selenastrum capricornutum	Total Cell Count	1447250	2417000	167	NSG	CV >20% for Lab Control treatment in 3/1/06 test. As a result, this retest was run outside of standard hold time for sample.
Highline Canal @ Hwy 99	3/1/2006	7:40	E	3/2/2006	Ceriodaphnia dubia	Survival (%)	100	100	100	NSG	
Highline Canal @ Hwy 99	3/1/2006	7:40	E	3/2/2006	Pimephales promelas	Survival (%)	100	100	100	NSG	
Highline Canal @ Hwy 99	3/1/2006	7:40	E	3/13/2006	Selenastrum capricornutum	Total Cell Count	542500	12750	2	SL	CV >20% for Lab Control treatment in 3/2/06 test. Retest was run outside of standard hold time.
Highline Canal @ Lombardy Rd	3/1/2006	9:10	E	3/2/2006	Ceriodaphnia dubia	Survival (%)	100	100	100	NSG	
Highline Canal @ Lombardy Rd	3/1/2006	9:10	E	3/2/2006	Pimephales promelas	Survival (%)	100	100	100	NSG	
Highline Canal @ Lombardy Rd	3/1/2006	9:10	E	3/13/2006	Selenastrum capricornutum	Total Cell Count	1447250	2571000	178	NSG	CV >20% for Lab Control treatment in 3/2/06 test. As a result, this retest was run outside of standard hold time for sample.
Merced River @ Santa Fe	3/1/2006	10:15	E	3/2/2006	Ceriodaphnia dubia	Survival (%)	100	100	100	NSG	
Merced River @ Santa Fe	3/1/2006	10:15	E	3/2/2006	Pimephales promelas	Survival (%)	100	100	100	NSG	
Merced River @ Santa Fe	3/1/2006	10:15	E	3/13/2006	Selenastrum capricornutum	Total Cell Count	1447250	1688500	117	NSG	CV >20% for Lab Control treatment in 3/2/06 test. As a result, this retest was run outside of standard hold time for sample.

Station Name	Sample Date	Sample Time*	Sample Type	Toxicity Start Date	Species	Toxicity End Point	Control Mean	Sample Mean	Percent Control	Toxicity Significance	Toxicity Test Comments
Jones Drain @ Oakdale Road	3/1/2006	11:00	E	3/2/2006	Ceriodaphnia dubia	Survival (%)	95	100	100	NSG	
Jones Drain @ Oakdale Road	3/1/2006	11:00	E	3/2/2006	Pimephales promelas	Survival (%)	100	100	103	NSG	
Jones Drain @ Oakdale Road	3/1/2006	11:00	E	3/13/2006	Selenastrum capricornutum	Total Cell Count	542500	1430750	264	NSG	CV >20% for Lab Control treatment in 3/2/06 test. Retest was run outside of standard hold time.
Dry Creek @ Wellsford Road	3/1/2006	13:00	E	3/2/2006	Ceriodaphnia dubia	Survival (%)	95	95	100	NSG	
Dry Creek @ Wellsford Road	3/1/2006	13:00	E	3/2/2006	Pimephales promelas	Survival (%)	100	100	103	NSG	
Dry Creek @ Wellsford Road	3/1/2006	13:00	E	3/13/2006	Selenastrum capricornutum	Total Cell Count	542500	1895500	349	NSG	CV >20% for Lab Control treatment in 3/2/06 test. Retest was run outside of standard hold time.
Prairie Flower Drain @ Crows Landing Road	3/1/2006	13:30	E	3/2/2006	Ceriodaphnia dubia	Survival (%)	100	100	100	NSG	
Prairie Flower Drain @ Crows Landing Road	3/1/2006	13:30	E	3/2/2006	Pimephales promelas	Survival (%)	100	100	100	NSG	
Prairie Flower Drain @ Crows Landing Road	3/1/2006	13:30	E	3/13/2006	Selenastrum capricornutum	Total Cell Count	542500	730250	135	NSG	CV >20% for Lab Control treatment in 3/2/06 test. Retest was run outside of standard hold time.
Hilmar Drain @ Central Ave	3/1/2006	15:10	E	3/2/2006	Ceriodaphnia dubia	Survival (%)	100	95	95	NSG	
Hilmar Drain @ Central Ave	3/1/2006	15:10	E	3/2/2006	Pimephales promelas	Survival (%)	100	100	100	NSG	
Hilmar Drain @ Central Ave	3/1/2006	15:10	E	3/13/2006	Selenastrum capricornutum	Total Cell Count	542500	2348250	433	NSG	CV >20% for Lab Control treatment in 3/2/06 test. Retest was run outside of standard hold time.
Highline Canal @ Hwy 99	3/10/2006	11:00	RS	3/17/2006	Selenastrum capricornutum	Total Cell Count	1441250	1623000	112	NSG	CV >20% for Lab Control treatment in 3/11/06 test. Retest was run outside of hold time. No significant reduction in mean algal cell density in HCHNN., toxicity not persistent.
Duck Slough @ Gurr Rd	3/10/2006	12:40	RS	3/15/2006	Ceriodaphnia dubia	Survival (%)	100	35	35	SL	Control survival below acceptable limits in 3/11/06 test. Retest run outside hold time. Significant toxicity indicates the toxicity was persistent.
Storm 2 Sampling (3/15/06-3/16/06)											
Cottonwood Creek @ Road 20	3/15/2006	11:40	E	3/16/2006	Ceriodaphnia dubia	Survival (%)	100	100	100	NSG	

Station Name	Sample Date	Sample Time*	Sample Type	Toxicity Start Date	Species	Toxicity End Point	Control Mean	Sample Mean	Percent Control	Toxicity Significance	Toxicity Test Comments
Cottonwood Creek @ Road 20	3/15/2006	11:40	FD	3/16/2006	Ceriodaphnia dubia	Survival (%)	100	100	100	NSG	FD RPD 0
Cottonwood Creek @ Road 20	3/15/2006	11:40	FD	3/16/2006	Pimephales promelas	Survival (%)	100	100	100	NSG	FD RPD 0
Cottonwood Creek @ Road 20	3/15/2006	11:40	E	3/16/2006	Pimephales promelas	Survival (%)	100	100	100	NSG	
Cottonwood Creek @ Road 20	3/15/2006	11:40	E	3/16/2006	Selenastrum capricornutum	Total Cell Count	1214250	2479250	204	NSG	
Cottonwood Creek @ Road 20	3/15/2006	11:40	FD	3/16/2006	Selenastrum capricornutum	Total Cell Count	1214250	2095250	173	NSG	FD RPD 17
Ash Slough @ Ave 21	3/15/2006	13:30	E	3/16/2006	Ceriodaphnia dubia	Survival (%)	95	100	105	NSG	
Ash Slough @ Ave 21	3/15/2006	13:30	E	3/16/2006	Pimephales promelas	Survival (%)	100	100	100	NSG	
Ash Slough @ Ave 21	3/15/2006	13:30	E	3/16/2006	Selenastrum capricornutum	Total Cell Count	1338500	1683000	126	NSG	
Duck Slough @ Gurr Rd	3/15/2006	15:00	E	3/16/2006	Ceriodaphnia dubia	Survival (%)	95	40	42	SL	TIE, There was no toxicity, labile contaminants
Duck Slough @ Gurr Rd	3/15/2006	15:00	E	3/16/2006	Pimephales promelas	Survival (%)	100	100	100	NSG	
Duck Slough @ Gurr Rd	3/15/2006	15:00	E	3/16/2006	Selenastrum capricornutum	Total Cell Count	1338500	2602250	194	NSG	
Duck Slough @ Hwy 99	3/15/2006	16:15	E	3/16/2006	Ceriodaphnia dubia	Survival (%)	95	100	105	NSG	
Duck Slough @ Hwy 99	3/15/2006	16:15	E	3/16/2006	Pimephales promelas	Survival (%)	100	100	100	NSG	
Duck Slough @ Hwy 99	3/15/2006	16:15	E	3/16/2006	Selenastrum capricornutum	Total Cell Count	1338500	2384500	178	NSG	
Bear Creek @ Kibby Rd	3/15/2006	17:15	E	3/16/2006	Ceriodaphnia dubia	Survival (%)	95	100	105	NSG	
Bear Creek @ Kibby Rd	3/15/2006	17:15	E	3/16/2006	Pimephales promelas	Survival (%)	100	100	100	NSG	
Bear Creek @ Kibby Rd	3/15/2006	17:15	E	3/16/2006	Selenastrum capricornutum	Total Cell Count	1338500	2154250	161	NSG	
Highline Canal @ Hwy 99	3/16/2006	7:30	E	3/17/2006	Ceriodaphnia dubia	Survival (%)	100	0	0	SL	TIE, There was no toxicity, labile contaminants
Highline Canal @ Hwy 99	3/16/2006	7:30	E	3/17/2006	Pimephales promelas	Survival (%)	100	100	100	NSG	
Highline Canal @ Hwy 99	3/16/2006	7:30	E	3/17/2006	Selenastrum capricornutum	Total Cell Count	1443750	2172250	150	NSG	

Station Name	Sample Date	Sample Time*	Sample Type	Toxicity Start Date	Species	Toxicity End Point	Control Mean	Sample Mean	Percent Control	Toxicity Significance	Toxicity Test Comments
Highline Canal @ Lombardy Rd	3/16/2006	8:35	E	3/17/2006	Ceriodaphnia dubia	Survival (%)	100	100	100	NSG	
Highline Canal @ Lombardy Rd	3/16/2006	8:35	E	3/17/2006	Pimephales promelas	Survival (%)	100	100	0	NSG	Test run with 3 replicates due to technician error.
Highline Canal @ Lombardy Rd	3/16/2006	8:35	E	3/17/2006	Selenastrum capricornutum	Total Cell Count	1443750	434000	30	SL	TIE Baseline treatment indicated that toxicity was persistent. TIE results suggest the presence of an organic compound that has some cationic properties.
Merced River @ Santa Fe	3/16/2006	9:40	E	3/17/2006	Ceriodaphnia dubia	Survival (%)	100	35	35	SL	TIE, There was no toxicity, labile contaminants
Merced River @ Santa Fe	3/16/2006	9:40	E	3/17/2006	Pimephales promelas	Survival (%)	100	97	97	NSG	Test run with 3 replicates due to technician error.
Merced River @ Santa Fe	3/16/2006	9:40	E	3/17/2006	Selenastrum capricornutum	Total Cell Count	1443750	2585750	179	NSG	
Jones Drain @ Oakdale Road	3/16/2006	10:25	E	3/17/2006	Ceriodaphnia dubia	Survival (%)	100	100	100	NSG	
Jones Drain @ Oakdale Road	3/16/2006	10:25	E	3/17/2006	Pimephales promelas	Survival (%)	100	100	100	NSG	Test run with 3 replicates due to technician error.
Jones Drain @ Oakdale Road	3/16/2006	10:25	E	3/17/2006	Selenastrum capricornutum	Total Cell Count	1443750	2032750	141	NSG	
Dry Creek @ Wellsford Road	3/16/2006	11:45	E	3/17/2006	Ceriodaphnia dubia	Survival (%)	100	95	95	NSG	
Dry Creek @ Wellsford Road	3/16/2006	11:45	E	3/17/2006	Pimephales promelas	Survival (%)	100	100	0	NSG	Test run with 3 replicates due to technician error.
Dry Creek @ Wellsford Road	3/16/2006	11:45	E	3/17/2006	Selenastrum capricornutum	Total Cell Count	1443750	2466750	171	NSG	
Prairie Flower Drain @ Crows Landing Road	3/16/2006	13:10	E	3/17/2006	Ceriodaphnia dubia	Survival (%)	100	75	75	SL	
Prairie Flower Drain @ Crows Landing Road	3/16/2006	13:10	E	3/17/2006	Pimephales promelas	Survival (%)	100	95	95	NSG	
Prairie Flower Drain @ Crows Landing Road	3/16/2006	13:10	E	3/17/2006	Selenastrum capricornutum	Total Cell Count	1443750	3008000	208	NSG	
Hilmar Drain @ Central Ave	3/16/2006	13:55	E	3/24/2006	Ceriodaphnia dubia	Survival (%)	100	100	100	NSG	Control survival below acceptable limits in 3/17/06 test. As a result, retest run on sample outside standard hold time. Due to pH>9 in sample, solutions adjusted to pH 7
Hilmar Drain @ Central Ave	3/16/2006	13:55	E	3/17/2006	Pimephales promelas	Survival (%)	100	100	100	NSG	Due to pH>9 in sample, solutions adjusted to pH 7

Station Name	Sample Date	Sample Time*	Sample Type	Toxicity Start Date	Species	Toxicity End Point	Control Mean	Sample Mean	Percent Control	Toxicity Significance	Toxicity Test Comments
Hilmar Drain @ Central Ave	3/16/2006	13:55	E	3/17/2006	Selenastrum capricornutum	Total Cell Count	1443750	3045250	211	NSG	
Prairie Flower Drain @ Crows Landing Road	3/24/2006	9:45	RS	3/25/2006	Ceriodaphnia dubia	Survival (%)	100	95	95	NSG	
Hilmar Drain @ Central Ave	3/24/2006	10:30	RS	3/25/2006	Ceriodaphnia dubia	Survival (%)	100	95	95	NSG	
Highline Canal @ Hwy 99	3/24/2006	11:15	RS	3/25/2006	Ceriodaphnia dubia	Survival (%)	100	100	100	NSG	
Highline Canal @ Lombardy Rd	3/24/2006	11:55	RS	3/25/2006	Selenastrum capricornutum	Total Cell Count	1487250	2189750	147	NSG	
Merced River @ Sante Fe	3/24/2006	12:35	RS	3/25/2006	Ceriodaphnia dubia	Survival (%)	100	95	95	NSG	
Duck Slough @ Gurr Rd	3/24/2006	14:40	RS	3/25/2006	Ceriodaphnia dubia	Survival (%)	100	100	100	NSG	

E = environmental sample RS = re-sample FD = field duplicate C = laboratory control NSG = not statistically different from control and result is greater than 80% threshold SL = statistically different from control and less than 80% threshold SG = statistically different from control and greater than 80% threshold FD RPD = Relative Percent Difference between the environmental sample and the field duplicate sample CV = coefficient of variation

*sample time for all constituents sampled has been adjusted to reflect the time of the first sample collected at that site for that date; this may not be the exact same time as recorded on the COCs

Table 10a: ESJWQC results for samples collected in the storm season of 2006 that exhibited toxicity. The table includes the original result of the toxic sample, date of significance for toxicity, resample and TIE results. If the sample mean was less than 50% of the control, a TIE was performed.

Station Name	Sample Date	Sample Time*	Species	Toxicity Start Date	Date of Significance for Toxicity	% Control	Toxicity (Y/N)	Resample Date	Resample Result	TIE (Y/N)	TIE Start Date	TIE Result	Dilution	TUa (100/ EC50)	Comments
Duck Slough @ Gurr Road	2/28/06	12:45	*Ceriodaphnia dubia*	3/01/06	3/17/06	37	Yes	3/10/06	Persistent	Yes	3/15/06	No Persistent Toxicity	No	NA	TIE run due to toxicity, there was not toxicity in the Baseline water sample. Labile contaminants.
Ash Slough @ Avenue 21	2/28/06	11:25	*Selenastrum capricornutum*	3/13/06	3/17/06	66	Yes	NA	NA	No	NA	NA	No	NA	Site dry – could not sample for persistence. CV>20% for Lab Control treatment in 3/1/06 test. Retest was run outside of standard hold time for sample. Toxicity differs from earlier test, toxicity of this sample increasing over time.
Highline Canal @ Hwy 99	3/01/06	7:40	*Selenastrum capricornutum*	3/13/06	3/17/06	2	Yes	3/10/06	Not Persistent	No	NA	NA	No	NA	CV>20% for Lab Control treatment in 3/2/06 test. Retest was run outside of standard hold time.
Duck Slough @ Gurr Road	3/15/06	15:00	*Ceriodaphnia dubia*	3/16/06	3/18/06	42	Yes	3/24/06	Not Persistent	Yes	3/21/06	No Persistent Toxicity	No	NA	TIE, there was no toxicity, labile contaminants.
Highline Canal @ Hwy 99	3/16/06	7:30	*Ceriodaphnia dubia*	3/17/06	3/19/06	0	Yes	3/24/06	Not Persistent	Yes	3/21/06	No Persistent Toxicity	No	NA	TIE, there was no toxicity, labile contaminants.
Highline Canal @ Lombardy Road	3/16/06	8:35	*Selenastrum capricornutum*	3/17/06	3/21/06	30	Yes	3/24/06	Not Persistent	Yes	3/23/06	Organic compound with some cationic properties	No	NA	TIE Baseline treatment indicated that toxicity was persistent. TIE results suggest the presence of an organic compound that has some cationic properties
Merced River @ Santa Fe	3/16/06	9:40	*Ceriodaphnia dubia*	3/17/06	3/20/06	35	Yes	3/24/06	Not Persistent	Yes	3/21/06	No Persistent Toxicity	No	NA	TIE, there was no toxicity, labile contaminants.
Prairie Flower Drain @ Crows Landing Road	3/16/06	13:10	*Ceriodaphnia dubia*	3/17/06	3/20/06	75	Yes	3/24/06	Not Persistent	No	NA	NA	No	NA	

Table 10b: ESJWQC pesticide loads for samples collected in the storm season 2006. Loads are calculated using the following equation: concentration (µg/L) x discharge (cfs) x 24.465024 = loading rate (grams/day).

Station Name	**Sample Date**	**Sample Time**	**Season**	**Discharge cfs**	**Chlorpyrifos µg/L**	**Chlorpyrifos Loading Rate**	**Diazinon µg/L**	**Diazinon Loading Rate**
Cottonwood Creek @ Road 20	28/Feb/2006	8:30	Storm1	0.26			0.02	0.127
Ash Slough @ Ave 21	28/Feb/2006	11:25	Storm1	5.93	0.016	2.321		
Highline Canal @ Hwy 99	01/Mar/2006	7:40	Storm1	0	0.021	0	0.048	0
Highline Canal @ Lombardy Rd	01/Mar/2006	9:10	Storm1	0	0.027	0	0.03	0
Cottonwood Creek @ Road 20	15/Mar/2006	11:40	Storm2	No discharge*	0.011	NA		
Ash Slough @ Ave 21	15/Mar/2006	13:30	Storm2	11.24	0.029	7.975		
Highline Canal @ Lombardy Rd	16/Mar/2006	8:35	Storm2	62.19	0.018	27.387		

See results in Table 10a for more details.

Table 10c. ESJWQC storm season sampling dates and times including re-sampling events due to toxicity in original sample.

Station Name	Season	Sample Date	Sample Time	Sample Comments
Cottonwood Creek @ Road 20	Storm1	28/Feb/2006	8:30	
Dry Creek at Road 18	Storm1	28/Feb/2006	10:30	Dry site
Ash Slough @ Ave 21	Storm1	28/Feb/2006	11:25	
Duck Slough @ Gurr Rd	Storm1	28/Feb/2006	12:45	
Duck Slough @ Hwy 99	Storm1	28/Feb/2006	14:20	
Bear Creek @ Kibby Rd	Storm1	28/Feb/2006	15:30	
Highline Canal @ Hwy 99	Storm1	01/Mar/2006	7:40	
Highline Canal @ Lombardy Rd	Storm1	01/Mar/2006	9:10	
Merced River @ Santa Fe	Storm1	01/Mar/2006	10:15	
Jones Drain @ Oakdale Road	Storm1	01/Mar/2006	11:00	
Dry Creek @ Wellsford Road	Storm1	01/Mar/2006	13:00	
Prairie Flower Drain @ Crows Landing Road	Storm1	01/Mar/2006	13:30	
Hilmar Drain @ Central Ave	Storm1	01/Mar/2006	15:10	
Highline Canal @ Hwy 99	Storm1-Resample	10/Mar/2006	11:00	
Duck Slough @ Gurr Rd	Storm1-Resample	10/Mar/2006	12:40	
Cottonwood Creek @ Road 20	Storm2	15/Mar/2006	11:40	
Dry Creek at Road 18	Storm2	15/Mar/2006	13:00	Insufficient volume to sample
Ash Slough @ Ave 21	Storm2	15/Mar/2006	13:30	
Duck Slough @ Gurr Rd	Storm2	15/Mar/2006	15:00	
Duck Slough @ Hwy 99	Storm2	15/Mar/2006	16:15	
Bear Creek @ Kibby Rd	Storm2	15/Mar/2006	17:15	
Highline Canal @ Hwy 99	Storm2	16/Mar/2006	7:30	
Highline Canal @ Lombardy Rd	Storm2	16/Mar/2006	8:35	
Merced River @ Sante Fe	Storm2	16/Mar/2006	9:40	
Jones Drain @ Oakdale Road	Storm2	16/Mar/2006	10:25	
Dry Creek @ Wellsford Road	Storm2	16/Mar/2006	11:45	
Prairie Flower Drain @ Crows Landing Road	Storm2	16/Mar/2006	13:10	
Hilmar Drain @ Central Ave	Storm2	16/Mar/2006	13:55	
Prairie Flower Drain @ Crows Landing Road	Storm2-Resample	24/Mar/2006	9:45	
Hilmar Drain @ Central Ave	Storm2-Resample	24/Mar/2006	10:30	
Highline Canal @ Hwy 99	Storm2-Resample	24/Mar/2006	11:15	
Highline Canal @ Lombardy Rd	Storm2-Resample	24/Mar/2006	11:55	
Merced River @ Santa Fe	Storm2-Resample	24/Mar/2006	12:35	
Duck Slough @ Gurr Rd	Storm2-Resample	24/Mar/2006	14:40	

Sampling and Analytical Methods Used

Sampling, field parameters and instruments used to collect measurements and analytical methods are provided below in Tables 11 - 13. All sampling methods were performed as outlined in the Quality Assurance Project Plan Table B-2. That table has been reproduced as Table 11. All analytical methods were performed as described in the QAPP. That table has been reproduced as Table 13. However, the MDLs for diazinon and chlorpyrifos are lower than those provided in the QAPP. The new MDLs were documented in communications to the Regional Board in the fall of 2004, and again in the spring of 2005. In past documents the Coalition has reported PQLs for diazinon and chlorpyrifos as 0.05 µg/L. The correct PQL is 0.02 µg/L. A letter from the laboratory documenting the change is attached to this report as Appendix A.

Table 11. Sampling procedures, containers, sample volumes, preservation and storage techniques, and holding times for samples collected in the field during the 2005 dormant season and 2005 irrigation season sampling.

Parameter	Sample Container	Sample Volume	Immediate Processing and Storage	Holding Time
Color	HDPE	1 L	4^oC	48 hrs
Turbidity	HDPE	1 L	4^oC	48 hrs
TDS	HDPE	1 L	4^oC	28 days
E. coli	HDPE	100 mL	4^oC	24 hrs
TOC	Amber glass/TFPE cap	250 mL	4^oC	28 days
Water column toxicity	Amber glass	1 Gal	4^oC	36 hrs
Sediment toxicity	Glass	2 L	4^oC	14 days
Organophosphate pesticides	Amber glass	1 Gal	4^oC	Extract 7 days, hold 40 days
Pyrethroid pesticides	Amber glass	1 Gal	4^oC	Extract 7 days, hold 40 days

Table 12. Field parameters and instruments used to collect measurements.

Parameter	**Instrument**
Dissolved oxygen	YSI Model 556 Multiprobe Meter
Temperature	YSI Model 556 Multiprobe Meter
pH	YSI Model 556 Multiprobe Meter
Electrical Conductivity	YSI Model 556 Multiprobe Meter

Table 13. Analytical methods, minimum detection limits (MDL), reporting limits (RL).

Analytical Methods		Unit	MDL	RL
EPA 8081A				
Organochlorine Pesticides by GC/ECD				
	Bifenthrin[1]	µg/L	0.006	0.02
	Cyfluthrin, total[1]	µg/L	0.003	0.03
	Cyhalothrin, lambda, total	µg/L	0.001	0.02
	Cypermethrin, total	µg/L	0.004	0.1
	Esfenvalerate/Fenvalerate, total	µg/L	0.002	0.02
	Permethrin, total	µg/L	0.009	0.02
EPA 8141A				
Organophosphorus Pesticides capillary method by GC/FPD or GC/NPD				
	Chlorpyrifos	µg/L	0.00259	0.02
	Diazinon	µg/L	0.00353	0.02
SM 2120 B				
Color by visual comparison				
	Color	color units	1	1
SM 2130 B				
Turbidity analysis by Nephelometric method				
	Turbidity	NTU	0.1	0.1
SM 2540 C				
TDS dried at 180 degrees C				
	Total Dissolved Solids	mg/L	5	5
SM 5310 C				
Total Organic Carbon: Persulfate-Ultraviolet Oxidation Method Doc# IO-SP-0039-00				
	Total Organic Carbon	mg/L	0.03	0.2
SM 9221 B F				

Analytical Methods	Unit	MDL	RL
Standard Total Coliform Fermentation Technique with E. Coli Procedure			
E. coli	MPN/100 mL	2	2

[1]Analytes outside of the original suite of pyrethroids proposed for analysis. These compounds were added to determine if their presence could be detected in water column samples.

Copy of Chain of Custody Forms

Chain of custody forms are provided as copies from pdfs provided by the laboratories in their lab reports. After receiving the COC's each lab scanned the forms and created pdf files for inclusion in their laboratory reports. As such, they are complete and accurate records of sample handling and processing and reflect the timing of sample collection and delivery to the laboratories. Sample collection and delivery was performed according to the QAPP submitted to the Regional Board and no samples were flagged for collection or delivery problems.

Pacific EcoRisk
ENVIRONMENTAL CONSULTING & TESTING
834 Arnold Drive, Suite 104, Martinez, CA 94553
(925) 313-8080 FAX (925) 313-8089

APPL CHAIN-OF-CUSTODY RECORD

Client Name:	Pacific EcoRisk
Client Address:	835 Arnold Drive, Suite 104 Martinez, CA 94553
Sampled By:	Mike McElroy, Bruno Texiera
Phone:	(925) 313-8080
FAX:	(925) 313-8089
Project Manager:	Stephen Clark
Project Name:	East San Joaquin Water Quality Coalition
PO Number:	9466

	Client Sample ID	Sample Date	Sample Time	Sample Matrix*	Container Number	Container Type	REQUESTED ANALYSIS: EPA 1660 Mod (Pyrethroids: esfenvalerate, permethrin, cypermethrin, L-cyhalothrin)	EPA 8141a (Organophosphate: Diazinon, Chlorpyrifos)								
1	545XCCART	2/28/06	830	FW	1	1-L amber		X								
2	545XCCART	2/28/06	834	FW	1	1-L amber	X									
3	545XCCART	2/28/06	831	FD	1	1-L amber		X								
4	545XCCART	2/28/06	835	FD	1	1-L amber	X									
5	545XCCART	2/28/06	832	FB	1	1-L amber		X								
6	545XCCART	2/28/06	836	FB	1	1-L amber	X									
7	545XCCART	2/28/06	833	MS/MSD FW	1	1-gallon amber	X	X								
8	545XASAAT	2/28/06	1125	FW	1	1-L amber		X								
9	545XASAAT	2/28/06	1126	FW	1	1-L amber	X									
10	535XDSAGR	2/28/06	1245	FW	1	1-L amber		X								
11	535XDSAGR	2/28/06	1246	FW	1	1-L amber	X									
12	535XDSAPR	2/28/06	1420	FW	1	1-L amber		X								
13	535XDSAPR	2/28/06	1421	FW	1	1-L amber	X									
14	535XBCAKR	2/28/06	1530	FW	1	1-L amber		X								

Correct Containers:	Yes	No	
Sample Temperature:	Ambient	Cold	Warm
Sample Preservative:	Yes	No	
Turnaround Time:	STD	Specify:	

Comments:
MS/MSD = matrix spike / matrix spike duplicate
FD = Field Duplicate
FB = Field Blank

Please fax a copy of the signed and received COC to Stephen Clark at 925-313-8080.

RELINQUISHED BY

Signature:	M. McE	Signature:	Doug Richards
Print:	Mike McElroy	Print:	Doug Richards
Organization:	PER	Organization:	EMILE
DATE: 2/28/06	TIME: 1747	DATE: 2-28-06	TIME: 1747

RECEIVED BY

Signature:	Doug Richards	Signature:	[illegible]
Print:	Doug Richards	Print:	C. Mori
Organization:	E. MILE	Organization:	
DATE: 2-28-06	TIME: 1900	DATE: 3-01-06	TIME: 0800

*MATRIX CODES: (SED = Sediment); (FW = Freshwater); (WW = Wastewater); (STRMW = Stormwater)

Pacific EcoRisk
ENVIRONMENTAL CONSULTING & TESTING
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APPL CHAIN-OF-CUSTODY RECORD

Client Name:	Pacific EcoRisk
Client Address:	835 Arnold Drive, Suite 104 Martinez, CA 94553
Sampled By:	Mike McElroy, Bruno Texiera
Phone:	(925) 313-8080
FAX:	(925) 313-8089
Project Manager:	Stephen Clark
Project Name:	East San Joaquin Water Quality Coalition
PO Number:	9466

	Client Sample ID	Sample Date	Sample Time	Sample Matrix*	Container Number	Container Type	REQUESTED ANALYSIS: EPA 1660 Mod (Pyrethroids: esfenvalerate, permethrin, cypermethrin, L-cyhalothrin)	EPA 8141a (Organophosphate: Diazinon, Chlorpyrifos)								
1	~~—~~			~~FW~~	~~1~~	~~1-L amber~~		~~x~~								
2	535XBLAKR	2/28/06	1534	FW	1	1-L amber	x									
3																
4																
5																
6																
7																
8																
9																
10																
11																
12																
13																
14																

Correct Containers:	Yes	No	
Sample Temperature:	Ambient	Cold	Warm
Sample Preservative:	Yes	No	
Turnaround Time:	STD	Specify:	

Comments:

Please fax a copy of the signed and received COC to Stephen Clark at 925-313-8080.

RELINQUISHED BY

Signature:	[signature]	Signature:	[signature]
Print:	Mike McElroy	Print:	Doug Richards
Organization:	PER	Organization:	E. MILE
DATE: 2/28/06	TIME: 1747	DATE: 2-28-06	TIME: 1747

RECEIVED BY

Signature:	[signature]	Signature:	[signature]
Print:	Doug Richards	Print:	C. Mason
Organization:		Organization:	
DATE: 2-28-06	TIME: 1810	DATE: 03-01-06	TIME: 0830

*MATRIX CODES: (SED = Sediment); (FW = Freshwater); (WW = Wastewater); (STRMW = Stormwater)

Pacific EcoRisk
ENVIRONMENTAL CONSULTING & TESTING
835 Arnold Drive, Suite 104, Martinez, CA 94553
(925) 313-8080 FAX (925) 313-8089

BSK CHAIN-OF-CUSTO

2006030122

Client Name:	Pacific EcoRisk
Client Address:	835 Arnold Drive, Suite 104 Martinez, CA 94553
Sampled By:	Mike McElroy, Bruno Texiera
Phone:	(925) 313-8080
FAX:	(925) 313-8089
Project Manager:	Stephen Clark
Project Name:	East San Joaquin Water Quality Coalition
PO Number:	9466

REQUESTED ANALYSIS

	Client Sample ID	Sample Date	Sample Time	Sample Matrix*	Container Number	Container Type	Color (SM2120 B Mod)	Turbidity (EPA 180.1)	TDS (EPA 160.1)	E. coli (SM 9221 B)	TOC (SM 5310 C)						
1	535XDSAGR	2/28/06	1247	FW	1	1-L HDPE	x	x	x								
WQ 2	535XDSAGR	2/28/06	1248	FW	1	100 mL poly				x		BSK 812447					
3	535XDSAGR	2/28/06	1249	FW	3	40-mL VOA					x						
4	535XDSATR	2/28/06	1422	FW	1	1-L HDPE	x	x	x								
WQ 5	535XDSATR	2/28/06	1423	FW	1	~~1-L HDPE~~ 100mL poly				x	~~x~~	BSK 812448					
6	535XDSATR	2/28/06	1424	FW	3	40 mL VOA					x						
7	535XBLAKR	2/28/06	1533	FW	1	1-L HDPE	x	x	x								
WQ 8	535XBLAKR	2/28/06	1534	FW	1	100mL poly				x		BSK 812449					
9	535XBLAKR	2/28/06	1535	FW	3	40 mL VOA					x						
10																	
11																	
12																	

Correct Containers:	Yes	No	
Sample Temperature:	Ambient	Cold	Warm
Sample Preservative:	Yes	No	
Turnaround Time:	STD	Specify:	

Comments:

Please fax a copy of the signed and received COC to Stephen Clark at 925-313-8080.

RELINQUISHED BY

Signature: [signature]	Signature: [signature]
Print: Mike McElroy	Print: Doug Richards
Organization: PER	Organization: E. Mill
DATE: 2/28/06 TIME: 1740	DATE: 2/28/06 TIME: 1740

RECEIVED BY

Signature: [signature]	Signature: [signature]
Print: Doug Richards	Print: Katrina Charles
Organization: E. Mill	Organization: BSK
DATE: 02-28-06 TIME: 1900	DATE: 02/28/06 TIME: 1900

*MATRIX CODES: (SED = Sediment); (FW = Freshwater); (WW = Wastewater); (STRMW = Stormwater)

Pacific EcoRisk

ENVIRONMENTAL CONSULTING & TESTING
835 Arnold Drive, Suite 104, Martinez, CA 94553
(925) 313-8080 FAX (925) 313-8089

BSK CHAIN-OF-CUST(

2006030124 03/01/2006
PACIFIC ECO TAT: Standard
31132

Client Name:	Pacific EcoRisk
Client Address:	835 Arnold Drive, Suite 104 Martinez, CA 94553
Sampled By:	Mike McElroy, Bruce Thompson
Phone:	(925) 313-8080
FAX:	(925) 313-8089
Project Manager:	Stephen Clark
Project Name:	East San Joaquin Water Quality Coalition
PO Number:	9466

REQUESTED ANALYSIS

	Client Sample ID	Sample Date	Sample Time	Sample Matrix*	Container Number	Container Type	Color (SM2120 B Mod)	Turbidity (EPA 180.1)	TDS (EPA 160.1)	E. coli (SM 9221 B) (5x5)	TOC (SM 5310 C)						
1	545XCCART	2/28/06	937	FW	1	1-L HDPE	x	x	x				86450				
2	545XCCART	2/28/06	840	FW	1	100 mL poly				x							
3	545XCCART	2/28/06	843	FW	3	40-mL VOA					x						
4	545XCCART	2/28/06	838	FB	1	1-L HDPE	x	x	x				86451				
5	545XCCART	2/28/06	841	FB	1	100 mL poly				x							
6	545XCCART	2/28/06	844	FB	3	40 mL VOA					x						
7	545XCCART	2/28/06	839	FB	1	1-L HDPE	x	x	x				86452				
8	545XCCART	2/28/06	842	FB	1	100 mL poly				x							
9	545XCCART	2/28/06	845	FB	3	40 mL poly					x						
10	545XASART	2/28/06	1127	FW	1	1-L HDPE	x	x	x				86453				
11	545XASART	2/28/06	1128	FW	1	100 mL poly				x							
12	545XASART	2/28/06	1129	FW	3	40 mL poly					x						

1 (samples 1–3) 2 (samples 4–6) 3 (samples 7–9) 4 (samples 10–12)

Correct Containers:	Yes	No	
Sample Temperature:	Ambient	Cold	Warm
Sample Preservative:	Yes	No	
Turnaround Time:	STD	Specify:	

Comments:

Please fax a copy of the signed and received COC to Stephen Clark at 925-313-8080.

RELINQUISHED BY

Signature:	M McE	Signature:	D Ri
Print:	Mike McElroy	Print:	Doug Richards
Organization:	PER	Organization:	E. Mile
DATE: 2/28/06	TIME: 1135	DATE: 2-28-06	TIME: 1735

RECEIVED BY

Signature:	D Ri	Signature:	Katrina Charles
Print:	Doug Richards	Print:	Katrina Charles
Organization:	E. Mile	Organization:	BSK
DATE: 2-28-06	TIME: 1000	DATE: 02/28/06	TIME: 1900

*MATRIX CODES: (SED = Sediment); (FW = Freshwater); (WW = Wastewater); (STRMW = Stormwater)

Pacific EcoRisk
Environmental Consulting & Testing
835 Arnold Drive, Suite 104, Martinez, CA 94553
(925) 313-8080 FAX (925) 313-8089

BSK CHAIN-OF-CUSTODY

2006030124

Client Name:	Pacific EcoRisk
Client Address:	835 Arnold Drive, Suite 104, Martinez, CA 94553
Sampled By:	Mike McElroy, [illegible]
Phone:	(925) 313-8080
FAX:	(925) 313-8089
Project Manager:	Stephen Clark
Project Name:	East San Joaquin Water Quality Coalition
PO Number:	9466

	Client Sample ID	Sample Date	Sample Time	Sample Matrix*	Container Number	Container Type	Color (SM2120 B Mod)	Turbidity (EPA 180.1)	TDS (EPA 160.1)	E. coli (SM 9221 E)	TOC (SM 5310 C)	
1	545XCCART	2/28/06	827	FW	1	1-L HDPE	x	x	x			
WM 2	545XCCART	2/28/06	840	FW	1	100 mL poly				x		BF B2L450
3	545XCCART	2/28/06	843	FW	3	40-mL VOA					x	
4	545XCCART	2/28/06	838	FD	1	1-L HDPE	x	x	x			
WM 5	545XCCART	2/28/06	841	FD	1	100mL poly				x		BF B2L451
6	545XCCART	2/28/06	844	FD	3	40mL VOA					x	
7	545XCCART	2/28/06	839	FB	1	1-L HDPE	x	x	x			
WM 8	545XCCART	2/28/06	842	FB	1	100 mL poly				x		BF B2L452
9	545XCCART	2/28/06	845	FB	3	40 mL poly					x	
10	545XASSART	2/28/06	1117	FW	1	1-L HDPE	x	x	x			
WM 11	545XASSART	2/28/06	1118	FW	1	100mL poly				x		BF B2L453
12	545XASSART	2/28/06	1119	FW	3	40 mL voa					x	

Correct Containers:	Yes	No	
Sample Temperature:	Ambient	Cold	Warm
Sample Preservative:	Yes	No	
Turnaround Time:	STD	Specify:	

Comments:

Please fax a copy of the signed and received COC to Stephen Clark at 925-313-8080.

RELINQUISHED BY

Signature:	[signature]	Signature:	[signature]
Print:	Mike McElroy	Print:	Doug Richards
Organization:	PER	Organization:	E. MILE
DATE: 2/28/06	TIME: 1125	DATE: 2-28-06	TIME: 1735

RECEIVED BY

Signature:	[signature]	Signature:	[signature]
Print:	Doug Richards	Print:	Katrina Charles
Organization:	E. MILE	Organization:	BSK
DATE: 2-28-06	TIME: 1100	DATE: [illegible]	TIME: 920

*MATRIX CODES: (SED = Sediment); (FW = Freshwater); (WW = Wastewater); (STRMW = Stormwater)

2006030122 03/01/2006
PACIFIC ECO TAT: Standard
31133

Pacific EcoRisk
ENVIRONMENTAL CONSULTING & TESTING
835 Arnold Drive, Suite 104, Martinez, CA 94553
(925) 313-8080 FAX (925) 313-8089

BSK CHAIN-OF-CUSTOD

Client Name:	Pacific EcoRisk
Client Address:	835 Arnold Drive, Suite 104 Martinez, CA 94553
Sampled By:	Mike McElroy, Bruno Texiera
Phone:	(925) 313-8080
FAX:	(925) 313-8089
Project Manager:	Stephen Clark
Project Name:	East San Joaquin Water Quality Coalition
PO Number:	9486

REQUESTED ANALYSIS

	Client Sample ID	Sample Date	Sample Time	Sample Matrix*	Container Number	Container Type	Color (SM2120 B Mod)	Turbidity (EPA 180.1)	TDS (EPA 160.1)	E. coli (SM 9221 B)	TOC (SM 5310 C)	
1	535XDSAGR	2/28/06	1247	FW	1	1-L HDPE	x	x	x			
2	535XDSAGR	2/28/06	1248	FW	1	100 mL poly				x		BH 36447
3	535XDSAGR	2/28/06	1249	FW	3	40-mL VOA					x	
4	535XDSAPR	2/28/06	1422	FW	1	1-L HDPE	X	X	X			
5	535XDSAPR	2/28/06	1423	FW	1	~~1-L HDPE~~ 100mL poly				X	~~X~~	36448
6	535XDSAPR	2/28/06	1424	FW	3	40mL VOA					X	
7	535XDCAKR	2/28/06	1533	FW	1	1-L HDPE	X	X	X			
8	535XDCAKR	2/28/06	1534	FW	1	100mL poly				X		36449
9	535XDCAKR	2/28/06	1535	FW	3	40mL VOA					X	
10												
11												
12												

1 (rows 1–3); 2 (rows 4–6); 3 (rows 7–9)

Correct Containers:	Yes	No	
Sample Temperature:	Ambient	Cold	Warm
Sample Preservative:	Yes	No	
Turnaround Time:	STD	Specify:	

Comments:

Please fax a copy of the signed and received COC to Stephen Clark at 925-313-8080.

RELINQUISHED BY

Signature:	[signature]	Signature:	[signature]
Print:	Mike McElroy	Print:	Doug Richards
Organization:	PER	Organization:	E. Mike
DATE: 2/28/06	TIME: 1740	DATE: 2/28/06	TIME: 1740

RECEIVED BY

Signature:	[signature]	Signature:	[signature]
Print:	Doug Richards	Print:	Katrina Charles
Organization:	E. Mike	Organization:	BSK
DATE: 02-28-06	TIME: 1900	DATE: 02/28/06	TIME: 1900

*MATRIX CODES: (SED = Sediment); (FW = Freshwater); (WW = Wastewater); (STRMW = Stormwater)

Pacific EcoRisk
ENVIRONMENTAL CONSULTING & TESTING
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(925) 313-8080 FAX (925) 313-8089

PER CHAIN-OF-CUSTODY RECORD

Client Name:	Pacific EcoRisk
Client Address:	835 Arnold Drive, Suite 104 Martinez, CA 94553
Sampled By:	Mike McElroy, Bruno Tezier
Phone:	(925) 313-8080
FAX:	(925) 313-8089
Project Manager:	Stephen Clark
Project Name:	East San Joaquin Water Quality Coalition
PO Number:	9466

REQUESTED ANALYSIS

	Client Sample ID	Sample Date	Sample Time	Sample Matrix*	Container Number	Container Type	Acute Cerio, Acute FHM, Chronic Selenastrum
1	B-545XCCART-GR	2/28/06	846	FW	5	1-Gal Amber Jug	x
2	B-545XCCART-FD	2/28/06	847	FD	5	1g Amber Jug	X
3	B-545XASAAT-GR	2/28/06	1130	Fw	5	1g Amber Jug	x
4	B-535XDSAGR-GR	2/28/06	1250	Fw	5	1g Amber Jug	X
5	B-535XDSA7R-GR	2/28/06	1425	Fw	5	1g Amber Jug	X
6	B-535XBCAKR-GR	2/28/06	1735	Fw	5	1g Amber Jug	x
7							
8							
9							
10							
11							
12							
13							
14							

Correct Containers:	Yes	No	
Sample Temperature:	Ambient	Cold	Warm
Sample Preservative:	Yes	No	
Turnaround Time:	STD	Specify:	

Comments:
FD= Field Duplicate

RELINQUISHED BY

Signature: [signature]		Signature:	
Print: Mike McElroy		Print:	
Organization: PER		Organization:	
DATE: 2/28/06	TIME: 0750	DATE:	TIME:

RECEIVED BY

Signature: [signature]		Signature:	
Print: John Skinner		Print:	
Organization: DFR		Organization:	
DATE: 2/28/06	TIME: 07:50	DATE:	TIME:

*MATRIX CODES: (SED = Sediment); (FW = Freshwater); (WW = Wastewater); (STRMW = Stormwater)

Pacific EcoRisk
ENVIRONMENTAL CONSULTING & TESTING
835 Arnold Drive, Suite 104, Martinez, CA 94553
(925) 313-8080 FAX (925) 313-8089

APPL CHAIN-OF-CUSTODY RECORD

Client Name:	Pacific EcoRisk
Client Address:	835 Arnold Drive, Suite 104, Martinez, CA 94553
Sampled By:	Mike McElroy, Bruno Texiera
Phone:	(925) 313-8080
FAX:	(925) 313-8089
Project Manager:	Stephen Clark
Project Name:	East San Joaquin Water Quality Coalition
PO Number:	9466

#	Client Sample ID	Sample Date	Sample Time	Sample Matrix*	Container Number	Container Type	EPA 1660 Mod (Pyrethroids: esfenvalerate, permethrin, cypermethrin, L-cyhalothrin)	EPA 8141a (Organophosphate: Diazinon, Chlorpyrifos)
1	535XMRSFD	3/1/06	1015	FW	1	1-L amber		x
2	535X MRSFD	3/1/06	1016	FW	1	1-L amber	x	
3	535X HCALR	3/1/06	910	FW	1	1L amber		x
4	535X HCALR	3/1/06	911	FW	1	1L amber	x	
5	535X PFDCL	3/1/06	1330	FW	1	1L amber		x
6	535X PFDCL	3/1/06	1331	FW	1	1L amber	x	
7	535X HDACA	3/1/06	1510	FW	1	1L amber		x
8	535X HDACA	3/1/06	1511	FW	1	1L amber	x	
9	535X HCHNN	3/1/06	740	FW	1	1L amber		x
10	535X HCHNN	3/1/06	741	FW	1	1L amber	x	
11	535X SDAGR	3/1/06	1100	FW	1	1L amber		x
12	535X SDAGR	3/1/06	1101	FW	1	1L amber	x	
13	535X DCAWR	3/1/06	1300	FW	1	1L amber		x
14	535X DCAWR	3/1/06	1301	FW	1	1L amber	x	

Correct Containers:	Yes	No	
Sample Temperature:	Ambient	Cold	Warm
Sample Preservative:	Yes	No	
Turnaround Time:	STD	Specify:	

Comments:

Please fax a copy of the signed and received COC to Stephen Clark at 925-313-8080.

RELINQUISHED BY

Signature:	[signature]	Signature:	[signature]
Print:	Mike McElroy	Print:	Doug Richards
Organization:	PER	Organization:	E. MILE
DATE: 3/1/06	TIME: 1615	DATE: 3-1-06	TIME: 1620

RECEIVED BY

Signature:	[signature]	Signature:	[signature]
Print:	Doug Richards	Print:	C. Moua
Organization:	E MILE	Organization:	APPL INC.
DATE: 3-1-06	TIME: 1855	DATE: 03/02/06	TIME: 0800

*MATRIX CODES: (SED = Sediment); (FW = Freshwater); (WW = Wastewater); (STRMW = Stormwater)

2006030199 03/02/2006
PACIFIC ECO TAT: Standard
32047

Pacific EcoRisk
ENVIRONMENTAL CONSULTING & TESTING
835 Arnold Drive, Suite 104, Martinez, CA 94553
(925) 313-8080 FAX (925) 313-8089

BSK CHAIN-OF-CUST

Client Name:	Pacific EcoRisk
Client Address:	835 Arnold Drive, Suite 104 Martinez, CA 94553
Sampled By:	Mike McElroy, Bruno Texiera
Phone:	(925) 313-8080
FAX:	(925) 313-8089
Project Manager:	Stephen Clark
Project Name:	East San Joaquin Water Quality Coalition
PO Number:	9466

REQUESTED ANALYSIS

		Client Sample ID	Sample Date	Sample Time	Sample Matrix*	Container Number	Container Type	Color (SM2120 B Mod)	Turbidity (EPA 180.1)	TDS (EPA 160.1)	E. coli (SM 9221 B)	TOC (SM 5310 C)	
1	1	535XMRSFD	3/1/06	1017	FW	1	1-L HDPE	x	x	x			
	2	535XMRSFD	3/1/06	1018	FW	1	100 mL poly				x		B86517 1095285
	3	535XMRSFD	3/1/06	1019	FW	3	40-mL VOA					x	
2	4	535XHCALR	3/1/06	912	FW	1	1-L HDPE	x	x	x			
	5	535XHCALR	3/1/06	913	FW	1	100 mL poly				x		B86518 1095286
	6	535XHCALR	3/1/06	914	FW	3	40 mL VOA					x	
3	7	535XPPDCL	3/1/06	1332	FW	1	1-L HDPE	x	x	x			
	8	535XPPDCL	3/1/06	1333	FW	1	100 mL poly				x		B86519 1095287
	9	535XPPDCL	3/1/06	1334	FW	3	40 mL VOA					x	
4	10	535XHDACA	3/1/06	1512	FW	1	1-L HDPE	x	x	x			
	11	535XHDACA	3/1/06	1513	FW	1	100 mL poly				x		B86520 1095288
	12	535XHDACA	3/1/06	1514	FW	3	40 mL VOA					x	

Correct Containers:	Yes	No	
Sample Temperature:	Ambient	Cold	Warm
Sample Preservative:	Yes	No	
Turnaround Time:	STD	Specify:	

Comments:

Please fax a copy of the signed and received COC to Stephen Clark at 925-313-8080.

RELINQUISHED BY

Signature:	[signature]	Signature:	[signature]
Print:	Mike McElroy	Print:	Doug Richards
Organization:	PER	Organization:	E. Mile
DATE: 3/1/06	TIME: 1620	DATE: 3-1-06	TIME: 1620

RECEIVED BY

Signature:	[signature]	Signature:	Jacob Schulte
Print:	Doug Richards	Print:	JACOB SCHULTE
Organization:	E. Mile	Organization:	BSK
DATE: 3-1-06	TIME: 1835	DATE: 3/1/06	TIME: 1900

*MATRIX CODES: (SED = Sediment); (FW = Freshwater); (WW = Wastewater); (STRMW = Stormwater)

R. Reh BSK 3/2/06 1130

2006030199 03/02/2006 47
PACIFIC ECO TAT: Standard
32047

Pacific EcoRisk
ENVIRONMENTAL CONSULTING & TESTING
835 Arnold Drive, Suite 104, Martinez, CA 94553
(925) 313-8080 FAX (925) 313-8089

BSK **CHAIN-OF-CU**

Client Name:	Pacific EcoRisk
Client Address:	835 Arnold Drive, Suite 104, Martinez, CA 94553
Sampled By:	Mike McElroy, Bruno Texiera
Phone:	(925) 313-8080
FAX:	(925) 313-8089
Project Manager:	Stephen Clark
Project Name:	East San Joaquin Water Quality Coalition
PO Number:	9466

REQUESTED ANALYSIS

	#	Client Sample ID	Sample Date	Sample Time	Sample Matrix*	Container Number	Container Type	Color (SM2120B)	Turbidity (EPA 180.1)	TDS (EPA 160.1)	E. coli (SM 9223 B)	TOC (SM 5310 C)		
5	1	535XHCHNN	3/1/06	702	FW	1	1-L HDPE	X	X	X			BS06531	6095298
	2	535XHCHNN	3/1/06	703	FW	1	100mL poly				X			
	3	535XHCHNN	3/1/06	704	FW	3	40 mL VOA					X		
6	4	535XJDAER	3/1/06	1102	FW	1	1-L HDPE	X	X	X			BS06532	299
	5	535XJDAER	3/1/06	1103	FW	1	100mL poly				X			
	6	535XJDAER	3/1/06	1104	FW	3	40 mL VOA					X		
7	7	535XDCAWR	3/1/06	1302	FW	1	1-L HDPE	X	X	X			BS06533	300
	8	535XDCAWR	3/1/06	1303	FW	1	100 mL poly				X			
	9	535XDCAWR	3/1/06	1304	FW	3	40 mL VOA					X		
	10													
	11													
	12													

Correct Containers:	Yes	No	
Sample Temperature:	Ambient	Cold	Warm
Sample Preservative:	Yes	No	
Turnaround Time:	STD	Specify:	

Comments:

Please fax a copy of the signed and received COC to Stephen Clark at 925-313-8080.

RELINQUISHED BY

Signature:	[signature]	Signature:	[signature]
Print:	Mike McElroy	Print:	Doug Richardson
Organization:	PER	Organization:	E, MILE
DATE: 3/1/06	TIME: 1620	DATE: 3-1-06	TIME: 1620

RECEIVED BY

Signature:	[signature]	Signature:	[signature]
Print:	Doug Richardson	Print:	Jacob Schulte
Organization:	E MILE	Organization:	BSK
DATE: 3-01-06	TIME: 1835	DATE: 3/1/06	TIME: 1900

*MATRIX CODES: (SED = Sediment); (FW = Freshwater); (WW = Wastewater); (STRMW = Stormwater)

BSK 3/2/06 1130

Pacific EcoRisk
ENVIRONMENTAL CONSULTING & TESTING
835 Arnold Drive, Suite 104, Martinez, CA 94553
(925) 313-8080 FAX (925) 313-8089

BSK CHAIN-OF-CUST

2006030199

Client Name:	Pacific EcoRisk
Client Address:	835 Arnold Drive, Suite 104 Martinez, CA 94553
Sampled By:	Mike McElroy, Bruno Texiera
Phone:	(925) 313-8080
FAX:	(925) 313-8089
Project Manager:	Stephen Clark
Project Name:	East San Joaquin Water Quality Coalition
PO Number:	9466

REQUESTED ANALYSIS

	Client Sample ID	Sample Date	Sample Time	Sample Matrix*	Container Number	Container Type	Color (SM2120 B Mod)	Turbidity (EPA 180.1)	TDS (EPA 160.1)	E. coli (SM 9221 B)	TOC (SM 5310 C)	
1	535XMRSFD	3/1/06	1017	FW	1	1-L HDPE	x	x	x			
2	535XMRSFD WW	3/1/06	1018	FW	1	100 mL poly				x		85517
3	535XMRSFD	3/1/06	1019	FW	3	40 mL VOA					x	
4	535XHCALR	3/1/06	912	FW	1	1-L HDPE	x	x	x			
5	535XHCALR WV	3/1/06	913	FW	1	100mL poly				x		85518
6	535XHCALR	3/1/06	914	FW	3	40 mL VOA					x	
7	535XPPDCL	3/1/06	1932	FW	1	1-L HDPE	x	x	x			
8	535XPPDCL WW	3/1/06	1933	FW	1	100mL poly				x		85519
9	535XPPDCL	3/1/06	1934	FW	3	40mL VOA					x	
10	535XHDACA	3/1/06	1512	FW	1	1-L HDPE	x	x	x			
11	535XHDACA WX	3/1/06	1513	FW	1	100mL poly				x		85520
12	535XHDACA	3/1/06	1514	FW	3	40 mL VOA					x	

Correct Containers:	Yes	No	
Sample Temperature:	Ambient	Cold	Warm
Sample Preservative:	Yes	No	
Turnaround Time:	STD	Specify:	

Comments:

Please fax a copy of the signed and received COC to Stephen Clark at 925-313-8080.

RELINQUISHED BY

Signature: [signature]	Signature: [signature]
Print: Mike McElroy	Print: Doug Richards
Organization: PER	Organization: E. Mile
DATE: 3/1/06 TIME: 1620	DATE: 3-1-06 TIME: 1620

RECEIVED BY

Signature: [signature]	Signature: [signature]
Print: Doug Richards	Print: Jacob Schulte
Organization: E. Mile	Organization: BSK
DATE: 3-1-06 TIME: 1835	DATE: 3/1/06 TIME: 1900

*MATRIX CODES: (SED = Sediment); (FW = Freshwater); (WW = Wastewater); (STRMW = Stormwater)

Pacific EcoRisk
ENVIRONMENTAL CONSULTING & TESTING
835 Arnold Drive, Suite 104, Martinez, CA 94553
(925) 313-8080 FAX (925) 313-8089

BSK **CHAIN-OF-CUST[illegible]**

2006030199

Client Name:	Pacific EcoRisk
Client Address:	835 Arnold Drive, Suite 104, Martinez, CA 94553
Sampled By:	Mike McElroy, Bruno Texiera
Phone:	(925) 313-8080
FAX:	(925) 313-8089
Project Manager:	Stephen Clark
Project Name:	East San Joaquin Water Quality Coalition
PO Number:	9466

	Client Sample ID	Sample Date	Sample Time	Sample Matrix*	Container Number	Container Type	Color (SM2120B mod)	Turbidity (EPA 180.1)	TDS (EPA 160.1)	E. coli (SM 9221 F)	TOC (SM 5310 C)							
1	535XHCHNN	3/1/06	742	FW	1	1-L HDPE	X	X	X									
2	535XHCHNN WF	3/1/06	743	FW	1	100mL poly				X								8515-21
3	535XHCHNN	3/1/06	744	FW	3	40mL VOA					X							
4	535XJDAOR	3/1/06	1102	FW	1	1-L HDPE	X	X	X									
5	535XJDAOR WS	3/1/06	1103	FW	1	100mL poly				X								
6	535XJDAOR	3/1/06	1104	FW	3	40mL VOA					X							8515-22
7	535XDCAWR	3/1/06	1302	FW	1	1-L HDPE	X	X	X									
8	535XDCAWR WT	3/1/06	1303	FW	1	100mL poly				X	~~X~~							8515-23
9	535XDCAWR	3/1/06	1304	FW	3	40mL VOA					X							
10																		
11																		
12																		

Correct Containers:	Yes	No	
Sample Temperature:	Ambient	Cold	Warm
Sample Preservative:	Yes	No	
Turnaround Time:	STD	Specify:	

Comments:

Please fax a copy of the signed and received COC to Stephen Clark at 925-313-8080.

RELINQUISHED BY

Signature:	[signature]	Signature:	[signature]
Print:	Mike McElroy	Print:	Doug Richardson
Organization:	PER	Organization:	E. MILE
DATE: 3/1/06	TIME: 1620	DATE: 3-1-06	TIME: 1620

RECEIVED BY

Signature:	[signature]	Signature:	[signature]
Print:	Doug Richardson	Print:	Jacob Schultz
Organization:	E MILE	Organization:	BSK
DATE: 3-01-06	TIME: 1835	DATE: 3/1/06	TIME: 1900

*MATRIX CODES: (SED = Sediment); (FW = Freshwater); (WW = Wastewater); (STRMW = Stormwater)

Pacific EcoRisk

ENVIRONMENTAL CONSULTING & TESTING

835 Arnold Drive, Suite 104, Martinez, CA 94553

(925) 313-8080 FAX (925) 313-8089

PER CHAIN-OF-CUSTODY RECORD

Client Name:	Pacific EcoRisk
Client Address:	835 Arnold Drive, Suite 104 Martinez, CA 94553
Sampled By:	Mike McElroy, Bruno Texiera
Phone:	(925) 313-8080
FAX:	(925) 313-8089
Project Manager:	Stephen Clark
Project Name:	East San Joaquin Water Quality Coalition
PO Number:	9486

REQUESTED ANALYSIS

	Client Sample ID	Sample Date	Sample Time	Sample Matrix*	Container Number	Container Type	Acute Cerio, Acute FHM, Chronic Selenastrum
1	A-535 XMESFD-GR	3/1/06	1020	FW	5	1-Gal Amber Jug	x
2	B535 XHCAL R-GR	3/1/06	915	FW	5	1g Amber Jug	x
3	B-535 X PPDX L-GR	3/1/06	1335	FW	5	1g Amber Jug	x
4	B535 XHDACR GR	3/1/06	1515	FW	5	1g Amber Jug	x
5	B535X HCHNN[illegible] GR	3/1/06	740	FW	5	1g Amber Jug	x
6	A535X JDAOL-GR	3/1/06	1105	FW	5	1g Amber Jug	x
7	B535X DCAWR-GR	3/1/06	1305	FW	5	1g Amber Jug	x
8							
9							
10							
11							
12							
13							
14							

Correct Containers:	Yes	No	
Sample Temperature:	Ambient	Cold	Warm
Sample Preservative:	Yes	No	
Turnaround Time:	STD	Specify:	

Comments:

RELINQUISHED BY

Signature: [signature]	Signature:
Print: Mike McElroy	Print:
Organization: PER	Organization:
DATE: 3/1/06 TIME: 19:30	DATE: TIME:

RECEIVED BY

Signature: [signature]	Signature:
Print: Raffaele Perrotta	Print:
Organization: PER	Organization:
DATE: 3/1/06 TIME: 21:35	DATE: TIME:

*MATRIX CODES: (SED = Sediment); (FW = Freshwater); (WW = Wastewater); (STRMW = Stormwater)

Pacific EcoRisk
ENVIRONMENTAL CONSULTING & TESTING
835 Arnold Drive, Suite 104, Martinez, CA 94553
(925) 313-8080 FAX (925) 313-8089

PER CHAIN-OF-CUSTODY RECORD

Client Name:	Pacific EcoRisk
Client Address:	835 Arnold Drive, Suite 104 Martinez, CA 94553
Sampled By:	Mike McElroy, Chris Moser
Phone:	(925) 313-8080
FAX:	(925) 313-8089
Project Manager:	Stephen Clark
Project Name:	East San Joaquin Water Quality Coalition
PO Number:	9466

REQUESTED ANALYSIS

	Client Sample ID	Sample Date	Sample Time	Sample Matrix*	Container Number	Container Type	Chronic Selenastrum	Acute Cerio	Acute FHM.								
1	13-535XHCHNN-RS	3-10-06	11:00	FW	2 4 gal	1-Gal Amber Jug	X										
2	13-535XDSAGR-RS	3/10/06	12:40	FW	1	1 g Amber Jug		X									
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	
11																	
12																	
13																	
14																	

Correct Containers:	Yes	No	
Sample Temperature:	Ambient	Cold	Warm
Sample Preservative:	Yes	No	
Turnaround Time:	STD	Specify:	

Comments:

RELINQUISHED BY

Signature: [signature]		Signature:	
Print: Mike McElroy		Print:	
Organization: PER		Organization:	
DATE: 3/10/06	TIME: 1715	DATE:	TIME:

RECEIVED BY

Signature: [signature]		Signature:	
Print: Chris Mosser		Print:	
Organization: PER		Organization:	
DATE: 3-10-6	TIME: 1715	DATE:	TIME:

*MATRIX CODES: (SED = Sediment); (FW = Freshwater); (WW = Wastewater); (STRMW = Stormwater)

Pacific EcoRisk
ENVIRONMENTAL CONSULTING & TESTING
835 Arnold Drive, Suite 104, Martinez, CA 94553
(925) 313-8080 FAX (925) 313-8089

APPL CHAIN-OF-CUSTODY RECORD

Client Name:	Pacific EcoRisk
Client Address:	835 Arnold Drive, Suite 104 Martinez, CA 94553
Sampled By:	M. McElroy, D. Bosworth
Phone:	(925) 313-8080
FAX:	(925) 313-8089
Project Manager:	Stephen Clark
Project Name:	East San Joaquin Water Quality Coalition
PO Number:	9466

REQUESTED ANALYSIS

	Client Sample ID	Sample Date	Sample Time	Sample Matrix*	Container Number	Container Type	EPA 1660 Mod (Pyrethroids: esfenvalerate, permethrin, cypermethrin, L-cyhalothrin)	EPA 8141a (Organophosphate: Diazinon, Chlorpyrifos)									
1	R4-545XCCART-GR	3/15/06	1140	FW	1	1-L amber		x									
2	R4-545XCCART-GR	3/15/06	1144	FW	1	1-L amber	x										
3	R4-545XCCART-FD	3/15/06	1141	FW	1	1-L amber		X									
4	R4-545XCCART-FD	3/15/06	1145	FW	1	1-L Amber	X										
5	R4-545XCCART-FB	3/15/06	1142	FW	1	1-L Amber		X									
6	R4-545XCCART-FB	3/15/06	1146	FW	1	1-L Amber	X										
7	R4-545XCCART-MS	3/15/06	1143	FW	1	1-Gal Amber	X	X									
8	R4-545XASAAT-GR	3/15/06	1330	FW	1	1-L Amber		X									
9	R4-545XASAAT-GR	3/15/06	1331	FW	1	1-L Amber	X										
10	R4-535XDSAGR-GR	3/15/06	1500	FW	1	1-L Amber		X									
11	R4-535XDSAGR-GR	3/15/06	1501	FW	1	1-L Amber	X										
12	R4-535XDSAPR-GR	3/15/06	1615	FW	1			X									
13	R4-535XDMPR-GR	3/15/06	1616	FW	1		X										
14	~~R4-535XBEAR-GR~~ DB			~~FW~~ DB	+ DB												

Correct Containers:	Yes	No	
Sample Temperature:	Ambient	Cold	Warm
Sample Preservative:	Yes	No	
Turnaround Time:	STD	Specify:	

Comments:
FD = Field Duplicate
FB = Field Blank
MS = Matrix Spike/Matrix Spike Duplicate

Please fax a copy of the signed and received COC to Stephen Clark at 925-313-8080. DB

RELINQUISHED BY

Signature:	[signature]	Signature:	[signature]
Print:	David Bosworth	Print:	Doug Richard
Organization:	PER	Organization:	Ex MILE
DATE: 3/15/06	TIME: 1831	DATE: 3-15-06	TIME: 1831

RECEIVED BY

Signature:	[signature]	Signature:	[signature]
Print:	Doug Richard	Print:	Chue Fue Moua
Organization:	Ex MILE	Organization:	APPL, INC
DATE: 3-15-06	TIME: 1945	DATE: 3-16-06	TIME: 0800

*MATRIX CODES: (SED = Sediment); (FW = Freshwater); (WW = Wastewater); (STRMW = Stormwater)

Pacific EcoRisk
ENVIRONMENTAL CONSULTING & TESTING
835 Arnold Drive, Suite 104, Martinez, CA 94553
(925) 313-8080 FAX (925) 313-8089

APPL CHAIN-OF-CUSTODY RECORD

Client Name:	Pacific EcoRisk
Client Address:	835 Arnold Drive, Suite 104 Martinez, CA 94553
Sampled By:	M. McElroy, D. Bosworth
Phone:	(925) 313-8080
FAX:	(925) 313-8089
Project Manager:	Stephen Clark
Project Name:	East San Joaquin Water Quality Coalition
PO Number:	9466

REQUESTED ANALYSIS

	Client Sample ID	Sample Date	Sample Time	Sample Matrix*	Container Number	Container Type	EPA 1660 Mod (Pyrethroids: esfenvalerate, permethrin, cypermethrin, L-cyhalothrin)	EPA 8141a (Organophosphate: Diazinon, Chlorpyrifos)								
1	24-535XBAKR-GR	3/15/06	1715	FW	1	1-L amber		x								
2	24-535XBAKR-GR	3/15/06	1716	FW	1	1-L amber	x									
3																
4																
5																
6																
7																
8																
9																
10																
11																
12																
13																
14																

Correct Containers:	Yes	No	
Sample Temperature:	Ambient	Cold	Warm
Sample Preservative:	Yes	No	
Turnaround Time:	STD	Specify:	

Comments:

Please fax a copy of the signed and received COC to Stephen Clark at 925-313-8080. DB

RELINQUISHED BY

Signature:	[signature]	Signature:	[signature]
Print:	David Bosworth	Print:	DOUG RICHARDS
Organization:	PER	Organization:	EX MILE
DATE: 3/15/06	TIME: 1831	DATE: 3-15-06	TIME: 1831

RECEIVED BY

Signature:	[signature]	Signature:	[signature]
Print:	DOUG RICHARDS	Print:	Chie Fue Mona
Organization:	EX MILE	Organization:	Appl, Inc
DATE: 3-15-06	TIME: 1945	DATE: 3-16-06	TIME: 800

*MATRIX CODES: (SED = Sediment); (FW = Freshwater); (WW = Wastewater); (STRMW = Stormwater)

10

Pacific EcoRisk
ENVIRONMENTAL CONSULTING & TESTING
835 Arnold Drive, Suite 104, Martinez, CA 94553
(925) 313-8080 FAX (925) 313-8089

BSK CHAIN-OF-CUSTOI

2006031304 03/16/2006
PACIFIC ECO TAT: Standard
316039

Client Name:	Pacific EcoRisk
Client Address:	835 Arnold Drive, Suite 104 Martinez, CA 94553
Sampled By:	M. McElroy, D. Bosworth
Phone:	(925) 313-8080
FAX:	(925) 313-8089
Project Manager:	Stephen Clark
Project Name:	East San Joaquin Water Quality Coalition
PO Number:	9466

	Client Sample ID	Sample Date	Sample Time	Sample Matrix*	Container Number	Container Type	Color (SM2120 B Mod)	Turbidity (EPA 180.1)	TDS (EPA 160.1)	E. coli (SM 9221 B)	TOC (SM 5310 C)		
1	R4-535-XDSAGR-GR	3/15/06	1502	FW	1	1-L HDPE	x	x	x				70385
2	R4-535-XDSAGR-GR	3/15/06	1503	FW	1	100 mL poly				x		B87343	86
3	R4-535-XDSAGR-GR	3/15/06	1504	FW	3	40-mL VOA					x		87
4	R4-535-XDSAPR-GR	3/15/06	1617	FW	1	1-L HDPE	x	x	x				88
5	R4-535-XDSAPR-GR	3/15/06	1618	FW	1	100mL poly				x		B87344	89
6	R4-535-XDSAPR-GR	3/15/06	1619	FW	3	40mL VOA					x		90
7	R4-535-XBCAKR-GR	3/15/06	1717	FW	1	1-L HDPE	x	x	x				91
8	R4-535-XBCAKR-GR	3/15/06	1718	FW	1	100mL poly				x		B87345	92
9	R4-535-XBCAKR-GR	3/15/06	1719	FW	3	40mL VOA					x		93
10													
11													

Correct Containers:	Yes	No	
Sample Temperature:	Ambient	Cold	Warm
Sample Preservative:	Yes	No	
Turnaround Time:	STD	Specify:	

Comments:

Please fax a copy of the signed and received COC to Stephen Clark at 925-313-8080. DB

RELINQUISHED BY

Signature:	D. Bosworth	Signature:	Doug Richards
Print:	David Bosworth	Print:	Doug Richards
Organization:	PER	Organization:	Ex MILE
DATE: 3/15/06	TIME: 1831	DATE: 3-15-06	TIME: 1831

RECEIVED BY

Signature:	Doug Richards	Signature:	Jacob Schultz
Print:	Doug Richards	Print:	Jacob Schultz
Organization:	Ex MILE	Organization:	BSK
DATE: 3-15-06	TIME: 1945	DATE: 3/15/06	TIME: 2000

*MATRIX CODES: (SED = Sediment); (FW = Freshwater); (WW = Wastewater); (STRMW = Stormwater)

R. Paul 3/16/06 0945

3160391

Pacific EcoRisk
ENVIRONMENTAL CONSULTING & TESTING
835 Arnold Drive, Suite 104, Martinez, CA 94553
(925) 313-8080 FAX (925) 313-8089

BSK CHAIN-OF-CUSTODY RECORD

2006031304 03/16/2006
PACIFIC ECO TAT: Standard
316039

Client Name:	Pacific EcoRisk
Client Address:	835 Arnold Drive, Suite 104 Martinez, CA 94553
Sampled By:	M. McElroy, D. Bosworth
Phone:	(925) 313-8080
FAX:	(925) 313-8089
Project Manager:	Stephen Clark
Project Name:	East San Joaquin Water Quality Coalition
PO Number:	9466

		Client Sample ID	Sample Date	Sample Time	Sample Matrix*	Container Number	Container Type	Color (SM2120 B Mod)	Turbidity (EPA 180.1)	TDS (EPA 160.1)	E. coli (SM 9221 B)	TOC (SM 5310 C)		
10	1	R4-545XCCART-GR	3/15/06	1147	FW	1	1-L HDPE	x	x	x				700384
11	2	R4-545XCCART-GR	3/15/06	1150	FW	1	100 mL poly				x		B57346	85
12	3	R4-545XCCART-GR	3/15/06	1153	FW	3	40-mL VOA					x		86
13	4	R4-545XCCART-FD	3/15/06	1148	Fw	1	1-L HDPE	X	X	X				87
14	5	R4-545XCCART-FD	3/15/06	1151	Fw	1	100 mL poly				X		B57347	88
15	6	R4-545XCCART-FD	3/15/06	1154	Fw	3	40 mL VOA					X		89
16	7	R4-545XCCART-FB	3/15/06	1149	Fw	1	1-L HDPE	X	X	X				400
17	8	R4-545XCCART-FB	3/15/06	1152	Fw	1	100 mL poly				X		B57348	01
18	9	R4-545XCCART-FB	3/15/06	1155	Fw	3	40 mL VOA					X		02
19	10	R4-545XASAAT-GR	3/15/06	1333	Fw	1	1-L HDPE	X	X	X				03
20	11	R4-545XASAAT-GR	3/15/06	1334	Fw	1	100 mL poly				X		B57349	04
21	12	R4-545XASAAT-GR	3/15/06	1335	Fw	3	40 mL VOA					X		05

3/16

Correct Containers:	Yes	No	
Sample Temperature:	Ambient	Cold	Warm
Sample Preservative:	Yes	No	
Turnaround Time:	STD	Specify:	

Comments:
FD = Field Duplicate
FB = Field Blank

Please fax a copy of the signed and received COC to Stephen Clark at 925-313-8080.

RELINQUISHED BY

Signature: [signature] Print: David Bosworth Organization: PER DATE: 3/15/06 TIME: 1831	Signature: [signature] Print: Doug Richards Organization: Exp MILE DATE: 3-15-06 TIME: 1831

RECEIVED BY

Signature: [signature] Print: Doug Richards Organization: X MILE DATE: 3-15-06 TIME: 1945	Signature: [signature] Print: JACOB SCHULTE Organization: BSK DATE: 3/15/06 TIME: 2000

*MATRIX CODES: (SED = Sediment); (FW = Freshwater); (WW = Wastewater); (STRMW = Stormwater)

[signature] 3/16/06 0945

Pacific EcoRisk
ENVIRONMENTAL CONSULTING & TESTING
835 Arnold Drive, Suite 104, Martinez, CA 94553
(925) 313-8080 FAX (925) 313-8089

PER CHAIN-OF-CUSTODY RECORD

Client Name:	Pacific EcoRisk
Client Address:	835 Arnold Drive, Suite 104 Martinez, CA 94553
Sampled By:	M. McElroy, D. Bosworth
Phone:	(925) 313-8080
FAX:	(925) 313-8089
Project Manager:	Stephen Clark
Project Name:	East San Joaquin Water Quality Coalition
PO Number:	9496

	Client Sample ID	Sample Date	Sample Time	Sample Matrix*	Container Number	Container Type	Acute Cerio, Acute FHM, Chronic Selenastrum	REQUESTED ANALYSIS									
1	B4-545XCCART-GR	3/15/06	1156	FW	5	1-Gal Amber Jug	x										
2	B4-545XCCART-FD	3/15/06	1157	FW	5	1-Gal Amber	X										
3	B4-545XASAAT-GR	3/15/06	1335	FW	5	1-Gal Amber	X										
4	B4-535XDSAGB-GR	3/15/06	1505	FW	5	1-Gal Amber	X										
5	B4-535XDSAPR-GR	3/15/06	1620	FW	5	1-Gal Amber	X										
6	B4-535XBCAKB-GR	3/15/06	1720	FW	5	1-Gal Amber	X										
7																	
8																	
9																	
10																	
11																	
12																	
13																	
14																	

Correct Containers:	Yes	No	
Sample Temperature:	Ambient	Cold	Warm
Sample Preservative:	Yes	No	
Turnaround Time:	STD	Specify:	

Comments:
FD = Field Duplicate

RELINQUISHED BY

Signature:	[signature]	Signature:	
Print:	David Bosworth	Print:	
Organization: PER		Organization:	
DATE: 3/15/06	TIME: 1843	DATE:	TIME:

RECEIVED BY

Signature:	[signature]	Signature:	
Print:	John Skinner	Print:	
Organization: PER		Organization:	
DATE: 03/15/06	TIME: 1844	DATE:	TIME:

*MATRIX CODES: (SED = Sediment); (FW = Freshwater); (WW = Wastewater); (STRMW = Stormwater)

CHAIN OF CUSTODY RECORD

2006031412

PACIFIC ECORISK
835 Arnold Drive, Suite 104
Martinez, CA 94553
(925)313-8080 fax: (925)313-8089

RESULTS TO:
Mike Johnson
UC Davis
ESJWQC Ag Waiver Project
Attn: ______ Tel: ______

BILL TO:
Mike
UC Davis
ESJWQC Ag Waiver Project
Attn: ______ Tel: ______

PROJECT: East San Joaquin Water Quality Coalition 9466

	SAMPLE IDENTIFICATION	DATE	TIME	SAMPLE MATRIX	GRAB/ COMP.	# CONTAINERS/TYPE	Color (SM2120B mod)	Turbidity (EPA 180.1)	TSS (EPA 160.1)	E. coli (SM9223B)	TOC (SM5310C)				REMARKS
	R4-535XJDAOR-GR	3/16/06	1027	FW	C	1 / 1-L HDPE	X	X	X						
ZE	R4-535XJDAOR-GR	3/16/06	1028	FW	C	1 / 100mL poly				X					
	R4-535XJDAOR-GR	3/16/06	1029	FW	C	3 / 40mL VOA					X				
	R4-535XDCAWR-GR	3/16/06	1147	FW	C	1 / 1-L HDPE	X	X	X						
ZF	R4-535XDCAWR-GR	3/16/06	1148	FW	C	1 / 100mL poly				X					
	R4-535XDCAWR-GR	3/16/06	1149	FW	C	3 / 40mL VOA					X				
	R4-535XPFDCL-GR	3/16/06	1312	FW	C	1 / 1-L HDPE	X	X	X						
Zg	R4-535XPFDCL-GR	3/16/06	1313	FW	C	1 / 100mL poly				X					
	R4-535XPFDCL-GR	3/16/06	1314	FW	C	3 / 40mL VOA					X				
						/									
						/									

METHOD OF SHIPMENT: FED X ____ UPS ____ HAND ____ OTHER ____

COMMENTS: FW = Fresh Water
C = Composite

CODES:

RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME	PAGE #
Mike J	3/16/06	1520	Dave [illegible]	3/16/06	1800	2 OF 3
Dave [illegible]	3-16-06	1950	Paul Prieto	3-16-06	1930	

White - Return w/sample   ~~Pin~~ Yellow: - Keep for your records

CHAIN OF CUSTODY RECORD

PACIFIC ECORISK
835 Arnold Drive, Suite 104
Martinez, CA 94553
(925)313-8080 fax: (925)313-8089

RESULTS TO:
Mike Johnson
UC Davis
ESJWQC Ag Waiver Project
Attn: ______ Tel: ______

BILL TO:
Mike Johnson
UC Davis
ESJWQC Ag Waiver Project
Attn: ______ Tel: ______

PROJECT: East San Joaquin Water Quality Coalition 9460

SAMPLE IDENTIFICATION	DATE	TIME	SAMPLE MATRIX	GRAB/ COMP.	# CONTAINERS/TYPE	OP Pesticides, Diazinon, Chlorpyrifos (EPA 8141a)	Pyrethroids (EPA 1660 Mod)						REMARKS
R4-535XPFDCL-GR	3/16/06	1310	FW	C	1 1-L Amber	X							
R4-535XPFDCL-GR	3/16/06	1311	FW	C	1 1-L Amber		X						
R4-535XHDACA-GR	3/16/06	1355	FW	C	1 1-L Amber	X							
R4-535XHDACA-GR	3/16/06	1356	FW	C	1 1-L Amber		X						
					/								
					/								
					/								
					/								
					/								
					/								
					/								

METHOD OF SHIPMENT: FED X ____ UPS ____ HAND ____ OTHER ____

COMMENTS:
FW = Fresh Water
C = Composite

CODES:

RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME	PAGE #
Mike McE[illegible]	3/16/06	1500	[signature]	3/16/06	1800	2 OF 2
Dony Richmer	3/16/06	1930	[signature]	3-17-06	900	

White - Return w/sample   Yellow: - Keep for your records

CHAIN OF CUSTODY RECORD

2006031412

PACIFIC ECORISK
835 Arnold Drive, Suite 104
Martinez, CA 94553
(925)313-8080 fax: (925)313-8089

RESULTS TO: Mike Johnson, UC Davis, ESJWQC Ag Waiver Project
Attn: ______ Tel: ______

BILL TO: Mike, UC Davis, ESJWQC Ag Waiver Project
Attn: ______ Tel: ______

PROJECT: East San Joaquin Water Quality Coalition 9466

	SAMPLE IDENTIFICATION	DATE	TIME	SAMPLE MATRIX	GRAB/ COMP.	# CONTAINERS/TYPE	Color (SM2120B mod.)	Turbidity (EPA 180.1)	TSS (EPA 160.2)	E. coli (SM9223B)	TOC (SM5310C)				REMARKS
1	R4-535XJDAOR-GR	3/16/06	1027	FW	C	1 / 1-L HDPE	X	X	X						
ZE	R4-535XJDAOR-GR	3/16/06	1028	FW	C	1 / 100mL poly				X					BF 87395
	R4-535XJDAOR-GR	3/16/06	1029	FW	C	3 / 40mL VOA					X				
2	R4-535XDCAWR-GR	3/16/06	1147	FW	C	1 / 1-L HDPE	X	X	X						
ZF	R4-535XDCAWR-GR	3/16/06	1148	FW	C	1 / 100mL poly				X					87396
	R4-535XDCAWR-GR	3/16/06	1149	FW	C	3 / 40mL VOA					X				
3	R4-535XPFDCL-GR	3/16/06	1312	FW	C	1 / 1-L HDPE	X	X	X						
Z0	R4-535XPFDCL-GR	3/16/06	1313	FW	C	1 / 100mL poly				X					87397
	R4-535XPFDCL-GR	3/16/06	1314	FW	C	3 / 40mL VOA					X				
						/									
						/									

METHOD OF SHIPMENT: FED X ____ UPS ____ HAND ____ OTHER ____

COMMENTS: FW = Fresh Water
C = Composite

CODES:

RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME	PAGE #
[signature]	3/16/06	1520	[signature]	3-16-06	1800	2 OF 3
[signature]	3-16-06	1830	Paul Fricke	3-16-06	1930	

White - Return w/sample
Yellow: - Keep for your records

2006031412 03/17/2006
PACIFIC ECO TAT: Standard
317054

03/17/2006 FRI 13:56 [JOB NO. 9027] 002

CHAIN OF CUSTODY RECORD

PACIFIC ECORISK
835 Arnold Drive, Suite 104
Martinez, CA 94553
(925)313-8080 fax: (925)313-8089

RESULTS TO: Mike Johnson / UC Davis / ESJWQC Ag Waiver Project
Attn: ____ Tel: ____

BILL TO: Mike Johnson / UC Davis / ESJWQC Ag Waiver Project
Attn: ____ Tel: ____

PROJECT: East San Joaquin Water Quality Coalition 9466

	SAMPLE IDENTIFICATION	DATE	TIME	SAMPLE MATRIX	GRAB/ COMP.	# CONTAINERS/TYPE	Color (Standard Method)	Turbidity (EPA 180.1)	TDS (EPA 160.1)	E. coli (SM9223B)	TOC (SM5310C)				REMARKS
4 ZE	R4-535XJDAOR-GR	3/16/06	1027	FW	C	1 / 1-L HDPE	X	X	X						
	R4-535XJDAOR-GR	3/16/06	1028	FW	C	1 / 100mL poly				X					B# 87395
	R4-535XJDAOR-GR	3/16/06	1029	FW	C	3 / 40mL VOA					X				
5 ZF	R4-535XDCAWR-GR	3/16/06	1147	FW	C	1 / 1-L HDPE	X	X	X						
	R4-535XDCAWR-GR	3/16/06	1148	FW	C	1 / 100mL poly				X					87396
	R4-535XDCAWR-GR	3/16/06	1149	FW	C	3 / 40mL VOA					X				
6 Z4	R4-535XPFDCL-GR	3/16/06	1312	FW	C	1 / 1-L HDPE	X	X	X						
	R4-535XPFDCL-GR	3/16/06	1313	FW	C	1 / 100mL poly				X					87397
	R4-535XPFDCL-GR	3/16/06	1314	FW	C	3 / 40mL VOA					X				
						/									
						/									

METHOD OF SHIPMENT: FED X ____ UPS ____ HAND ____ OTHER ____

COMMENTS: FW = Fresh Water
C = Composite

CODES:

RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME	PAGE #
[signature]	3/16/06	1520	[signature]	3/16/06	1800	2 OF 3
[signature]	3-16-06	1930	Paul Prieto	3-16-06	1930	

White - Return w/sample Yellow: - Keep for your records

CHAIN OF CUSTODY RECORD

2006031412

PACIFIC ECORISK
835 Arnold Drive, Suite 104
Martinez, CA 94553
(925)313-8080 fax: (925)313-8089

RESULTS TO:
Mike Johnson
UC Davis
ESJWQC Ag Waiver Program
Attn: ______ Tel: ______

BILL TO:
Mike
UC Davis
ESJWQC Ag Waiver Program
Attn: ______ Tel: ______

PROJECT: East San Joaquin Water Quality Coalition 9466

	SAMPLE IDENTIFICATION	DATE	TIME	SAMPLE MATRIX	GRAB/ COMP.	# CONTAINERS/TYPE	Color (SM2120B mod)	Turbidity (EPA 180.1)	TDS (EPA 160.1)	E. coli (SM9221B)	TOC (SM 5310C)				REMARKS
	R4-535XACHNN-GR	3/16/06	732	FW	C	1 1-L HDPE	X	X	X						
ZH	R4-535XHCHNN-GR	3/16/06	733	FW	C	1 100mL poly				X					
	R4-535XHCANN-GR	3/16/06	734	FW	C	3 40mL VOA					X				
	R4-535XHCALR-GR	3/16/06	837	FW	C	1 1-L HDPE	X	X	X						
ZI	R4-535XHCALR-GR	3/16/06	838	FW	C	1 100mL poly				X					
	R4-535XHCALR-GR	3/16/06	839	FW	C	3 40mL VOA					X				
	R4-535XMRSFD-GR	3/16/06	942	FW	C	1 1-L HDPE	X	X	X						
ZJ	R4-535XMRSFD-GR	3/16/06	943	FW	C	1 100mL poly				X					
	R4-535XMRSFD-GR	3/16/06	944	FW	C	3 40mL VOA					X				
						/									
						/									

METHOD OF SHIPMENT: FED X ____ UPS ____ HAND ✓ OTHER ____

COMMENTS: FW = Fresh Water
C = Composite

CODES:

RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME	PAGE #
[signature]	3/16/06	1520	[signature]	3-16-06	1800	1 OF 3
[signature]	3-16-06	1930	Paul Pruitt	3-16-06	1930	

White: - Return w/sample Yellow: - Keep for your records

CHAIN OF CUSTODY RECORD

2006031412

PACIFIC ECORISK
835 Arnold Drive, Suite 104
Martinez, CA 94553
(925)313-8080 fax: (925)313-8089

RESULTS TO:
Mike Johnson
UC Davis
ESJWQC Ag Waiver Program
Attn: ______ Tel: ______

BILL TO:
Mike
UC Davis
ESJWQC Ag Waiver Program
Attn: ______ Tel: ______

PROJECT: East San Joaquin Water Quality Coalition 9466

	SAMPLE IDENTIFICATION	DATE	TIME	SAMPLE MATRIX	GRAB/ COMP.	# CONTAINERS/TYPE	Color (SM2120B mod)	Turbidity (EPA 180.1)	TDS (EPA 160.1)	E. coli (SM9221B)	TOC (SM5310C)				REMARKS
1 ZH	R4-535XHCHNN-GR	3/16/06	732	FW	C	1 / 1-L HDPE	X	X	X						
	R4-535XHCHNN-GR	3/16/06	733	FW	C	1 / 100mL poly				X					B# 87398
	R4-535XHCANN-GR	3/16/06	734	FW	C	3 / 40mL VOA					X				
2 ZI	R4-535X4CALR-GR	3/16/06	837	FW	C	1 / 1-L HDPE	X	X	X						
	R4-535X4CALR-GR	3/16/06	838	FW	C	1 / 100mL poly				X					87399
	R4-535X4CALR-GR	3/16/06	839	FW	C	3 / 40mL VOA					X				
3 ZJ	R4-535XMRSFD-GR	3/16/06	942	FW	C	1 / 1-L HDPE	X	X	X						
	R4-535XMRSFD-GR	3/16/06	943	FW	C	1 / 100mL poly				X					87400
	R4-535XMRSFD-GR	3/16/06	944	FW	C	3 / 40mL VOA					X				
						/									
						/									

METHOD OF SHIPMENT: FED X ____ UPS ____ HAND X OTHER ____

COMMENTS: FW = Fresh Water
C = Composite

CODES:

RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME	PAGE #
[signature]	3/16/06	1520	[signature]	3-16-06	1800	1 OF 3
[signature]	3-16-06	1930	Paul Prieto	3-16-06	1930	

White - Return w/sample Yellow: - Keep for your records

2006031412 03/17/2006
PACIFIC ECO TAT: Standard
317054

03/17/2006 FRI 13:55 [JOB NO. 9027] 001

CHAIN OF CUSTODY RECORD

PACIFIC ECORISK
835 Arnold Drive, Suite 104
Martinez, CA 94553
(925)313-8080 fax: (925)313-8089

RESULTS TO:
Mike Johnson
UC Davis
ESJWQC Ag Waiver Program
Attn: Tel:

BILL TO:
Mike Johnson
UC Davis
ESJWQC Ag Waiver Program
Attn: Tel:

PROJECT: East San Joaquin Water Quality Coalition 9466

	SAMPLE IDENTIFICATION	DATE	TIME	SAMPLE MATRIX	GRAB/ COMP.	# CONTAINERS/TYPE	Color (SM2120B, field)	Turbidity (EPA 180.1)	TDS (EPA 160.1)	E. coli (SM9223B)	TOC (SM5310C)				REMARKS
1 ZH	RY-535XICHNN-GR	3/16/06	732	FW	C	1 1/1-L HDPE	X	X	X						
	RY-535XHCHNN-GR	3/16/06	733	FW	C	1 1/100mL poly				X		B# 87398			
	RY-535XHCHNN-GR	3/16/06	734	FW	C	3 1/40mL VOA					X				
2 ZI	RY-535XHCALR-GR	3/16/06	837	FW	C	1 1/1-L HDPE	X	X	X						
	RY-535XHCALR-GR	3/16/06	838	FW	C	1 1/100mL poly				X		87399			
	RY-535XHCALR-GR	3/16/06	839	FW	C	3 1/40mL VOA					X				
3 ZJ	RY-535XMRSFD-GR	3/16/06	942	FW	C	1 1/1-L HDPE	X	X	X						
	RY-535XMRSFD-GR	3/16/06	943	FW	C	1 1/100mL poly				X		87400			
	RY-535XMRSFD-GR	3/16/06	944	FW	C	3 1/40mL VOA					X				
						/									
						/									

METHOD OF SHIPMENT: FED X ____ UPS ____ HAND X OTHER ____

COMMENTS: FW = Fresh Water
C = Composite

CODES:

RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME	PAGE #
[signature]	3/16/06	1520	[signature]	3-16-06	1800	1 OF 3
[signature]	3-16-06	1930	Paul [signature]	3-16-06	1930	

White - Return w/sample
Yellow: - Keep for your records

[signature] 3/17/06 [initials]

CHAIN OF CUSTODY RECORD

2006031412

PACIFIC ECORISK
835 Arnold Drive, Suite 104
Martinez, CA 94553
(925)313-8080 fax: (925)313-8089

RESULTS TO:
Mike Johnson
UC Davis
ESJWQC Ag Waiver Program
Attn: Tel:

BILL TO:
Mike
UC
ESJWQC Ag Waiver Program
Attn: Tel:

PROJECT: East San Joaquin Water Quality Coalition 946C

SAMPLE IDENTIFICATION	DATE	TIME	SAMPLE MATRIX	GRAB/ COMP.	#CONTAINERS/TYPE	Color (SM2120B mod)	Turbidity (EPA 180.1)	TDS (EPA 160.1)	E. Coli (SM9223B)	TOC (SM5310C)			REMARKS
24-535-XHDACA-GR	3/16/06	1357	FW	C	1 / 1-L HDPE	X	X	X					
24-535-XHDACA-GR	3/16/06	1358	FW	C	1 / 100mL poly				X				
24-535-XHDACA-GR	3/16/06	1359	FW	C	3 / 40mL VOA					X			
					/								
					/								
					/								
					/								
					/								
					/								
					/								
					/								

METHOD OF SHIPMENT: FED X ____ UPS ____ HAND ____ OTHER ____

COMMENTS:
FW = Fresh Water
C = Composite

CODES:

RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME	PAGE#
[signature]	3/16/06	1520	[signature]	3-16	1800	3 OF 3
[signature]	3-16-06	1930	Paul Prulte	3-16-06	1930	

White - Return w/sample
Yellow: - Keep for your records

CHAIN OF CUSTODY RECORD

2006031412

PACIFIC ECORISK
835 Arnold Drive, Suite 104
Martinez, CA 94553
(925)313-8080 fax: (925)313-8089

RESULTS TO:
Mike Johnson
UC Davis
ESJWQC Ag Waiver Program
Attn: ______ Tel: ______

BILL TO:
Mike
UC Davis
ESJWQC Ag Waiver Program
Attn: ______ Tel: ______

PROJECT: East San Joaquin Water Quality Coalition 946C

ANALYSES REQUESTED

SAMPLE IDENTIFICATION	DATE	TIME	SAMPLE MATRIX	GRAB/ COMP.	# CONTAINERS/TYPE	Color (SM2120B Mod)	Turbidity (EPA 180.1)	TDS (EPA 160.1)	E. Coli (SM9223B)	TOC (SM5310C)				REMARKS
RY-535-XHDACA-GR	3/16/06	1357	FW	C	1 / 1-L HDPE	X	X	X						
RY-535-XHDACA-GR	3/16/06	1358	FW	C	1 / 100 mL poly				X		BF87601			
RY-535-XHDACA-GR	3/16/06	1359	FW	C	3 / 40 mL VOA					X				
					/									
					/									
					/									
					/									
					/									
					/									
					/									
					/									

15
2d

METHOD OF SHIPMENT: FED X ____ UPS ____ HAND ____ OTHER ____

COMMENTS
FW = Fresh Water
C = Composite

CODES:

RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME	PAGE #
[signature]	3/16/06	1520	[signature]	3-16	1800	3 OF 3
[signature]	3-16-06	1930	Paul Pruitt	3-16-06	1930	

White - Return w/sample
Yellow: - Keep for your records

03/17/2006 FRI 13:55 [JOB NO. 9027] 003

2006031412 03/17/2006
PACIFIC ECO TAT: Standard
317054

CHAIN OF CUSTODY RECORD

PACIFIC ECORISK
835 Arnold Drive, Suite 104
Martinez, CA 94553
(925)313-8080 fax: (925)313-8089

RESULTS TO:	BILL TO:
Mike Johnson	Mike Johnson
UC Davis	UC Davis
ESJWQC Ag Waiver Program	ESJWQC Ag Waiver Program
Attn: Tel:	Attn: Tel:

PROJECT: East San Joaquin Water Quality Coalition 9466

SAMPLE IDENTIFICATION	DATE	TIME	SAMPLE MATRIX	GRAB/ COMP.	# CONTAINERS/TYPE	Color (SM2120B/mod)	Turbidity (EPA 180.1)	TDS (EPA 160.1)	E. Coli (SM9223B)	TOC (SM5310C)				REMARKS
RY-535-XHDACA-GR	3/16/06	357	FW	C	1 / 1-L HDPE	X	X	X						
RY-535-XHDACA-GR	3/16/06	1358	FW	C	1 / 100mL poly				X		BF 8/16/0			
RY-535-XHDACA-GR	3/16/06	1359	FW	C	3 / 40mL VOA					X				
					/									
					/									
					/									
					/									
					/									
					/									
					/									
					/									

75
2d

METHOD OF SHIPMENT: FED X ____ UPS ____ HAND ____ OTHER ____

COMMENTS:
FW = Fresh Water
C = Composite

CODES:

RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME	PAGE #
[illegible]	3/16/06	1520	[illegible]	3-16	1900	3 OF 3
[illegible]	3-16-06	1930	Paul [illegible]	3-16-06	1930	

White - Return w/sample
Yellow: - Keep for your records

[illegible] 3/17/06 1200

Pacific EcoRisk
ENVIRONMENTAL CONSULTING & TESTING
835 Arnold Drive, Suite 104, Martinez, CA 94553
(925) 313-8080 FAX (925) 313-8089

PER CHAIN-OF-CUSTODY RECORD

Client Name:	Pacific EcoRisk
Client Address:	835 Arnold Drive, Suite 104 Martinez, CA 94553
Sampled By:	M. McElroy, D. Bosworth
Phone:	(925) 313-8080
FAX:	(925) 313-8089
Project Manager:	Stephen Clark
Project Name:	East San Joaquin Water Quality Coalition
PO Number:	9498

	Client Sample ID	Sample Date	Sample Time	Sample Matrix*	Container Number	Container Type	Chronic Selenastrum	Acute Cerio	Acute FHM								
1	R4-535XHCHAW-GR	3/16/06	735	FW	5	1-Gal Amber Jug	X	X	X								
2	R4-535XHCALR-GR	3/16/06	840	FW	5	1gal Amber	X	X	X								
3	R4-535XAMRSED-GR	3/16/06	945	FW	5	1gal Amber	X	X	X								
4	R4-535XJDADR-GR	3/16/06	1030	FW	5	1gal Amber	X	X	X								
5	R4-535XDCAWR-GR	3/16/06	1150	FW	5	1gal Amber	X	X	X								
6	R4-535XPFOCL-GR	3/16/06	1315	FW	5	1gal Amber	X	X	X								
7	R4-535XHDACA-GR	3/16/06	1400	FW	5	1gal Amber	X	X	X								
8																	
9																	
10																	
11																	
12																	
13																	
14																	

REQUESTED ANALYSIS

Correct Containers:	Yes	No	
Sample Temperature:	Ambient	Cold	Warm
Sample Preservative:	Yes	No	
Turnaround Time:	STD	Specify:	

Comments:

RELINQUISHED BY

Signature:	[signature]	Signature:	
Print:	Mike McElroy	Print:	
Organization:	PER	Organization:	
DATE: 3/16/06 TIME: 1822		DATE: TIME:	

RECEIVED BY

Signature:	[signature]	Signature:	
Print:	Raffaella Perrotta	Print:	
Organization:	PER	Organization:	
DATE: 3/16/06 TIME: 18:22		DATE: TIME:	

*MATRIX CODES: (SED = Sediment); (FW = Freshwater); (WW = Wastewater); (STRMW = Stormwater)

Pacific EcoRisk
ENVIRONMENTAL CONSULTING & TESTING
835 Arnold Drive, Suite 104, Martinez, CA 94553
(925) 313-8080 FAX (925) 313-8089

PER CHAIN-OF-CUSTODY RECORD

Client Name:	Pacific EcoRisk
Client Address:	835 Arnold Drive, Suite 104 Martinez, CA 94553
Sampled By:	Chris Pincetich, Mike McElroy
Phone:	(925) 313-8080
FAX:	(925) 313-8089
Project Manager:	Stephen Clark
Project Name:	East San Joaquin Water Quality Coalition
PO Number:	9456

#	Client Sample ID	Sample Date	Sample Time	Sample Matrix*	Container Number	Container Type	Chronic Selenastrum	Acute Cerio									
1	R4-535XDSAGR-RS	3/24/06	14:16	FW	1	1-Gal Amber Jug		x									
2	R4-535XMRSFD-RS	3/24/06	12:54	FW	1	1-Gal Amber Jug		x									
3	R4-535XHCALR-RS	3/24/06	11:55	FW	1	1-Gal Amber Jug	x										
4	R4-535XPFDCL-RS	3/24/06	9:45	FW	1	1-Gal Amber Jug		x									
5	R4-535XHDACA-RS	3/24/06	10:30	FW	1	1-Gal Amber Jug		x									
6	R4-535XHCHNN-RS	3/24/06	11:15	FW	1	1-Gal Amber Jug		x									
7																	
8																	
9																	
10																	
11																	
12																	
13																	
14																	

Correct Containers:	Yes	No	
Sample Temperature:	Ambient	Cold	Warm
Sample Preservative:	Yes	No	
Turnaround Time:	STD	Specify:	

Comments:

RELINQUISHED BY

Signature: Mike McElroy	Signature:
Print: Mike McElroy	Print:
Organization: PER	Organization:
DATE: 3/24/06 TIME: 1823	DATE: TIME:

RECEIVED BY

Signature: Raffaele Renotta	Signature:
Print: Raffaele Renotta	Print:
Organization: PER	Organization:
DATE: 3/25/06 TIME: 9:10	DATE: TIME:

*MATRIX CODES: (SED = Sediment); (FW = Freshwater); (WW = Wastewater); (STRMW = Stormwater)

Associated Laboratory and Field QC Results

Table QA1: ESJWQC inorganic results for laboratory quality assurance (LABQA) samples including laboratory control spikes, laboratory blanks and samples from other projects to meet batch QA requirements (non ag waiver QA samples).

Station Name	Replicate	Sample Date	Sample Type	Analyte	Result	Unit	RL	Expected Value	PR	RPD	Quality Assurance	Data Acceptability Criteria	Lab Comments
LABQA	1	2/28/2006	Lab Blank	E. coli	>2	MPN/100 mL	2				None - No QA Qualifier	<RL	AnalysisTime 20:40
LABQA	1	3/1/2006	Lab Blank	E. coli	>2	MPN/100 mL	2				None - No QA Qualifier	<RL	AnalysisTime 20:15
LABQA	1	3/2/2006	Lab Blank	Color	>1	color units	1				None - No QA Qualifier	<MDL	
LABQA	1	3/2/2006	Lab Blank	Color	>1	color units	1				None - No QA Qualifier	<MDL	
LABQA	1	3/2/2006	Lab Blank	Turbidity	>0.1	NTU	0.1				None - No QA Qualifier	<MDL	
LABQA	1	3/2/2006	Lab Blank	Turbidity	>0.1	NTU	0.1				None - No QA Qualifier	<MDL	
LABQA	1	3/3/2006	Lab Blank	Color	>1	color units	1				None - No QA Qualifier	<MDL	
LABQA	1	3/3/2006	Lab Blank	Turbidity	>0.1	NTU	0.1				None - No QA Qualifier	<MDL	
LABQA	1	3/6/2006	Lab Blank	Total Dissolved Solids	>5	mg/L	5				None - No QA Qualifier	<MDL	
LABQA	1	3/7/2006	Lab Blank	Total Dissolved Solids	>5	mg/L	5				None - No QA Qualifier	<MDL	
LABQA	1	3/8/2006	Lab Blank	Total Dissolved Solids	>5	mg/L	5				None - No QA Qualifier	<MDL	
LABQA	1	3/10/2006	Lab Blank	Total Organic Carbon	>0.03	mg/L	0.2				None - No QA Qualifier	<MDL	
LABQA	1	3/10/2006	Lab Blank	Total Organic Carbon	>0.03	mg/L	0.2				None - No QA Qualifier	<MDL	
LABQA	1	3/10/2006	LCS	Total Organic Carbon	5	mg/L	0.2	5	100		None - No QA Qualifier	PR 80-120	
LABQA	2	3/10/2006	LCS	Total Organic Carbon	5.1	mg/L	0.2	5	101	1	None - No QA Qualifier	PR 80-120 RPD≤20	
LABQA	1	3/10/2006	LCS	Total Organic Carbon	5	mg/L	0.2	5	100		None - No QA Qualifier	PR 80-120	
LABQA	2	3/10/2006	LCS	Total Organic Carbon	5.1	mg/L	0.2	5	101	1.1	None - No QA Qualifier	PR 80-120	
LABQA	1	3/14/2006	Lab Blank	Total Organic Carbon	>0.03	mg/L	0.2				None - No QA Qualifier	<MDL	

Station Name	Replicate	Sample Date	Sample Type	Analyte	Result	Unit	RL	Expected Value	PR	RPD	Quality Assurance	Data Acceptability Criteria	Lab Comments
LABQA	1	3/14/2006	LCS	Total Organic Carbon	5.3	mg/L	0.2	5	105		None - No QA Qualifier	PR 80-120	
LABQA	2	3/14/2006	LCS	Total Organic Carbon	5.3	mg/L	0.2	5	105	0	None - No QA Qualifier	PR 80-120 RPD≤20	
LABQA	1	3/15/2006	Lab Blank	E. coli	>2	MPN/100 mL	2				None - No QA Qualifier	<RL	AnalysisTime 21:50
LABQA	1	3/16/2006	Lab Blank	Color	>1	color units	1				None - No QA Qualifier	<MDL	
LABQA	1	3/16/2006	Lab Blank	E. coli	>2	MPN/100 mL	2				None - No QA Qualifier	<MDL	AnalysisTime 22:10
LABQA	1	3/16/2006	Lab Blank	Turbidity	>0.1	NTU	0.1				None - No QA Qualifier	<MDL	
LABQA	1	3/17/2006	Lab Blank	Color	>1	color units	1				None - No QA Qualifier	<MDL	
LABQA	1	3/17/2006	Lab Blank	Turbidity	>0.1	NTU	0.1				None - No QA Qualifier	<MDL	
LABQA	1	3/22/2006	Lab Blank	Total Dissolved Solids	>5	mg/L	5				None - No QA Qualifier	<MDL	
LABQA	1	3/23/2006	Lab Blank	Total Dissolved Solids	>5	mg/L	5				None - No QA Qualifier	<MDL	
LABQA	1	3/24/2006	Lab Blank	Total Organic Carbon	>0.03	mg/L	0.2				None - No QA Qualifier	<MDL	
LABQA	1	3/24/2006	Lab Blank	Total Organic Carbon	>0.03	mg/L	0.2				None - No QA Qualifier	<MDL	
LABQA	1	3/24/2006	LCS	Total Organic Carbon	5	mg/L	0.2	5	99		None - No QA Qualifier	PR 80-120	
LABQA	2	3/24/2006	LCS	Total Organic Carbon	4.9	mg/L	0.2	5	97	2	None - No QA Qualifier	PR 80-120 RPD≤20	
LABQA	1	3/24/2006	LCS	Total Organic Carbon	5	mg/L	0.2	5	99		None - No QA Qualifier	PR 80-120	
LABQA	2	3/24/2006	LCS	Total Organic Carbon	5	mg/L	0.2	5	99	0.4	None - No QA Qualifier	PR 80-120 RPD≤20	
LABQA	1	3/27/2006	Lab Blank	Total Organic Carbon	>0.03	mg/L	0.2				None - No QA Qualifier	<MDL	
LABQA	1	3/27/2006	LCS	Total Organic Carbon	5.5	mg/L	0.2	5	109		None - No QA Qualifier	PR 80-120	
LABQA	2	3/27/2006	LCS	Total Organic Carbon	4.9	mg/L	0.2	5	98	10	None - No QA Qualifier	PR 80-120 RPD≤20	
LABQA	1	3/29/2006	Lab Blank	Total Organic Carbon	>0.03	mg/L	0.2				None - No QA Qualifier	<MDL	

Station Name	Replicate	Sample Date	Sample Type	Analyte	Result	Unit	RL	Expected Value	PR	RPD	Quality Assurance	Data Acceptability Criteria	Lab Comments
LABQA	1	3/29/2006	LCS	Total Organic Carbon	5.2	mg/L	0.2	5	103		None - No QA Qualifier	PR 80-120	
LABQA	2	3/29/2006	LCS	Total Organic Carbon	5.1	mg/L	0.2	5	102	0.38	None - No QA Qualifier	PR 80-120 RPD≤20	
LABQA	1	3/31/2006	Lab Blank	Total Organic Carbon	>0.03	mg/L	0.2				None - No QA Qualifier	<MDL	
LABQA	1	3/31/2006	LCS	Total Organic Carbon	5.1	mg/L	0.2	5	101	N/A	None - No QA Qualifier	PR 80-120	
LABQA	2	3/31/2006	LCS	Total Organic Carbon	5.1	mg/L	0.2	5	101	0	None - No QA Qualifier	PR 80-120 RPD≤20	
Non Ag Waiver QA Sample	1	3/6/2006	NotRecorded	Total Dissolved Solids	58	mg/L	5				Batch Quality Assurance data from another project		
Non Ag Waiver QA Sample	2	3/6/2006	NotRecorded	Total Dissolved Solids	62	mg/L	5			6	Batch Quality Assurance data from another project		
Non Ag Waiver QA Sample	1	3/10/2006	MS	Total Organic Carbon	12.83	mg/L	0.2	12.8	100		Batch quality assurance from another project, parent sample not included in batch	PR 80-120	
Non Ag Waiver QA Sample	2	3/10/2006	MS	Total Organic Carbon	12.93	mg/L	0.2	12.8	101	0.78	Batch quality assurance from another project, parent sample not included in batch	PR 80-120 RPD≤20	
Non Ag Waiver QA Sample	1	3/14/2006	MS	Total Organic Carbon	10	mg/L	0.2	10	100		Batch quality assurance from another project, parent sample not included in batch	PR 80-120	
Non Ag Waiver QA Sample	2	3/14/2006	MS	Total Organic Carbon	10	mg/L	0.2	10	100	0	Batch quality assurance from another project, parent sample not included in batch	PR 80-120 RPD≤20	
Non Ag Waiver QA Sample	1	3/17/2006	NotRecorded	Color	>1	color units	1				Batch Quality Assurance data from another project		
Non Ag Waiver QA Sample	2	3/17/2006	NotRecorded	Color	>1	color units	1			NA	Batch Quality Assurance data from another		

Station Name	Replicate	Sample Date	Sample Type	Analyte	Result	Unit	RL	Expected Value	PR	RPD	Quality Assurance	Data Acceptability Criteria	Lab Comments
											project		
Non Ag Waiver QA Sample	1	3/17/2006	NotRecorded	Turbidity	0.2	NTU	0.1				Batch Quality Assurance data from another project		
Non Ag Waiver QA Sample	2	3/17/2006	NotRecorded	Turbidity	0.2	NTU	0.1			0	Batch Quality Assurance data from another project		
Non Ag Waiver QA Sample	1	3/23/2006	NotRecorded	Total Dissolved Solids	780	mg/L	5				Batch Quality Assurance data from another project		
Non Ag Waiver QA Sample	2	3/23/2006	NotRecorded	Total Dissolved Solids	790	mg/L	5			1	Batch Quality Assurance data from another project		
Non Ag Waiver QA Sample	1	3/23/2006	NotRecorded	Total Dissolved Solids	650	mg/L	5				Batch Quality Assurance data from another project		
Non Ag Waiver QA Sample	2	3/23/2006	NotRecorded	Total Dissolved Solids	650	mg/L	5			0	Batch Quality Assurance data from another project		
Non Ag Waiver QA Sample	1	3/24/2006	MS	Total Organic Carbon	30.6	mg/L	0.2	32	95		Batch quality assurance from another project, parent sample not included in batch	PR 80-120	
Non Ag Waiver QA Sample	2	3/24/2006	MS	Total Organic Carbon	30.5	mg/L	0.2	32	95	0.45	Batch quality assurance from another project, parent sample not included in batch	PR 80-120 RPD≤20	

E = Environmental sample FD = Field Duplicate sample FB = Field Blank sample QA = Quality Assuarnce MS = Matrix Spike PR = Percent Recovery RPD = Relative Percent Difference
FD RPD = Relative Percent Difference between the environmental sample and the field duplicate NA = Not Applicable DF = dilution factor

*sample time for all constituents sampled has been adjusted to reflect the time of the first sample collected at that site for that date; this may not be the exact same time as recorded on the COCs

Table QA2: ESJWQC results for laboratory quality assurance (LABQA) samples including laboratory control spikes and laboratory blanks.

Station Name	Replicate	Sample Date	Sample Time	Sample Type	Analyte	Result	Unit	RL	Expected Value	PR	RPD	Quality Assurance	Data Acceptability Criteria
LABQA	1	3/2/2006	0:00	Lab Blank	Bifenthrin	<0.006	µg/L	0.02				None - No QA Qualifier	<MDL
LABQA	1	3/2/2006	0:00	Lab Blank	Chlorpyrifos	<0.00259	µg/L	0.02				None - No QA Qualifier	<MDL
LABQA	1	3/2/2006	0:00	Lab Blank	Cyfluthrin	<0.003	µg/L	0.03				None - No QA Qualifier	<MDL
LABQA	1	3/2/2006	0:00	Lab Blank	Cyhalothrin, lambda	<0.001	µg/L	0.02				None - No QA Qualifier	<MDL
LABQA	1	3/2/2006	0:00	Lab Blank	Cypermethrin	<0.004	µg/L	0.05				None - No QA Qualifier	<MDL
LABQA	1	3/2/2006	0:00	Lab Blank	Decachlorobiphenyl (Surrogate)	98.6	%	NA	100			None - No QA Qualifier	PR 41-117
LABQA	1	3/2/2006	0:00	Lab Blank	Diazinon	<0.00353	µg/L	0.02				None - No QA Qualifier	<MDL
LABQA	1	3/2/2006	0:00	Lab Blank	Esfenvalerate/ Fenvalerate	<0.002	µg/L	0.02				None - No QA Qualifier	<MDL
LABQA	1	3/2/2006	0:00	Lab Blank	Permethrin	<0.009	µg/L	0.02				None - No QA Qualifier	<MDL
LABQA	1	3/2/2006	0:00	Lab Blank	Tetrachloro-m-xylene (Surrogate)	102	%	NA	100			None - No QA Qualifier	PR 38-113
LABQA	1	3/2/2006	0:00	Lab Blank	Tributylphosphate (Surrogate)	110	%	NA	100			None - No QA Qualifier	PR 60-150
LABQA	1	3/2/2006	0:00	Lab Blank	Triphenyl phosphate (Surrogate)	109	%	NA	100			None - No QA Qualifier	PR 56-129
LABQA	1	3/3/2006	0:00	Lab Blank	Bifenthrin	<0.006	µg/L	0.02				None - No QA Qualifier	<MDL
LABQA	1	3/3/2006	0:00	Lab Blank	Chlorpyrifos	<0.00259	µg/L	0.02				None - No QA Qualifier	<MDL
LABQA	1	3/3/2006	0:00	Lab Blank	Cyfluthrin	<0.003	µg/L	0.03				None - No QA Qualifier	<MDL
LABQA	1	3/3/2006	0:00	Lab Blank	Cyhalothrin, lambda	<0.001	µg/L	0.02				None - No QA Qualifier	<MDL
LABQA	1	3/3/2006	0:00	Lab Blank	Cypermethrin	<0.004	µg/L	0.05				None - No QA Qualifier	<MDL
LABQA	1	3/3/2006	0:00	Lab Blank	Decachlorobiphenyl (Surrogate)	82.9	%	NA	100			None - No QA Qualifier	PR 41-117

Station Name	Replicate	Sample Date	Sample Time	Sample Type	Analyte	Result	Unit	RL	Expected Value	PR	RPD	Quality Assuarance	Data Acceptability Criteria
LABQA	1	3/3/2006	0:00	Lab Blank	Diazinon	<0.00353	µg/L	0.02				None - No QA Qualifier	<MDL
LABQA	1	3/3/2006	0:00	Lab Blank	Esfenvalerate/ Fenvalerate	<0.002	µg/L	0.02				None - No QA Qualifier	<MDL
LABQA	1	3/3/2006	0:00	Lab Blank	Permethrin	<0.009	µg/L	0.02				None - No QA Qualifier	<MDL
LABQA	1	3/3/2006	0:00	Lab Blank	Tetrachloro-m-xylene (Surrogate)	79.2	%	NA	100			None - No QA Qualifier	PR 38-113
LABQA	1	3/3/2006	0:00	Lab Blank	Tributylphosphate (Surrogate)	121	%	NA	100			None - No QA Qualifier	PR 60-150
LABQA	1	3/3/2006	0:00	Lab Blank	Triphenyl phosphate (Surrogate)	118	%	NA	100			None - No QA Qualifier	PR 56-129
LABQA	1	3/21/2006	0:00	Lab Blank	Bifenthrin	<0.006	µg/L	0.02				None - No QA Qualifier	<MDL
LABQA	1	3/21/2006	0:00	Lab Blank	Chlorpyrifos	<0.00259	µg/L	0.02				None - No QA Qualifier	<MDL
LABQA	1	3/21/2006	0:00	Lab Blank	Cyfluthrin	<0.003	µg/L	0.03				None - No QA Qualifier	<MDL
LABQA	1	3/21/2006	0:00	Lab Blank	Cyhalothrin, lambda	<0.001	µg/L	0.02				None - No QA Qualifier	<MDL
LABQA	1	3/21/2006	0:00	Lab Blank	Cypermethrin	<0.004	µg/L	0.05				None - No QA Qualifier	<MDL
LABQA	1	3/21/2006	0:00	Lab Blank	Decachlorobiphenyl (Surrogate)	67.2	%	NA	100			None - No QA Qualifier	PR 41-117
LABQA	1	3/21/2006	0:00	Lab Blank	Diazinon	<0.00353	µg/L	0.02				None - No QA Qualifier	<MDL
LABQA	1	3/21/2006	0:00	Lab Blank	Esfenvalerate/ Fenvalerate	<0.002	µg/L	0.02				None - No QA Qualifier	<MDL
LABQA	1	3/21/2006	0:00	Lab Blank	Permethrin	<0.009	µg/L	0.02				None - No QA Qualifier	<MDL
LABQA	1	3/21/2006	0:00	Lab Blank	Tetrachloro-m-xylene (Surrogate)	62.4	%	NA	100			None - No QA Qualifier	PR 38-113
LABQA	1	3/21/2006	0:00	Lab Blank	Tributylphosphate (Surrogate)	99.5	%	NA	100			None - No QA Qualifier	PR 60-150
LABQA	1	3/21/2006	0:00	Lab Blank	Triphenyl phosphate (Surrogate)	99.1	%	NA	100			None - No QA Qualifier	PR 56-129
LABQA	1	3/22/2006	0:00	Lab Blank	Bifenthrin	<0.006	µg/L	0.02				None - No QA Qualifier	<MDL
LABQA	1	3/22/2006	0:00	Lab Blank	Chlorpyrifos	<0.00259	µg/L	0.02				None - No QA Qualifier	<MDL

Station Name	Replicate	Sample Date	Sample Time	Sample Type	Analyte	Result	Unit	RL	Expected Value	PR	RPD	Quality Assuarance	Data Acceptability Criteria
LABQA	1	3/22/2006	0:00	Lab Blank	Cyfluthrin	<0.003	µg/L	0.03				None - No QA Qualifier	<MDL
LABQA	1	3/22/2006	0:00	Lab Blank	Cyhalothrin, lambda	<0.001	µg/L	0.02				None - No QA Qualifier	<MDL
LABQA	1	3/22/2006	0:00	Lab Blank	Cypermethrin	<0.004	µg/L	0.05				None - No QA Qualifier	<MDL
LABQA	1	3/22/2006	0:00	Lab Blank	Decachlorobiphenyl (Surrogate)	66.9	%	NA	100			None - No QA Qualifier	PR 41-117
LABQA	1	3/22/2006	0:00	Lab Blank	Diazinon	<0.00353	µg/L	0.02				None - No QA Qualifier	<MDL
LABQA	1	3/22/2006	0:00	Lab Blank	Esfenvalerate/ Fenvalerate	<0.002	µg/L	0.02				None - No QA Qualifier	<MDL
LABQA	1	3/22/2006	0:00	Lab Blank	Permethrin	<0.009	µg/L	0.02				None - No QA Qualifier	<MDL
LABQA	1	3/22/2006	0:00	Lab Blank	Tetrachloro-m-xylene (Surrogate)	69.9	%	NA	100			None - No QA Qualifier	PR 38-113
LABQA	1	3/22/2006	0:00	Lab Blank	Tributylphosphate (Surrogate)	112	%	NA	100			None - No QA Qualifier	PR 60-150
LABQA	1	3/22/2006	0:00	Lab Blank	Triphenyl phosphate (Surrogate)	121	%	NA	100			None - No QA Qualifier	PR 56-129
LABQA	1	3/2/2006	0:00	LCS	Bifenthrin	0.512	µg/L	0.02	0.45	114		None - No QA Qualifier	PR 52-117
LABQA	2	3/2/2006	0:00	LCS	Bifenthrin	0.496	µg/L	0.02	0.45	110	3.2	None - No QA Qualifier	PR 52-117 RPD<25
LABQA	1	3/2/2006	0:00	LCS	Chlorpyrifos	0.516	µg/L	0.02	0.5	103		None - No QA Qualifier	PR 61-125
LABQA	2	3/2/2006	0:00	LCS	Chlorpyrifos	0.515	µg/L	0.02	0.5	103	0.19	None - No QA Qualifier	PR 61-125 RPD<25
LABQA	1	3/2/2006	0:00	LCS	Cyfluthrin	0.57	µg/L	0.03	0.45	127		Spike analyte recovery is outside stated control limits	PR 53-125
LABQA	2	3/2/2006	0:00	LCS	Cyfluthrin	0.563	µg/L	0.03	0.45	125	1.2	None - No QA Qualifier	PR 53-125 RPD<25
LABQA	1	3/2/2006	0:00	LCS	Cyhalothrin, lambda	0.584	µg/L	0.02	0.45	130		Spike analyte recovery is outside stated control limits	PR 62-104
LABQA	2	3/2/2006	0:00	LCS	Cyhalothrin, lambda	0.585	µg/L	0.02	0.45	130	0.17	Spike analyte recovery is outside stated control limits	PR 62-104 RPD<25

Station Name	Replicate	Sample Date	Sample Time	Sample Type	Analyte	Result	Unit	RL	Expected Value	PR	RPD	Quality Assuarance	Data Acceptability Criteria
LABQA	1	3/2/2006	0:00	LCS	Cypermethrin	2.81	µg/L	0.05	2.25	125		Spike analyte recovery is outside stated control limits	PR 55-107
LABQA	2	3/2/2006	0:00	LCS	Cypermethrin	2.8	µg/L	0.05	2.25	124	0.36	Spike analyte recovery is outside stated control limits	PR 55-107 RPD<25
LABQA	1	3/2/2006	0:00	LCS	Decachlorobiphenyl (Surrogate)	93.7	%	NA	100			None - No QA Qualifier	PR 41-117
LABQA	2	3/2/2006	0:00	LCS	Decachlorobiphenyl (Surrogate)	91.3	%	NA	100			None - No QA Qualifier	PR 41-117
LABQA	1	3/2/2006	0:00	LCS	Diazinon	0.499	µg/L	0.02	0.5	99.8		None - No QA Qualifier	PR 57-130
LABQA	2	3/2/2006	0:00	LCS	Diazinon	0.459	µg/L	0.02	0.5	91.8	8.4	None - No QA Qualifier	PR 57-130 RPD<21
LABQA	1	3/2/2006	0:00	LCS	Esfenvalerate/ Fenvalerate	0.58	µg/L	0.02	0.45	129		Spike analyte recovery is outside stated control limits	PR 52-117
LABQA	2	3/2/2006	0:00	LCS	Esfenvalerate/ Fenvalerate	0.553	µg/L	0.02	0.45	123	4.8	Spike analyte recovery is outside stated control limits	PR 52-117 RPD<21
LABQA	1	3/2/2006	0:00	LCS	Permethrin	0.497	µg/L	0.02	0.45	110		None - No QA Qualifier	PR 24-166
LABQA	2	3/2/2006	0:00	LCS	Permethrin	0.475	µg/L	0.02	0.45	106	4.5	None - No QA Qualifier	PR 24-166 RPD<21
LABQA	1	3/2/2006	0:00	LCS	Tetrachloro-m-xylene (Surrogate)	105	%	NA	100			None - No QA Qualifier	PR 38-113
LABQA	2	3/2/2006	0:00	LCS	Tetrachloro-m-xylene (Surrogate)	83.7	%	NA	100			None - No QA Qualifier	PR 38-113
LABQA	1	3/2/2006	0:00	LCS	Tributylphosphate (Surrogate)	111	%	NA	100			None - No QA Qualifier	PR 60-150
LABQA	2	3/2/2006	0:00	LCS	Tributylphosphate (Surrogate)	107	%	NA	100			None - No QA Qualifier	PR 60-150
LABQA	1	3/2/2006	0:00	LCS	Triphenyl phosphate (Surrogate)	111	%	NA	100			None - No QA Qualifier	PR 56-129
LABQA	2	3/2/2006	0:00	LCS	Triphenyl phosphate (Surrogate)	118	%	NA	100			None - No QA Qualifier	PR 56-129
LABQA	1	3/3/2006	0:00	LCS	Bifenthrin	0.46	µg/L	0.02	0.45	102		None - No QA Qualifier	PR 52-117

Station Name	Replicate	Sample Date	Sample Time	Sample Type	Analyte	Result	Unit	RL	Expected Value	PR	RPD	Quality Assuarance	Data Acceptability Criteria
LABQA	1	3/3/2006	0:00	LCS	Chlorpyrifos	0.535	µg/L	0.02	0.5	107		None - No QA Qualifier	PR 61-125
LABQA	1	3/3/2006	0:00	LCS	Cyfluthrin	0.525	µg/L	0.03	0.45	117		None - No QA Qualifier	PR 53-125
LABQA	1	3/3/2006	0:00	LCS	Cyhalothrin, lambda	0.558	µg/L	0.02	0.45	124		Spike analyte recovery is outside stated control limits	PR 62-104
LABQA	1	3/3/2006	0:00	LCS	Cypermethrin	2.74	µg/L	0.05	2.25	122		Spike analyte recovery is outside stated control limits	PR 55-107
LABQA	1	3/3/2006	0:00	LCS	Decachlorobiphenyl (Surrogate)	90.7	%	NA	100			None - No QA Qualifier	PR 41-117
LABQA	1	3/3/2006	0:00	LCS	Diazinon	0.499	µg/L	0.02	0.5	99.8		None - No QA Qualifier	PR 57-130
LABQA	1	3/3/2006	0:00	LCS	Esfenvalerate/ Fenvalerate	0.538	µg/L	0.02	0.45	120		Spike analyte recovery is outside stated control limits	PR 52-117
LABQA	1	3/3/2006	0:00	LCS	Permethrin	0.478	µg/L	0.02	0.45	106		None - No QA Qualifier	PR 24-166
LABQA	1	3/3/2006	0:00	LCS	Tetrachloro-m-xylene (Surrogate)	77	%	NA	100			None - No QA Qualifier	PR 38-113
LABQA	1	3/3/2006	0:00	LCS	Tributylphosphate (Surrogate)	131	%	NA	100			None - No QA Qualifier	PR 60-150
LABQA	1	3/3/2006	0:00	LCS	Triphenyl phosphate (Surrogate)	126	%	NA	100			None - No QA Qualifier	PR 56-129
LABQA	1	3/21/2006	0:00	LCS	Bifenthrin	0.584	µg/L	0.02	0.81	72.1		None - No QA Qualifier	PR 52-117
LABQA	2	3/21/2006	0:00	LCS	Bifenthrin	0.573	µg/L	0.02	0.81	70.7	1.9	None - No QA Qualifier	PR 52-117 RPD<25
LABQA	1	3/21/2006	0:00	LCS	Chlorpyrifos	0.536	µg/L	0.02	0.5	107		None - No QA Qualifier	PR 61-125
LABQA	2	3/21/2006	0:00	LCS	Chlorpyrifos	0.529	µg/L	0.02	0.5	106	1.3	None - No QA Qualifier	PR 61-125 RPD<25
LABQA	1	3/21/2006	0:00	LCS	Cyfluthrin	0.639	µg/L	0.03	0.833	76.7		None - No QA Qualifier	PR 53-125
LABQA	2	3/21/2006	0:00	LCS	Cyfluthrin	0.632	µg/L	0.03	0.833	75.9	1.1	None - No QA Qualifier	PR 53-125 RPD<25
LABQA	1	3/21/2006	0:00	LCS	Cyhalothrin, lambda	0.64	µg/L	0.02	0.875	73.1		None - No QA Qualifier	PR 62-104

Station Name	Replicate	Sample Date	Sample Time	Sample Type	Analyte	Result	Unit	RL	Expected Value	PR	RPD	Quality Assuarance	Data Acceptability Criteria
LABQA	2	3/21/2006	0:00	LCS	Cyhalothrin, lambda	0.652	µg/L	0.02	0.875	74.5	1.9	None - No QA Qualifier	PR 62-104 RPD<25
LABQA	1	3/21/2006	0:00	LCS	Cypermethrin	3.1	µg/L	0.05	4.07	76.2		None - No QA Qualifier	PR 55-107
LABQA	2	3/21/2006	0:00	LCS	Cypermethrin	3.13	µg/L	0.05	4.07	76.9	0.96	None - No QA Qualifier	PR 55-107 RPD<25
LABQA	1	3/21/2006	0:00	LCS	Decachlorobiphenyl (Surrogate)	91.7	%	NA	100			None - No QA Qualifier	PR 41-117
LABQA	2	3/21/2006	0:00	LCS	Decachlorobiphenyl (Surrogate)	82.7	%	NA	100			None - No QA Qualifier	PR 41-117
LABQA	1	3/21/2006	0:00	LCS	Diazinon	0.544	µg/L	0.02	0.5	109		None - No QA Qualifier	PR 57-130
LABQA	2	3/21/2006	0:00	LCS	Diazinon	0.538	µg/L	0.02	0.5	108	1.1	None - No QA Qualifier	PR 57-130 RPD<21
LABQA	1	3/21/2006	0:00	LCS	Esfenvalerate/ Fenvalerate	0.6	µg/L	0.02	0.788	76.1		None - No QA Qualifier	PR 52-117
LABQA	2	3/21/2006	0:00	LCS	Esfenvalerate/ Fenvalerate	0.617	µg/L	0.02	0.788	78.3	2.8	None - No QA Qualifier	PR 52-117 RPD<21
LABQA	1	3/21/2006	0:00	LCS	Permethrin	0.536	µg/L	0.02	0.765	70.1		None - No QA Qualifier	PR 24-166
LABQA	2	3/21/2006	0:00	LCS	Permethrin	0.546	µg/L	0.02	0.765	71.4	1.8	None - No QA Qualifier	PR 24-166 RPD<21
LABQA	1	3/21/2006	0:00	LCS	Tetrachloro-m-xylene (Surrogate)	75.3	%	NA	100			None - No QA Qualifier	PR 38-113
LABQA	2	3/21/2006	0:00	LCS	Tetrachloro-m-xylene (Surrogate)	75.3	%	NA	100			None - No QA Qualifier	PR 38-113
LABQA	1	3/21/2006	0:00	LCS	Tributylphosphate (Surrogate)	111	%	NA	100			None - No QA Qualifier	PR 60-150
LABQA	2	3/21/2006	0:00	LCS	Tributylphosphate (Surrogate)	107	%	NA	100			None - No QA Qualifier	PR 60-150
LABQA	1	3/21/2006	0:00	LCS	Triphenyl phosphate (Surrogate)	109	%	NA	100			None - No QA Qualifier	PR 56-129
LABQA	2	3/21/2006	0:00	LCS	Triphenyl phosphate (Surrogate)	104	%	NA	100			None - No QA Qualifier	PR 56-129
LABQA	1	3/22/2006	0:00	LCS	Bifenthrin	0.634	µg/L	0.02	0.81	78.3		None - No QA Qualifier	PR 52-117
LABQA	2	3/22/2006	0:00	LCS	Bifenthrin	0.573	µg/L	0.02	0.81	70.7	10.1	None - No QA Qualifier	PR 52-117 RPD<25
LABQA	1	3/22/2006	0:00	LCS	Chlorpyrifos	0.539	µg/L	0.02	0.5	108		None - No QA Qualifier	PR 61-125

Station Name	Replicate	Sample Date	Sample Time	Sample Type	Analyte	Result	Unit	RL	Expected Value	PR	RPD	Quality Assuarance	Data Acceptability Criteria
LABQA	2	3/22/2006	0:00	LCS	Chlorpyrifos	0.488	µg/L	0.02	0.5	97.6	9.9	None - No QA Qualifier	PR 61-125 RPD<25
LABQA	1	3/22/2006	0:00	LCS	Cyfluthrin	0.702	µg/L	0.03	0.833	84.3		None - No QA Qualifier	PR 53-125
LABQA	2	3/22/2006	0:00	LCS	Cyfluthrin	0.624	µg/L	0.03	0.833	74.9	11.8	None - No QA Qualifier	PR 53-125 RPD<25
LABQA	1	3/22/2006	0:00	LCS	Cyhalothrin, lambda	0.722	µg/L	0.02	0.875	82.5		None - No QA Qualifier	PR 62-104
LABQA	2	3/22/2006	0:00	LCS	Cyhalothrin, lambda	0.658	µg/L	0.02	0.875	75.2	9.3	None - No QA Qualifier	PR 62-104 RPD<25
LABQA	1	3/22/2006	0:00	LCS	Cypermethrin	3.44	µg/L	0.05	4.07	84.5		None - No QA Qualifier	PR 55-107
LABQA	2	3/22/2006	0:00	LCS	Cypermethrin	3.23	µg/L	0.05	4.07	79.4	6.3	None - No QA Qualifier	PR 55-107 RPD<25
LABQA	1	3/22/2006	0:00	LCS	Decachlorobiphenyl (Surrogate)	74	%	NA	100			None - No QA Qualifier	PR 41-117
LABQA	2	3/22/2006	0:00	LCS	Decachlorobiphenyl (Surrogate)	63	%	NA	100			None - No QA Qualifier	PR 41-117
LABQA	1	3/22/2006	0:00	LCS	Diazinon	0.536	µg/L	0.02	0.5	107		None - No QA Qualifier	PR 57-130
LABQA	2	3/22/2006	0:00	LCS	Diazinon	0.467	µg/L	0.02	0.5	93.4	13.8	None - No QA Qualifier	PR 57-130 RPD<21
LABQA	1	3/22/2006	0:00	LCS	Esfenvalerate/ Fenvalerate	0.665	µg/L	0.02	0.788	84.4		None - No QA Qualifier	PR 52-117
LABQA	2	3/22/2006	0:00	LCS	Esfenvalerate/ Fenvalerate	0.599	µg/L	0.02	0.788	76.0	10.4	None - No QA Qualifier	PR 52-117 RPD<21
LABQA	1	3/22/2006	0:00	LCS	Permethrin	0.578	µg/L	0.02	0.765	75.6		None - No QA Qualifier	PR 24-166
LABQA	2	3/22/2006	0:00	LCS	Permethrin	0.54	µg/L	0.02	0.765	70.6	6.8	None - No QA Qualifier	PR 24-166 RPD<21
LABQA	1	3/22/2006	0:00	LCS	Tetrachloro-m-xylene (Surrogate)	86	%	NA	100			None - No QA Qualifier	PR 38-113
LABQA	2	3/22/2006	0:00	LCS	Tetrachloro-m-xylene (Surrogate)	49.7	%	NA	100			None - No QA Qualifier	PR 38-113
LABQA	1	3/22/2006	0:00	LCS	Tributylphosphate (Surrogate)	116	%	NA	100			None - No QA Qualifier	PR 60-150
LABQA	2	3/22/2006	0:00	LCS	Tributylphosphate (Surrogate)	106	%	NA	100			None - No QA Qualifier	PR 60-150
LABQA	1	3/22/2006	0:00	LCS	Triphenyl phosphate (Surrogate)	127	%	NA	100			None - No QA Qualifier	PR 56-129

Station Name	Replicate	Sample Date	Sample Time	Sample Type	Analyte	Result	Unit	RL	Expected Value	PR	RPD	Quality Assuarance	Data Acceptability Criteria
LABQA	2	3/22/2006	0:00	LCS	Triphenyl phosphate (Surrogate)	116	%	NA	100			None - No QA Qualifier	PR 56-129

E = Environmental sample FD = Field Duplicate sample FB = Field Blank sample QA = Quality Assuarnce MS = Matrix Spike PR = Percent Recovery RPD = Relative Percent Difference
FD RPD = Relative Percent Difference between the environmental sample and the field duplicate NA = Not Applicable

*sample time for all constituents sampled has been adjusted to reflect the time of the first sample collected at that site for that date; this may not be the exact same time as recorded on the COCs

Summary of Precision and Accuracy

All sites were sampled twice during the storm season of 2006.

- Dry Creek @ Rd 18 was not sampled on February 28, 2006 since it was dry nor on March 15, 2006 due to insufficient volume to sample
- Highline Canal @ Hwy 99 and Duck Slough @ Gurr Rd were re-sampled on March 10, 2006 to test for toxicity persistence.
- Prairie Flow Drain @ Crows Landing Road, Hilmar Drain @ Central Ave, Highline Canal @ Hwy 99, Highline Canal @ Lombardy Rd, Merced River @ Sante Fe and Duck Slough @ Gurr Rd were re-sampled on March 24, 2006 to test for toxicity persistence.

Chemistry Results

Not including quality assurance samples, there was a total of 24 environmental samples collected and analyzed for each of the inorganic, bacteria, and organic constituents. Due to Dry Creek @ Rd 18 being dry during both storm sampling events, data completeness for all chemistry analysis was 92%. For each storm event, one field duplicate and field blank were collected for each constituent to meet the field QC requirement of 5%. Field blanks and duplicates comprised 8% respectively of all samples for each constituent. Below are tables used to assess inorganic, bacterial analysis and organic chemistry precision and accuracy.

Table 14a: Project quality control requirements for inorganics including color, turbidity, total dissolved solids and total organic carbons.

Sample Type	Objective	Frequency of Analysis	Acceptance Criteria	Corrective Action
Field Blanks	Contamination	One per sampling event	< RL *or* <sample ÷ 5	Examine field log. Identify contamination source. Qualify data as needed.
Field Duplicate	Precision	One per sampling event	RPD ≤ 25% if │Difference│ ≥RL	Reanalyze both samples. Identify variability source. Qualify data as needed.
Lab Blank	Contamination	≥1 per batch	<MDL *or* if n≥3, avg±2 s.d. <RL	Identify contamination source. Reanalyze method blank and all samples in batch.
LCS or CRM	Accuracy	1 per batch	80-120% PR	Recalibrate and reanalyze LCS or CRM samples.
Lab Duplicate	Precision	1 per batch	RPD ≤ 20% if │Difference│ ≥RL	Recalibrate and reanalyze.
Matrix Spike	Accuracy	1 per batch	80-120% PR	Check CRM recovery. Attempt to correct the matrix problem and reanalyze the sample. Qualify data as needed.
Matrix Spike Duplicate	Precision	1 per batch	RPD ≤ 20%	Check lab duplicate RPD. Attempt to correct matrix problems and reanalyzed samples. Qualify data as needed.
Assess percent of data successfully collected	Data Completeness	1 per event	90%	Reschedule sample events as necessary or appropriate.

Table 14b: Project quality control requirements for bacteria samples.

Sample Type	Objective	Frequency of Analysis	Acceptance Criteria	Corrective Action
Field Blanks	Contamination	One per sampling event	< RL *or* <sample ÷ 5	Examine field log. Identify contamination source. Qualify data as needed.
Lab Blank	Contamination	1 per batch	<RL	Identify contamination source. Clean equipment and slides. Check reagents. Re-analyze blank.
Lab Duplicate	Precision	1 per 10 samples and at least 1 per batch	$R_{log} \leq 3.27$*mean R_{log}	Recalibrate and reanalyze.
Negative Control Samples	Contamination	1 per culture medium or reagent lot	<RL	Identify source. Clean equipment and prepare new media. Re-examine negative control.
Positive Control Samples	Assay function	1 per culture medium or reagent lot	≥RL	Identify and correct problem. Re-examine positive control.
Assess percent of data successfully collected	Data Completeness	1 per event	90%	Reschedule sample events as necessary or appropriate.

Table 14c: Project quality control requirements for organic analysis.

Sample Type	Objective	Frequency of Analysis	Acceptance Criteria	Corrective Action
Field Blanks	Contamination	One per sampling event	< RL *or* <sample ÷ 5	Examine field log. Identify contamination source. Qualify data as needed.
Field Duplicate	Precision	One per sampling event	RPD ≤ 25% if │Difference│ ≥RL	Reanalyze both samples. Identify variability source. Qualify data as needed.
Lab Blank	Contamination	≥1 per batch	<MDL *or* if n≥3, avg±2 s.d. <RL	Identify contamination source. Reanalyze method blank and all samples in batch.
LCS	Accuracy	1 per batch	Within control limit specific to analyte	Recalibrate and reanalyze LCS samples.
Lab Duplicate	Precision	1 per batch	RPD ≤ 20%	Recalibrate and reanalyze.
Matrix Spike	Accuracy	1 per batch	Within control limit specific to analyte	Attempt to correct the matrix problem and reanalyze the sample. Qualify data as needed.
Matrix Spike Duplicate	Precision	1 per batch	RPD ≤ 20%	Check lab duplicate RPD. Attempt to correct matrix problems and reanalyzed samples. Qualify data as needed.
Assess percent of data successfully collected	Data Completeness	1 per event	90%	Reschedule sample events as necessary or appropriate.

Table 15a. Control limits (CL) for pyrethroids. All measurements are in µg/L.

Analyte	MDL	PQL	CL
Bifenthrin	0.006	0.02	52-117
Cyfluthrin	0.003	0.03	53-125
Cypermethrin	0.004	0.05	55-107
Esfenvalerate/Fenvalerate	0.002	0.02	52-117
Lambda cyhalothrin	0.001	0.02	62-104
Permethrin	0.009	0.02	24-166
Surrogate: DECA			41-117
Surrogate: TCmX			38-113

Table 15b. Control limits (CL) for organophosphates. All measurements are in µg/L.

Analyte	MDL	PQL	CL
Chlorpyrifos	0.00259	0.02	61-125
Diazinon	0.00353	0.02	57-130
Trifluralin	0.036	0.10	44-117
Surrogate:Tributylphosphate			60-150
Surrogate:Triphenylphosphate			59-129

- Color: field duplicates and field blanks were collected during each storm event and met acceptance criteria. Lab blanks were run with every batch and were less than the MDL (<1 color unit). Laboratory duplicates were analyzed with each batch and met acceptance criteria. Neither matrix spikes nor CRMs were run with any of the color batches and therefore accuracy cannot be assessed. A holding time violation occurred for five samples where three samples included an environmental, field duplicate and field blank from the same site and date. Due to the height of the peaks in the samples (except for the field blank which was less than the MDL) it was determined that the holding time exceedance most likely did not affect the result. The exceedance was less than five hours past the 48 hour hold time. Samples and batches were qualified accordingly.

- Turbidity: field duplicates and field blanks were collected during each storm event and met acceptance criteria. There was a detection of 0.2 NTUs in a field blank however this was less than 1/5 of the sample (8.7 NTU) and therefore the quality control objectives were met to assess field sampling contamination. Lab blanks were run with every batch and were less than the MDL (<0.1 NTU). Laboratory duplicates were analyzed with each batch and met acceptance criteria. Neither matrix spikes nor CRMs were run with any of the turbidity batches and therefore accuracy cannot be assessed. A holding time violation occurred for five samples where three samples included an environmental, field duplicate and field blank from the same site and date. Due to the height of the peaks in the samples (except for the field blank) it was determined that the holding time exceedance most likely did not affect the result. The exceedance was less than five hours past the 48 hour hold time. Samples and batches were qualified accordingly.

- Total Dissolved Solids (TDS): field duplicates and field blanks were collected during each storm event and met acceptance criteria. Lab blanks were run with every batch and were less than the MDL (<5 mg/L). Laboratory duplicates were analyzed with each batch and met acceptance criteria. Neither matrix spikes nor CRMs were run with any of the TDS batches and therefore accuracy cannot be assessed.

- Total Organic Carbons (TOC): field duplicates and field blanks were collected during each storm event and met acceptance criteria. Both field blanks had detectable amounts of TOCs however the amounts were less than 1/5 of the sample. Lab blanks were run with every batch and were less than the MDL (<0.2 mg/L). Laboratory duplicates were analyzed with each batch and met acceptance criteria. Matrix spikes and laboratory control spikes were analyzed with each batch as well as their respective duplicates. All PRs were between 80-120% and RPDs were less than 20%. Both accuracy and precision objectives were met for all laboratory batches and samples run.

- *E. coli:* field duplicates and field blanks were collected during each storm event and met acceptance criteria. All samples were analyzed within the hold time of 24 hrs. Sterility checks, or laboratory blanks, negative control and positive control samples were run for each batch and those data sheets are attached to each laboratory report. R_{log}s were not performed for *E. coli* and therefore it is difficult to assess the precision of this analysis. RPDs were calculated and ranged from 0 to 117%. Due to the nature of the analysis method and *E. coli* distribution within the water column, it is not possible to use RPDs to assess precision.

- Pesticides: field duplicates and field blanks were collected during each storm event and met acceptance criteria. There were no holding time exceedances for pesticides (extracted within 7 days). Lab blanks were performed for each batch and met acceptability criteria for contamination. Matrix spikes, lab control spikes and lab duplicates were performed for each batch to assess both precision and accuracy. Either a matrix spike duplicate and/or a lab control spike duplicate were also performed per batch to assess precision. Cottonwood Creek @ Rd 20 sampled on 2/28/06 had a matrix spike recovery for both the MS and MSD greater than control limits for cyhalothrin (PR 111, PR 119 where the CL is 62-104). However, since the environmental result is less than the MDL it is concluded that this did not cause a bias on the result. This MS result was qualified accordingly. For this same MS duplicate sample (Cottonwood Creek @ Rd 20 collected on 2/28/06), the cypermethrin PR was also outside of CL (PR 109 where the CL is 55-107). However, the MS was within CL (PR 107) and the environmental result was less than the MDL. All other MS, MSD and LCS and LCSDs met acceptance criteria for precision and accuracy.

All surrogate recoveries were within criteria limits validating extraction and analysis methods.

Toxicity Results

For aquatic toxicity tests, the acceptability of test results is determined primarily by performance-based criteria for test organisms, culture and test conditions, and the results of control bioassays. Control bioassays include monthly reference toxicant testing and negative and solvent controls (for TIEs). Test acceptability requirements are documented in the method documents for each bioassay method and are included in the QAPP. For those algal tests whose lab control treatments did not meet test acceptability criteria due to elevated inter-replicate variability (as measure by the CV), re-testing of the ambient water samples was performed using both the EPA's 4th edition testing (i.e. no EDTA added to the nutrient media). For those samples whose accompanying 4th edition lab control treatment did not meet test acceptability criteria due to either: 1) low algal cell density, or 2) elevated inter-replicate variability (as measured by the CV), the test results of the concurrent 3rd edition tests were reported. In addition to the QA requirements for the toxicity testing methods, a minimum of 5% of the samples collected will be field duplicates. Data completeness was 92% due to Dry Creek @ Rd 18 not being sampled in both storm events due to lack of water. 8% of the samples collected for storm monitoring events were field duplicates.

- Water Column Toxicity: field duplicates were collected during each storm event and were tested for *Ceriodaphnia, Selenastrum, and Pimephales*. Eighteen re-tests were performed due to method criteria not being met. Four of those were for *Ceriodaphnia* tests. Of these four, one test was re-initiated due to the RPD between the field duplicate and the environmental sample being greater than 25% (Cottonwood Creek @ Road 20, 2/28/06). The re-test found 100% survival in both samples with an RPD of 0. The other three tests were due to control survival being less than 90%. Two of these *Ceriodaphnia* re-tests had 100% survival. Only one re-test (Duck Slough @ Gurr Rd, 3/10/06) had a significant mean survival different from the control (35% of control). Since this was a re-sample due to original toxicity no follow-up sampling was conducted. Fourteen of the 18 re-tests were performed for *Selenastrum* analysis due to coefficient of variation (CV) exceeding the 20% control limit. The re-test for Ash Slough @ Ave 21 (2/28/06) showed different toxicity than the original test indicating that the toxicity was increasing over time (66% growth of control). The re-test for Highline Canal @ Hwy 99 (3/1/06) was also toxic with the growth only 2% of the control and a dilution series was initiated. All other tests met holding time requirements (>36 hrs), water quality and control requirements (as listed in the methods), and field duplicates RPD requirements (RPD < 25).

Pesticide Use Information

Pesticide use for sampling sites showing exceedances.

All exceedances for 2006 are listed in Tables 22 and 25. Pesticide use reports for January – March 2006 were requested from all the counties within the coalition. The following data were available during preparation of the 31 June 2006 semi-annual report: Merced – January – March; Madera – data only became available on 23 June 2006 which did not provide sufficient time for analysis; Stanislaus – data will not be available until mid-July.

For each sampling period in which chemicals were detected (Table 25), or that toxicity was reported (Table 24), pesticide use on agricultural lands for the 2 weeks prior to sampling was collected for that watershed based on the TRS. All agricultural products that contained the chemicals detected are listed by subwatershed and are shown in maps. All agricultural products used on agricultural lands that were used in the 2 weeks prior to a toxicity exceedance are listed by subwatershed (Tables 26 – 36, Figures 19 – 29). Pesticide use is reported as amount of product used. Some products may have more than one active ingredient and in this case the product appears more than once with the name of the chemical ingredient.

Pesticide use reports for 2005 were requested from all the counties within the coalition. The following data were available during preparation of the 2005 semi-annual report in December: Merced: January, February, May – August; Madera: May – September; Stanislaus: January – March; Calaveras: January – March; Tuolumne: none; and Mariposa: none. Results of Toxicity Evaluations (Table 16) for 2005 are provided below and sites that were not discussed are highlighted and discussed in this section. The data that were missing from the December 2005 Semi-Annual Monitoring Report are discussed below.

For each sampling period that toxicity was reported (Table 16), pesticide use on agricultural lands for the 2 weeks prior to sampling was collected for that watershed based on the TRS. All agricultural products that contained the chemicals detected are listed by watershed and are shown in maps. All agricultural products used on agricultural lands that were used in the 2 weeks prior to an exceedance are listed by watershed in Tables 17 - 21 and are shown in maps in Figures 14 - 18.

Pesticide use data for 2005 was totaled for each TRS and only total product use information is provided. For 2006, pesticide use information is provided for each application and contains commodity information as well as product information.

Full pesticide use information for 2005 (data not previously reported) and 2006 is provided as a separate electronic Appendix B.

Exceedances

E – environmental
FD – field duplicate
Method of application – A: aerial, G: ground

Exceedances for 2005 sampling

Table 16: 2005 Results of Toxicity Evaluations.

Site name	Sample Date	Sample Type Code	Species Name	Test Comments	Mean	% Control	Eval. Threshold	cell growth
Bear Creek @ Kibby Rd	5/10/05	Grab	Ceriodaphnia dubia	Follow up TIE found no significant reduction in survival in the baseline, indicating that the toxicity that had been observed in the initial testing of this sample was no longer present.	5	5.3	80	
Cottonwood Creek @ Rd 20	5/10/05	Integrated	Hyalella azteca		0.13349	80.9	80	
Cottonwood Creek @ Rd 20	5/10/05	FieldDup	Hyalella azteca		0.13901	84.2	80	
Dry Creek @ Wellsford Rd	2/15/05	Grab	Ceriodaphnia dubia		80	80	80	
Dry Creek @ Wellsford Rd	5/11/05	Integrated	Hyalella azteca		0.14465	87.6	80	
Duck Slough @ Gurr Rd	5/10/05	Integrated	Hyalella azteca		0.13991	84.8	80	
Duck Slough @ Gurr Rd	7/12/05	Integrated	Hyalella azteca		58.8	64.5	80	
Duck Slough @ Gurr Rd	7/12/05	Integrated	Hyalella azteca		0.02213	28.8	80	
Duck Slough @ Gurr Rd	9/21/05	Integrated	Hyalella azteca			3.75		
Duck Slough @ Pioneer	7/12/05	Grab	Selenastrum capricornutum		1320000	76.7	80	
Highline Canal @ Hwy 99	5/10/05	Grab	Ceriodaphnia dubia	Follow up TIE found no significant reduction in survival in the baseline, indicating that the toxicity that had been observed in the initial testing of this sample was no longer present.	45	47	80	
Highline Canal @ Hwy 99	5/19/05	Grab	Ceriodaphnia dubia	Complete mortality in May 19 sample indicates that ambient water toxicity was still present at this site.	0	0	80	
Highline Canal @ Hwy 99	7/13/05	Integrated	Hyalella azteca		0.07949	83.4	80	
Highline Canal @ Hwy 99	9/21/05	Integrated	Hyalella azteca			87.5		
Highline Canal @ Lombardy Rd.	5/10/05	Integrated	Hyalella azteca		71.25	74	80	
Highline Canal @ Lombardy Rd.	5/10/05	Integrated	Hyalella azteca		0.0992	60.1	80	
Highline Canal @ Lombardy Rd.	7/13/05	Integrated	Hyalella azteca		0.07368	77.3	80	

Hilmar Drain @ Central Ave.	5/11/05	Grab	Ceriodaphnia dubia		70	73.7	80	
Hilmar Drain @ Central Ave.	5/11/05	Integrated	Hyalella azteca		0.08975	54.4	80	
Hilmar Drain @ Central Ave.	9/21/05	Integrated	Hyalella azteca			31.2		
Jones Drain @ Oakdale Rd	2/16/05	Grab	Selenastrum capricornutum		1290000	71.7	80	
Jones Drain @ Oakdale Rd	8/17/05	Grab	Ceriodaphnia dubia	Due to the observation of >50% reduction in survival in the initial sample a dilution series test and Phase I TIE test targeting pesticides were run on this sample. Statistically significant reductions in survival were not seen in any of this follow-up testing, indicating that the toxicity initially seen in this sample was no persistent.	25	25	80	
Merced River @ Santa Fe	3/21/05	Integrated	Selenastrum capricornutum					1,260,000
Prairie Flower Drain @ Crows Landing Rd.	7/13/05	Integrated	Hyalella azteca		0.07310	76.7	80	
Prairie Flower Drain @ Crows Landing Rd.	9/21/05	Integrated	Hyalella azteca			83.8		

In the discussions below, we rely heavily on the use of K_{oc} values to determine the compounds that could runoff and cause sediment toxicity or water column toxicity. K_{oc} is the organic carbon - water partition coefficient and generally defines the propensity of the compound to partition to water or attach to sediment. The term that represents this propensity is "leaching potential". Specific Numeric Values (SNVs) for parameters that define leaching potential have been submitted to DPR by pesticide manufacturers and DPR evaluates and approves these submissions. Active ingredients with properties that exceed the SNVs established by DPR are considered to have the potential to contaminate ground water. Pesticide active ingredients are placed on the list of "potential leachers" under the following conditions:

One of the following must be true

- Water solubility: > 3 ppm (mg/L), or
- Soil adsorption coefficient (K_{oc}): < 1,900 cm^3/g

and one of the following must be true

- Hydrolysis half-life: > 14 days, or
- Aerobic soil metabolism half-life: > 610 days, or
- Anaerobic soil metabolism half-life: > 9 days

However, we are concerned with the potential for surface runoff and immediate toxicity to aquatic organisms. Consequently, the half-life criteria are not important. Although there is not a perfect negative correlation between K_{oc} and water solubility, if we classified a compound as having a K_{oc} value to bind to sediment and be a potential cause of sediment toxicity, the compound was not classified as having a sufficiently high water solubility to also be a cause of water column toxicity. All chemicals were classified as either potential toxicants in water or in sediment. The single exception is chlorpyrifos, which appears to cause water column toxicity even as it is attached to particulates. It has both a sufficiently high water solubility (~1.4 mg/L) and K_{oc} (1,380 – 14,000) to be classified as a toxicant in both water and sediment.

K_{oc} values for all compounds were obtained from a variety of sources. Websites from the California Department of Pesticide Regulation, the Pesticide Action Network, the Huang and Young (2005) report to the California Department of Transportation (http://www.dot.ca.gov/hq/env/stormwater/special/newsetup/_pdfs/monitoring/CTSW-RT-03-084-73-04.pdf) and and numerous studies from the scientific literature were used to document K_{oc} values. Because K_{oc} can change depending on soil characteristics, if there were any major discrepancies between published values, we used the most common value or established a range of values. We used the more conservative value for an initial determination, but once a chemical was determined to partition to sediment, it could not become a toxicant in the water column (exception being chlorpyrifos). In the December 2005 Semi-Annual Monitoring Report, the Coalition provided a detailed explanation of the potential chemicals and their Koc values for each toxicity exceedance. In the current report, the potential chemicals causing toxicity are highlighted in each table without a written description.

Pesticide use information is filed by Township/Range/Section. The source identification analysis used the pesticide use reports for the two weeks prior to the sample collection date. We obtained information on all pesticides but for specific instances of toxicity, we eliminated all chemicals that could not cause toxicity. For example, to determine sources of toxicity to *Selenastrum*, we considered only herbicides and applications of metals and salts. To determine sources of toxicity to *Ceriodaphnia*, we eliminated herbicides because they are not documented causes of toxicity to *Ceriodaphnia*. Those chemicals are eliminated from the tables prior to identifying TRS' that could be sources. Data are not available for individual fields or parcels except where they coincide with complete sections

Sediment Toxicity Exceedances 2005

Toxicity exceedances were treated differently than water chemistry exceedances. For water chemistry exceedances, we were able to search for one or two chemicals that were detected in the water. Given that there were a large number of chemicals applied and the ESJWQC did not analyze samples for these chemicals, we treated any chemical applied in the watershed as a potential source of the toxicity. We then analyzed these chemicals by K_{oc} to determine which of the chemicals could be responsible for the toxicity. In dealing with sources of sediment toxicity, we narrowed the list of chemicals down to those that could be responsible for the toxicity if their K_{oc} value was above 1800 (100 below the DPR standard). We restrict our interpretation of sediment toxicity to a significant decrease in survival of the treatment compared to the control.

Hyalella toxicity

Dry Creek @ Wellsford Rd - Sediment toxicity detected during the 5/11/05 sample event.

Survival of *Hyalella* was reported as 87.6% which was significantly different from the controls. In the Dry Creek @ Wellsford Rd subwatershed (Figure 14) there were over eighty chemical applications in the two weeks prior to sampling (Table 17).

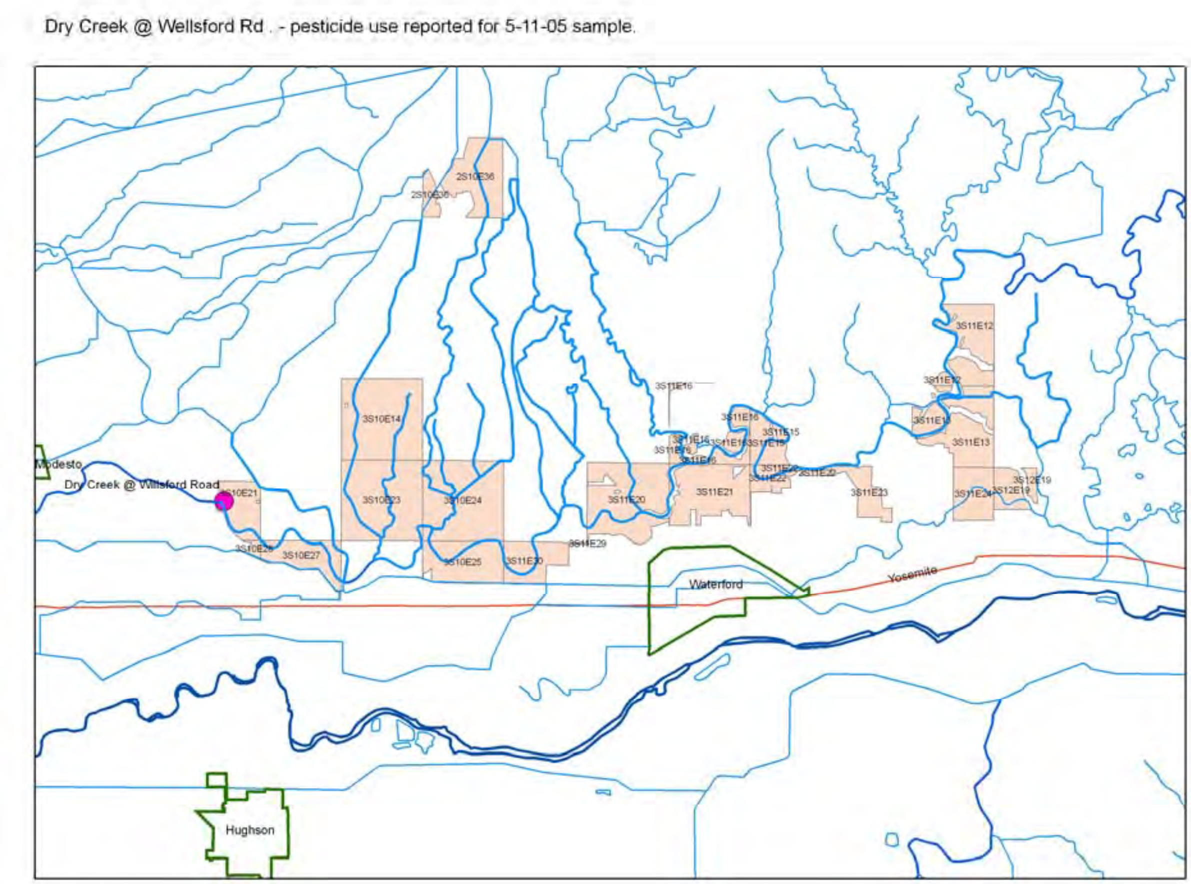
Table 17. Pesticide applications in the Dry Creek @ Wellsford Rd subwatershed during the 2 weeks prior to May sampling.

PRODUCT	CHEMICAL AI	Total product used	UNIT	Total treated area	TRS
GLY STAR ORIGINAL	GLYPHOSATE, ISOPROPYLAMINE SALT	6.75	GA	18.0	2S10E36
HERBICIDE ACTIVATOR	PETROLEUM DISTILLATES	0.75	GA	18.0	2S10E36
POUNCE 1.5G INSECTICIDE	PERMETHRIN	2300.00	LB	230.0	2S10E36
ABOUND FLOWABLE FUNGICIDE	AZOXYSTROBIN	2.00	GA	20.0	3S10E14
GOAL 2XL HERBICIDE	OXYFLUORFEN	0.41	GA	53.0	3S10E21
KOCIDE DF	COPPER HYDROXIDE	424.00	LB	53.0	3S10E21
MICROTHIOL SPECIAL MICRONIZED WETTABLE S	SULFUR	348.00	LB	116.0	3S10E21
PRINCEP CALIBER 90 HERBICIDE	SIMAZINE	66.25	LB	53.0	3S10E21
PRISTINE FUNGICIDE	BOSCALID	92.80	LB	116.0	3S10E21
PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	92.80	LB	116.0	3S10E21
ROUNDUP ORIGINAL MAX HERBICIDE	GLYPHOSATE, POTASSIUM SALT	14.08	GA	54.6	3S10E21
SOLICAM DF HERBICIDE	NORFLURAZON	66.25	LB	53.0	3S10E21
GLY STAR PLUS	GLYPHOSATE, ISOPROPYLAMINE SALT	43.00	GA	86.0	3S10E23
MICROTHIOL DISPERSS MICRONIZED WETTABLE	SULFUR	550.00	LB	424.0	3S10E23
WILBUR-ELLIS SPRAY SULFUR	SULFUR	261.00	LB	75.0	3S10E23
YELLOW JACKET SPECIAL DUSTING SULFUR	SULFUR	12605.00	LB	1265.8	3S10E23

PRODUCT	CHEMICAL AI	Total product used	UNIT	Total treated area	TRS
MICROTHIOL DISPERSS MICRONIZED WETTABLE	SULFUR	150.00	LB	25.0	3S10E24
WILBUR-ELLIS SPRAY SULFUR	SULFUR	87.00	LB	25.0	3S10E24
YELLOW JACKET SPECIAL DUSTING SULFUR	SULFUR	15009.00	LB	1581.9	3S10E24
CHATEAU HERBICIDE SW	FLUMIOXAZIN	0.05	GA	10.0	3S10E25
DIMILIN 2L	DIFLUBENZURON	2.00	GA	30.0	3S10E25
GOAL 2XL HERBICIDE	OXYFLUORFEN	2.00	GA	13.0	3S10E25
GRAMOXONE MAX	PARAQUAT DICHLORIDE	0.25	GA	10.0	3S10E25
PRINCEP 4L	SIMAZINE	0.50	GA	10.0	3S10E25
TENKOZ BUCCANEER PLUS HERBICIDE	GLYPHOSATE, ISOPROPYLAMINE SALT	5.00	GA	13.0	3S10E25
DREXEL SIMAZINE 4L	SIMAZINE	5.80	GA	85.0	3S10E27
DU PONT ASANA XL INSECTICIDE	ESFENVALERATE	0.56	GA	9.0	3S10E27
RALLY 40 WSP	MYCLOBUTANIL	2.20	LB	9.0	3S10E27
TENKOZ BUCCANEER PLUS HERBICIDE	GLYPHOSATE, ISOPROPYLAMINE SALT	5.80	GA	85.0	3S10E27
THIOLUX JET	SULFUR	90.00	LB	9.0	3S10E27
DREXEL SIMAZINE 4L	SIMAZINE	3.75	GA	55.0	3S10E28
KOCIDE 101	COPPER HYDROXIDE	300.00	LB	30.0	3S10E28
KOCIDE 2000	COPPER HYDROXIDE	75.00	LB	10.0	3S10E28
KOCIDE DF	COPPER HYDROXIDE	8.00	LB	0.8	3S10E28
SPECIAL ELECTRIC REFINED SUPER-ADHESIVE	SULFUR	1480.00	LB	148.0	3S10E28
TENKOZ BUCCANEER PLUS HERBICIDE	GLYPHOSATE, ISOPROPYLAMINE SALT	3.75	GA	55.0	3S10E28
KOCIDE 2000	COPPER HYDROXIDE	989.00	LB	169.8	3S11E12
MANEX	MANEB	72.00	GA	169.8	3S11E12
KOCIDE 2000	COPPER HYDROXIDE	434.97	LB	72.3	3S11E13
MANEX	MANEB	31.72	GA	72.3	3S11E13
DUSTING SULFUR	SULFUR	20610.00	LB	1370.0	3S11E15
GOAL 2XL	OXYFLUORFEN	2.50	GA	300.0	3S11E15
ROUNDUP ULTRAMAX HERBICIDE	GLYPHOSATE, ISOPROPYLAMINE SALT	20.00	GA	300.0	3S11E15
AGRI-MEK 0.15 EC MITICIDE/INSECTICIDE	ABAMECTIN	18.91	GA	242.0	3S11E16
CHAMP FORMULA 2 FLOWABLE	COPPER HYDROXIDE	22.50	GA	45.0	3S11E16
DUSTING SULFUR	SULFUR	1950.00	LB	130.0	3S11E16
LORSBAN-4E	CHLORPYRIFOS	60.50	GA	242.0	3S11E16
PERM-UP 3.2 EC INSECTICIDE	PERMETHRIN	12.10	GA	242.0	3S11E16
KOCIDE 101	COPPER HYDROXIDE	104.00	LB	13.0	3S11E20
LORSBAN 4E-HF	CHLORPYRIFOS	6.50	GA	13.0	3S11E20
KOCIDE 101	COPPER HYDROXIDE	152.00	LB	19.0	3S11E21
LORSBAN 4E-HF	CHLORPYRIFOS	9.50	GA	19.0	3S11E21
DREXEL SIMAZINE 4L	SIMAZINE	0.25	GA	5.0	3S11E22
GOAL 2XL	OXYFLUORFEN	10.25	GA	82.0	3S11E22
GOAL 2XL HERBICIDE	OXYFLUORFEN	0.25	GA	5.0	3S11E22
KOCIDE 101	COPPER HYDROXIDE	280.00	LB	3.0	3S11E22
MON-35085	GLYPHOSATE, ISOPROPYLAMINE SALT	0.25	GA	5.0	3S11E22
PRINCEP CALIBER 90 HERBICIDE	SIMAZINE	164.00	LB	82.0	3S11E22
ROUNDUP ORIGINAL HERBICIDE	GLYPHOSATE, ISOPROPYLAMINE SALT	18.25	GA	82.0	3S11E22

PRODUCT	CHEMICAL AI	Total product used	UNIT	Total treated area	TRS
SURFLAN A.S.	ORYZALIN	20.50	GA	82.0	3S11E22
PRINCEP CALIBER 90 HERBICIDE	SIMAZINE	121.00	LB	60.4	3S11E23
ROUNDUP ORIGINAL MAX HERBICIDE	GLYPHOSATE, POTASSIUM SALT	12.60	GA	67.0	3S11E23
SABER CA	2,4-D, DIMETHYLAMINE SALT	15.35	GA	60.4	3S11E23
SOLICAM DF HERBICIDE	NORFLURAZON	121.00	LB	60.4	3S11E23
AGRI-MEK 0.15 EC MITICIDE/INSECTICIDE	ABAMECTIN	6.50	GA	84.0	3S11E24
DEGESCH PHOSTOXIN TABLETS-R	ALUMINUM PHOSPHIDE	7.50	LB	84.0	3S11E24
GRAMOXONE MAX	PARAQUAT DICHLORIDE	2.50	GA	40.0	3S11E24
VALENT VOLCK SUPREME SPRAY	PETROLEUM OIL, UNCLASSIFIED	85.00	GA	84.0	3S11E24
WARRIOR INSECTICIDE WITH ZEON TECHNOLOGY	LAMBDA-CYHALOTHRIN	2.00	GA	84.0	3S11E24
ABOUND FLOWABLE FUNGICIDE	AZOXYSTROBIN	2.10	GA	21.0	3S11E29
CHAMP FORMULA 2 FLOWABLE	COPPER HYDROXIDE	7.50	GA	15.0	3S11E29
RED-TOP GOLDEN-DEW	SULFUR	100.00	LB	8.0	3S11E29
CHAMP FORMULA 2 FLOWABLE	COPPER HYDROXIDE	5.00	GA	10.0	3S11E30
ABOUND FLOWABLE FUNGICIDE	AZOXYSTROBIN	7.50	GA	75.0	3S12E19
AGRI-MEK 0.15 EC MITICIDE/INSECTICIDE	ABAMECTIN	5.86	GA	75.0	3S12E19
GALIGAN 2E OXYFLUORFEN HERBICIDE	OXYFLUORFEN	0.44	GA	7.0	3S12E19
NUFARM CREDIT SYSTEMIC HERBICIDE	GLYPHOSATE, ISOPROPYLAMINE SALT	1.75	GA	7.0	3S12E19

Figure 14. Dry Creek @ Wellsford Rd pesticide applications. Applications are for the two weeks prior to the May sampling event.



Duck Slough @ Gurr Rd – Sediment toxicity detected during the 9/21/05 sample event

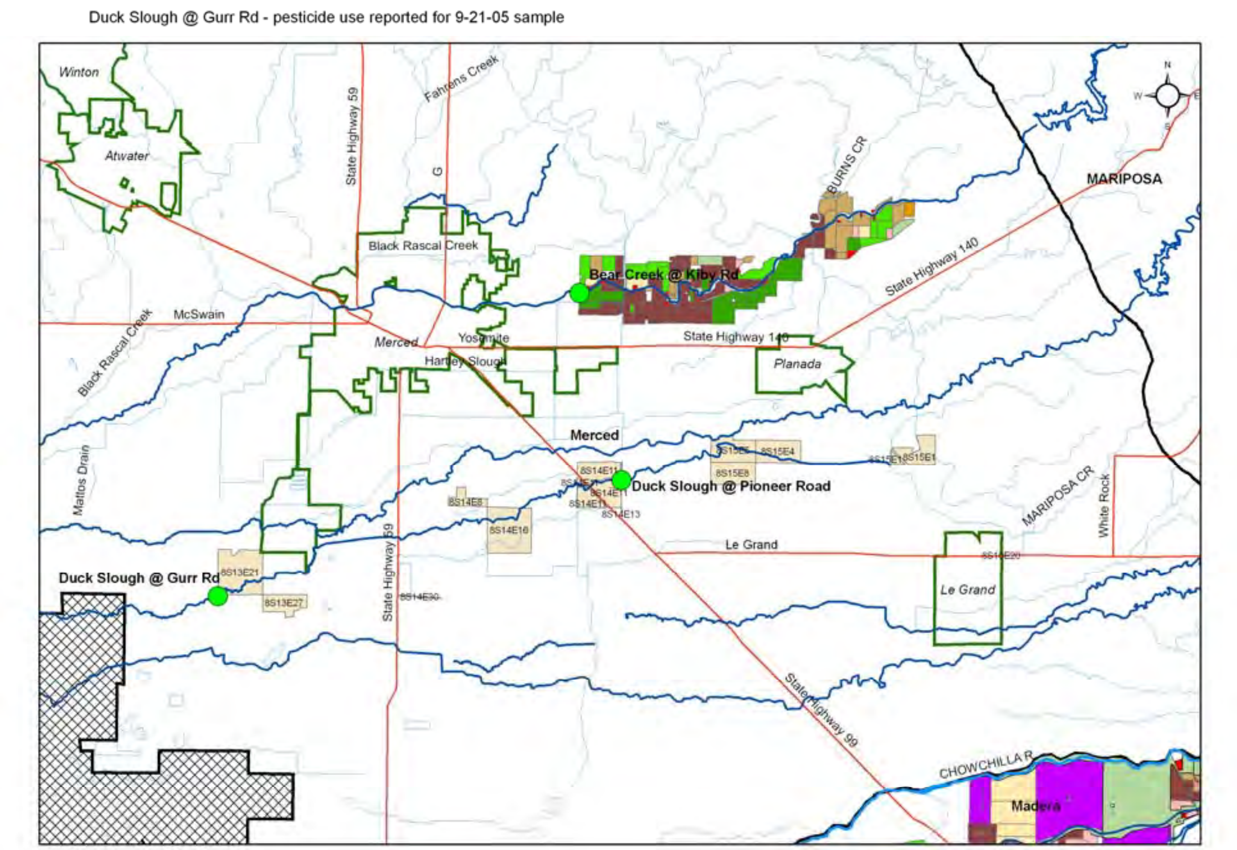
Survival of *Hyalella* was reported as 3.8% which was significantly different from the controls. In the Dry Creek @ Wellsford Rd subwatershed (Figure 15) there were over 50 chemical applications in the two weeks prior to sampling (Table 18).

Table 18. Pesticide applications in the Duck Slough @ Gurr Rd subwatershed during the 2 weeks prior to September sampling.

TRS	treated acres	aplication date	Product name	Chemical name	amount used	unit
8S13E21	10	9/12/05	DREXEL DEFOL 6 W	SODIUM CHLORATE	10	GA
8S13E21	7.5	9/12/05	DREXEL DEFOL 6 W	SODIUM CHLORATE	7.5	GA
8S13E21	7.5	9/12/05	DREXEL DEFOL 6 W	SODIUM CHLORATE	7.5	GA
8S13E27	27.5	9/8/05	DU PONT LANNATE SP INSECTICIDE	METHOMYL	7.97	LBS
8S14E11	79	9/7/05	DU PONT STEWARD INSECTICIDE	INDOXACARB	3.7	GA
8S14E11	79	9/7/05	DU PONT STEWARD INSECTICIDE	INDOXACARB	3.7	GA
8S14E13	27	9/11/05	DU PONT AVAUNT INSECTICIDE	INDOXACARB	5.91	LBS
8S14E13	27	9/11/05	DANITOL 2.4 EC SPRAY	FENPROPATHRIN	2	GA
8S14E16	44	9/14/05	DU PONT STEWARD INSECTICIDE	INDOXACARB	3.44	GA
8S14E30	91	9/7/05	LORSBAN 4E-HF	CHLORPYRIFOS	17.52	GA
8S14E30	91	9/7/05	DU PONT LANNATE SP INSECTICIDE	METHOMYL	31.85	LBS
8S14E8	64	9/14/05	DU PONT STEWARD INSECTICIDE	INDOXACARB	5	GA
8S15E1	70	9/12/05	DU PONT AVAUNT INSECTICIDE	INDOXACARB	245	OZ
8S15E1	70	9/12/05	DU PONT AVAUNT INSECTICIDE	INDOXACARB	245	OZ
8S15E4	65	9/21/05			1.52	GA
8S15E4	65	9/21/05			1.52	GA
8S15E5	74.5	9/8/05	DU PONT ASANA XL INSECTICIDE	ESFENVALERATE	5	GA
8S15E5	74.5	9/8/05	ACROBAT 50 WP FUNGICIDE	DIMETHOMORPH	29.8	LBS
8S15E5	38	9/8/05	ACROBAT 50 WP FUNGICIDE	DIMETHOMORPH	15.2	LBS
8S15E5	74.5	9/8/05	ACROBAT 50 WP FUNGICIDE	DIMETHOMORPH	29.8	LBS
8S15E5	74.5	9/8/05	ECHO 720 AGRICULTURAL FUNGICIDE	CHLOROTHALONIL	18.25	GA
8S15E5	74.5	9/8/05	DU PONT ASANA XL INSECTICIDE	ESFENVALERATE	5	GA
8S15E5	38	9/8/05	ECHO 720 AGRICULTURAL FUNGICIDE	CHLOROTHALONIL	9.31	GA
8S15E5	74.5	9/8/05	ECHO 720 AGRICULTURAL FUNGICIDE	CHLOROTHALONIL	18.25	GA
8S15E5	38	9/8/05	MONITOR 4 LIQUID INSECTICIDE	METHAMIDOPHOS	7.5	GA
8S15E5	38	9/8/05	DU PONT AVAUNT INSECTICIDE	INDOXACARB	131.86	OZ
8S15E5	38	9/8/05	MONITOR 4 LIQUID INSECTICIDE	METHAMIDOPHOS	7.5	GA
8S15E5	74.5	9/8/05	DU PONT AVAUNT INSECTICIDE	INDOXACARB	258.52	OZ
8S15E5	58	9/20/05	WILBUR-ELLIS DUSTING SULFUR	SULFUR	1740	LBS

TRS	treated acres	aplication date	Product name	Chemical name	amount used	unit
8S15E5	38	9/8/05	DU PONT AVAUNT INSECTICIDE	INDOXACARB	131.86	OZ
8S15E5	74.5	9/8/05	DU PONT AVAUNT INSECTICIDE	INDOXACARB	258.52	OZ
8S15E5	38	9/8/05	ECHO 720 AGRICULTURAL FUNGICIDE	CHLOROTHALONIL	9.31	GA
8S15E5	58	9/20/05	WILBUR-ELLIS DUSTING SULFUR	SULFUR	1740	LBS
8S15E5	38	9/8/05	ACROBAT 50 WP FUNGICIDE	DIMETHOMORPH	15.2	LBS
8S15E8	14	9/7/05	KELTHANE MF AGRICULTURAL MITICIDE	DICOFOL	2.49	GA
8S15E8	14	9/7/05	KELTHANE MF AGRICULTURAL MITICIDE	DICOFOL	2.49	GA
8S15E8	14	9/7/05	DU PONT AVAUNT INSECTICIDE	INDOXACARB	49	OZ
8S15E8	14	9/7/05	DU PONT AVAUNT INSECTICIDE	INDOXACARB	49	OZ
8S16E20	25	9/13/05	RALLY 40 WSP	MYCLOBUTANIL	6.25	LBS
8S16E20	25	9/13/05	RALLY 40 WSP	MYCLOBUTANIL	6.25	LBS
8S16E20	25	9/13/05	DU PONT AVAUNT INSECTICIDE	INDOXACARB	5.47	LBS
8S16E20	25	9/13/05	DU PONT AVAUNT INSECTICIDE	INDOXACARB	5.47	LBS

Figure 15. Duck Slough @ Gurr Rd pesticide applications. Applications are for the two weeks prior to the September sampling event.



Highline Canal @ Hwy 99 – Sediment toxicity detected during the 9/21/05 sample event

Survival of *Hyalella* was reported as 83.4% which was significantly different from the controls. There was no reported pesticide use in this subwatershed 2 weeks prior to the sampling event.

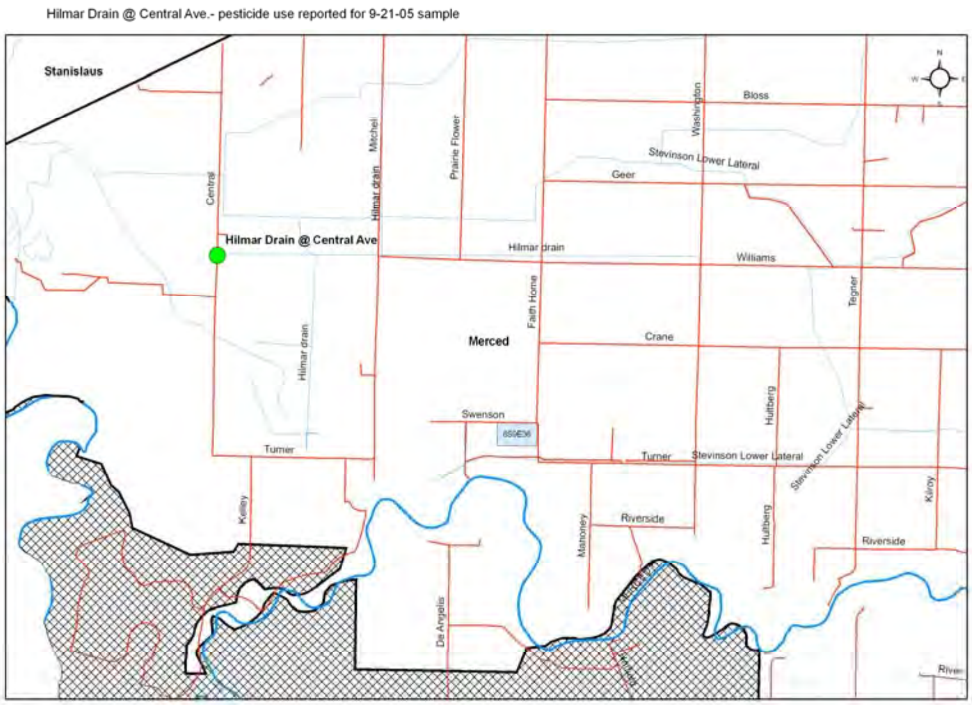
Hilmar Drain @ Central Ave - Sediment toxicity detected during the 9/21/05 sample event

Survival of *Hyalella* was reported as 31.2% which was significantly different from the controls. In the Dry Creek @ Hilmar Drain @ Central Ave (Figure 16) there were only 3 chemical applications in the two weeks prior to sampling (Table 19). Although three applications of Chlorpyrifos were made 2 weeks prior to sampling, there was no detection of chlorpyrifos in the water column during sampling.

Table 19. Pesticide applications in the Hilmar Drain @ Central Ave subwatershed during the 2 weeks prior to September sampling.

TRS	treated acres	application date	Product name	Chemical name	amount used	unit
6S9E36	34.1	9/8/05	NUFOS 4E	CHLORPYRIFOS	8.53	GA
6S9E36	23.5	9/8/05	NUFOS 4E	CHLORPYRIFOS	5.88	GA
6S9E36	28.8	9/8/05	NUFOS 4E	CHLORPYRIFOS	7.2	GA

Figure 16. Hilmar Drain @ Central Ave pesticide applications. Applications are for the two weeks prior to the September sampling event.



Prairie Flower Drain @ Crows Landing - Sediment toxicity detected during the 9/21/05 sample event

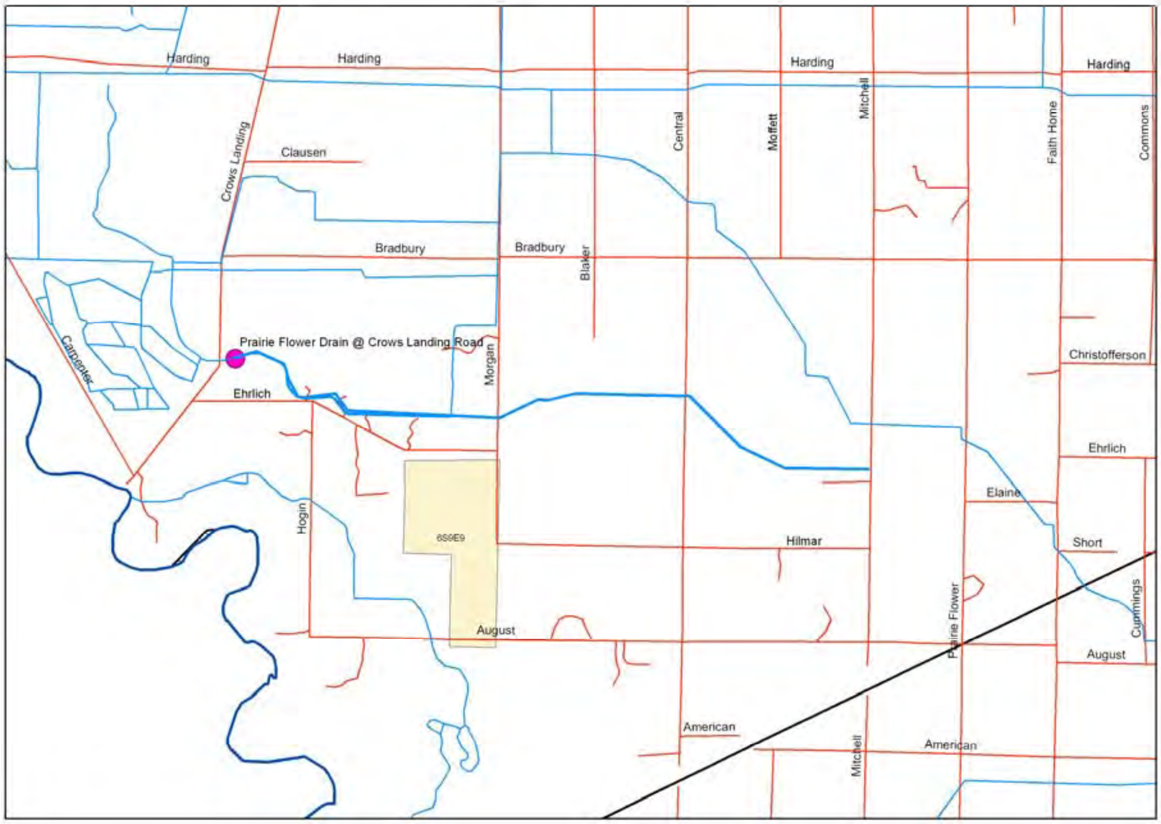
Survival of *Hyalella* was reported as 83.2% which was significantly different from the controls. In the Prairie Flower Drain @ Crows Landing (Figure 17) there was only one chemical application in the two weeks prior to sampling (Table 20).

Table 20. Pesticide applications in the Hilmar Drain @ Central Ave subwatershed during the 2 weeks prior to September sampling.

Product name	chemical	TRS	QUANTITY	UNITS	Treated acres
ECHO 720 AGRICULTURAL FUNGICIDE	CHLOROTHALONIL	6S9E9	57	GA	153

Figure 17. Hilmar Drain @ Central Ave pesticide applications. Applications are for the two weeks prior to the September sampling event.

Prairie Flower Drain @ Crows Landing Rd . - pesticide use reported for 9-21-05 sample.



Water Column Toxicity for 2005

Ceriodaphnia dubia toxicity

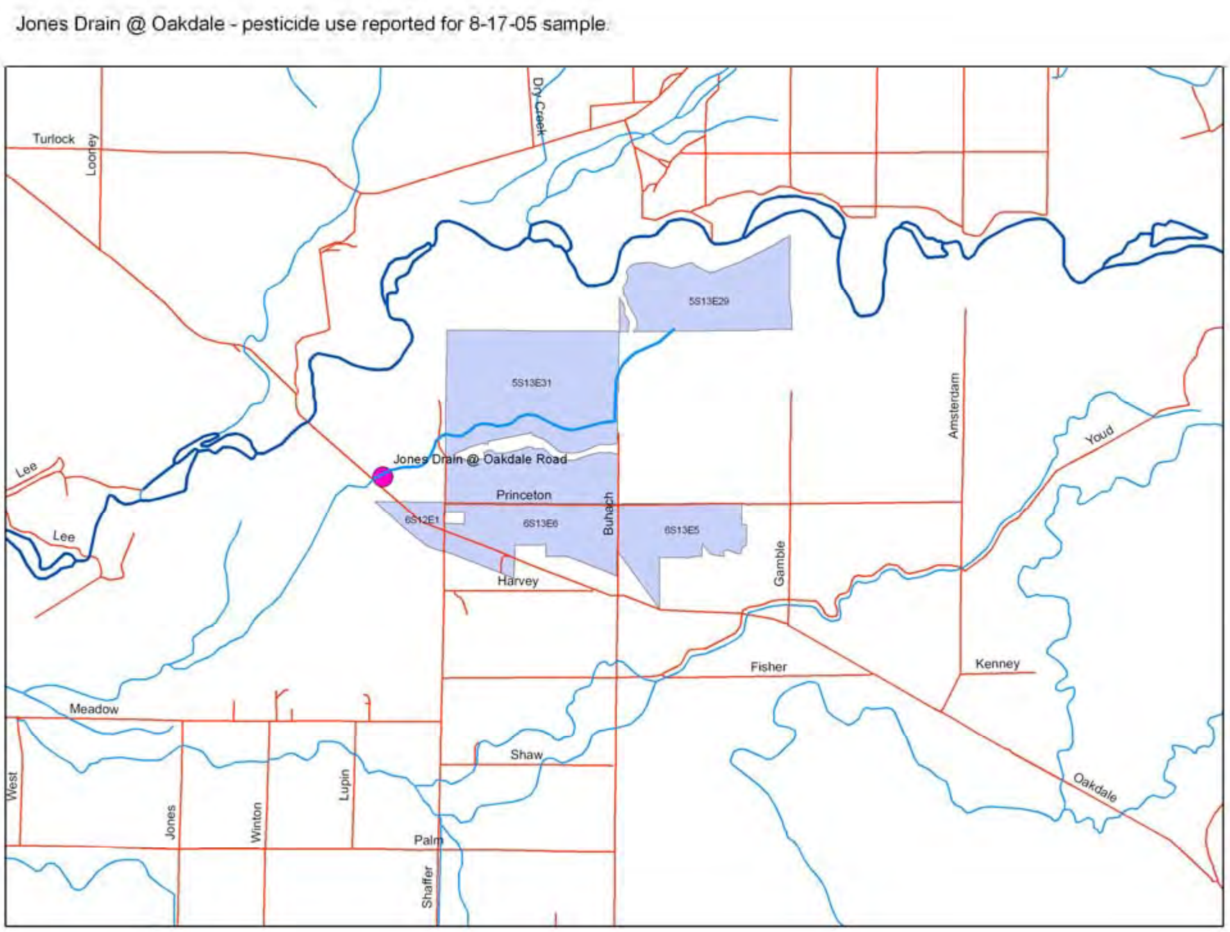
Jones Drain @ Oakdale Rd – Ceriodaphnia toxicity reported during the 8/17/05 sample

Survival of 25% was reported for *Ceriodaphnia* for samples collected at the Jones Drain @ Oakdale Rd in August. This survival was considered statistically significantly different from the controls and the sample was considered toxic. Pesticide use reports for the two weeks prior to the August sample are presented in Table 21 and Figure 18.

Table 21. Pesticide applications in the Jones Drain @ Oakdale subwatershed during the 2 weeks prior to August sampling.

EPA name	Chemical AI	Quantity	Units	Treated acres	TRS
BANVEL	DICAMBA, DIMETHYLAMINE SALT	2.5	GA	40	6S12E1
OBERON 2SC INSECTICIDE/MITICIDE	SPIROMESIFEN	2.5	GA	40	6S12E1
INTREPID 2F	METHOXYFENOZIDE	2.61	GA	27.8	6S13E6
GRAMOXONE MAX	PARAQUAT DICHLORIDE	4	GA	13	6S13E5
ACRAMITE 50WS	BIFENAZATE	13.9	LBS	27.8	6S13E6
PENETRATOR	PETROLEUM OIL, PARAFFIN BASED	21.75	GA	87	6S13E5
PENETRATOR	PETROLEUM OIL, PARAFFIN BASED	41.18	GA	164.7	6S13E6
NEXTER MITICIDE/INSECTITIDE	PYRIDABEN	60	OZ	6	5S13E31
OMITE-6E	PROPARGITE	90	PT	45	6S12E1
ELEVATE 50 WDG FUNGICIDE	FENHEXAMID	116.2	LBS	116.2	5S13E29
OMNI SUPREME SPRAY	PETROLEUM OIL, UNCLASSIFIED	348	GA	87	6S13E5
OMNI SUPREME SPRAY	PETROLEUM OIL, UNCLASSIFIED	658.8	GA	164.7	6S13E6

Figure 18. Jones Drain @ Oakdale pesticide applications. Applications are for the two weeks prior to the August sampling event.



Exceedances for 2006 sampling

Table 22. ESJWQC - Results of E. coli Analysis Total Dissolved Solids (TDS).

Site	Season	Sampling Date	*E. coli* WQO 235 MPN/100 ml	TDS WQO >450 mg/L
Ash Slough @ Avenue 21	Storm1	2/28/2006	500	
Bear Creek @ Kibby Rd	Storm2	3/15/2006	1600	
Cottonwood Creek @ Road 20	Storm1	2/28/2006	300	
Cottonwood Creek @ Road 20	Storm2	3/15/2006	>1600	
Dry Ceek @ Wellsford Rd	Storm1	3/1/2006	300	
Dry Ceek @ Wellsford Rd	Storm2	3/16/2006	1600	
Duck Slough @ Gurr Rd	Storm2	3/15/2006	300	
Duck Slough @ Pioneer Rd	Storm2	3/15/2006	900	
Highline Canal @ Hwy 99	Storm2	3/16/2006	300	
Highline Canal @ Lombardy Rd	Storm2	3/16/2006	900	
Hilmar Drain @ Central Ave	Storm1	3/1/2006		670
Hilmar Drain @ Central Ave	Storm2	3/16/2006		710
Jones Drain @ Oakdale Rd	Storm1	3/1/2006	900	
Merced River @ Santa Fe	Storm1	3/1/2006	>1600	
Prairie Flower Drain @ Crows Landing Rd	Storm1	3/1/2006	900	1600
Prairie Flower Drain @ Crows Landing Rd	Storm2	3/16/2006	300	1600

Table 23. ESJWQC – Field Parameter Measurements

Site	Season	Sampling Date	DO WQO < 5.0 mg/L	pH WQO 6.5-8.5 -log [H+]	EC WQO < 700 (µmhos/cm)
Hilmar Drain @ Central Ave	Storm1	3/1/2006		9.55	1058
Hilmar Drain @ Central Ave	Storm2	3/16/2006			1215
Hilmar Drain @ Central Ave	Storm2 RS	3/24/2006			2782
Prairie Flower Drain @ Crows Landing Rd	Storm1	3/1/2006			2419
Prairie Flower Drain @ Crows Landing Rd	Storm2	3/16/2006		8.77	2728
Prairie Flower Drain @ Crows Landing Rd	Storm2 RS	3/24/2006			1400

RS – resample event

Table 24. Results of Toxicity Evaluations.

Site	**Season**	**Sampling Date**	***Ceriodaphnia* *% of Control***	***Pimephales* *% of Control***	***Selenastrum* *% of Control***	***Hyalella* *% of Control***
Ash Slough @ Avenue 21	Storm1	2/28/2006			67	
Cottonwood Creek @ Road 20	Storm1	2/28/2006	63			
Duck Slough @ Gurr Rd	Storm1	2/28/2006	37			
Duck Slough @ Gurr Rd	Storm1 RS	3/10/2006	35	35		
Duck Slough @ Gurr Rd	Storm2	3/15/2006	52			
Highline Canal @ Highway 99	Storm1	3/1/2006			8	
Highline Canal @ Hwy 99	Storm2	3/16/2006	0			
Highline Canal @ Lombardy Rd	Storm2	3/16/2006			30	
Hilmar Drain @ Central Ave	Storm2	3/16/2006	5			
Merced River @ Santa Fe	Storm2	3/16/2006	35			
Prairie Flower Drain @ Crows Landing Rd	Storm2	3/16/2006	75			

RS – resample event

Table 25. Water Chemistry Exceedances.

Site	Season	Sampling Date	Chlorpyrifos WQO 0.02 µg/L	Diazinon WQO 0.08 µg/L
Ash Slough @ Avenue 21	Storm2	3/15/2006	0.029	
Highline Canal @ Highway 99	Storm1	3/1/2006	0.021	
Highline Canal @ Lombardy Rd	Storm1	3/1/2006	0.027	

Pesticide Exceedances in Water Column for 2006

Ash Slough @ Ave. 21 - Chlorpyrifos exceedances during the storm 2 (3/16/06) sample.

Chlorpyrifos was reported at 0.029 µg/L which is above the WQO of 0.02 µg/L. Pesticude use Reports for Madera was not available at the time of preparation for this report.

Highline Canal @ Hwy 99 – Chlorpyrifos exceedances during the storm 1 (3/01/06) sample.

Chlorpyrifos was reported at 0.021 µg/L which is above the WQO of 0.02 µg/L. Pesticide use data shows that the only reported Chlorpyrifos applications were in mid-Junuary (Table 26, Figure 19). Data for Stanislaus was not available at the time of preparation for this report and the contribution of runoff from lands in Stanislaus into the subwatershed cannot be assessed.

Table 26. Chlorpyrifos use for Highline Canal @ Hwy 99 subwatershed – storm 1.

TRS	Commodity	Application date	Application method	Treated acres	EPA name	Chemical name	Quantity	Units
5S11E25	ALMOND	01/11/06	G	39	LORSBAN 4E-HF	CHLORPYRIFOS	20	GA
6S11E15	ALMOND	01/13/06	G	45	LORSBAN 4E-HF	CHLORPYRIFOS	15	GA

Highline Canal @ Lombardy Ave. – Chlorpyrifos exceedances during storm 1 (3/1/06) sample

Chlorpyrifos was reported at 0.027 µg/L which is above the WQO of 0.02 µg/L. Pesticide use reports show that the only application in the subwatershed was in mid-January (Table 27, Figure 20). Data for Stanislaus was not available at the time of preparation for this report and the contribution of runoff from lands in Stanislaus into the subwatershed cannot be assessed.

Table 27. Chlorpyrifos use for Highline Canal @ Lombardy subwatershed – storm 1.

TRS	Commodity	Application date	Application method	Teated acres	EPA name	Chemical name	Quantity	Units
5S11E25	ALMOND	1/11/06	G	39	LORSBAN 4E-HF	CHLORPYRIFOS	20	GA

Figure 19. Location of Chlorpyrifos use for Highline Canal @ Hwy 99 subwatershed – storm 1.

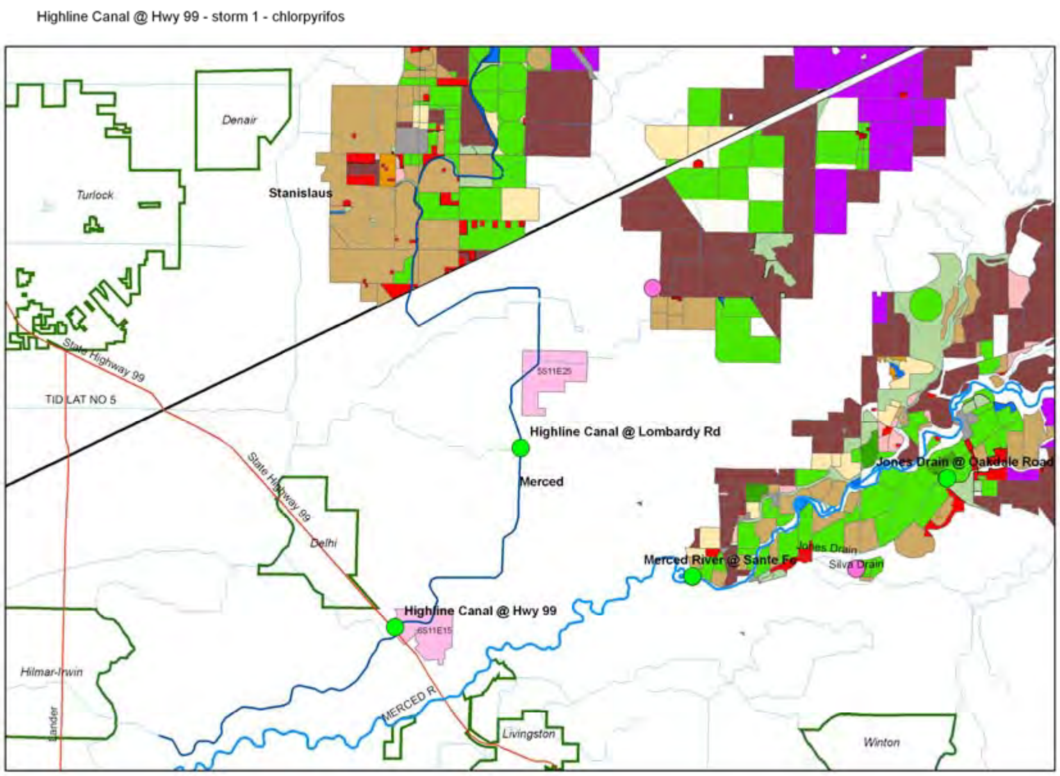
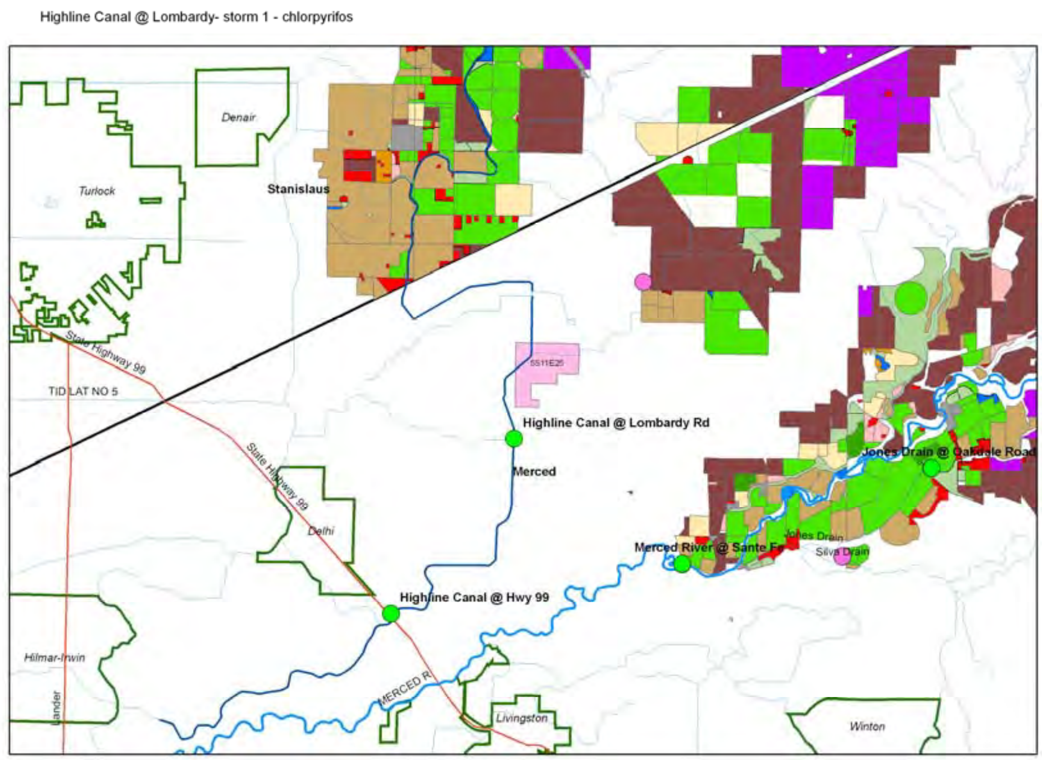


Figure 20. Location of Chlorpyrifos use for Highline Canal @ Lombardy subwatershed – storm 1.



Sediment Toxicity Exceedances 2006

Toxicity exceedances were treated differently than water chemistry exceedances. For water chemistry exceedances, we were able to search for one or two chemicals that were detected in the water. Given that there were a large number of chemicals applied and the ESJWQC did not analyze samples for these chemicals, we treated any chemical applied in the watershed as a potential source of the toxicity. We then analyzed these chemicals by K_{oc} to determine which of the chemicals could be responsible for the toxicity. In dealing with sources of sediment toxicity, we narrowed the list of chemicals down to those that could be responsible for the toxicity if their K_{oc} value was above 1800 (100 below the DPR standard). We restrict our interpretation of sediment toxicity to a significant decrease in survival of the treatment compared to the control as is currently recognized in the August 15, 2005 version of the MRP.

Hyalella toxicity

Sediment samples were not taken until late April due to high waters. No results were available at the time of the preparation of this report.

Water Column Toxicity for 2006

Selenastrum capricornutum

Ash Slough @ Ave. 21 - Toxicity from storm 1 (2/28/06) sample

Survival of 67% was reported for *Selenastruma* for samples collected at the Ash Slough @ Ave. 21 subwatershed during the storm 1 sampling. This survival was considered statistically significantly different from the controls and the sample was considered toxic. Pesticdie use Reports were not available for Madera at the time of preparation of this report.

Highline Canal @ Hwy 99 – Toxicity from storm 1 (3/1/06) sample.

Survival of 8% was reported for *Selenastruma* for samples collected at the Highline Canal @ Hwy 99 subwatershed during the storm 1 sampling. This survival was considered statistically significantly different from the controls and the sample was considered toxic. Pesticide use reports collected up to 2 weeks before the sampling showed close to 150 applications of various pesticides (Table 28, Figure 21). Data for Stanislaus was not available at the time of preparation for this report and the contribution of runoff from lands in Stanislaus into the subwatershed cannot be assessed.

Table 28. Pesticide applications in the Highline Canal @ Hwy 99 subwatershed during the 2 weeks prior to March sampling.

TRS	commodity	application date	application method	treated acres	EPA name	Chemical name	quantity used	units used
5S11E22	ALMOND	02/28/06	G	45	ABOUND FLOWABLE FUNGICIDE	AZOXYSTROBIN	36.0	LBS
5S11E23	ALMOND	02/19/06	G	14	SCALA BRAND SC FUNGICIDE	PYRIMETHANIL	1	GA
5S11E23	ALMOND	02/19/06	G	14	SCALA BRAND SC FUNGICIDE	PYRIMETHANIL	0.0	GA
5S11E23	ALMOND	02/22/06	G	80	GRAMOXONE MAX	PARAQUAT DICHLORIDE	27.0	GA
5S11E23	ALMOND	02/24/06	G	10	ROUNDUP ORIGINAL MAX HERBICIDE	GLYPHOSATE, POTASSIUM SALT	2.5	GA
5S11E23	ALMOND	02/24/06	G	100	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	80.0	LBS
5S11E27	ALMOND	02/15/06	G	10	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	6.3	LBS
5S11E27	ALMOND	02/19/06	G	23	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	8.9	LBS

TRS	commodity	application date	application method	treated acres	EPA name	Chemical name	quantity used	units used
5S11E27	ALMOND	02/22/06	G	5	SCALA BRAND SC FUNGICIDE	PYRIMETHANIL	50	GA
5S11E27	ALMOND	02/22/06	G	9	DIMILIN 2L	DIFLUBENZURON	0.2	GA
5S11E27	ALMOND	02/24/06	G	10	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	6.3	LBS
5S11E27	ALMOND	02/24/06	G	20	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	12.5	LBS
5S11E27	ALMOND	02/24/06	G	39	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	24.4	LBS
5S11E27	ALMOND	02/24/06	G	10	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	6.3	LBS
5S11E27	ALMOND	02/25/06	G	25	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	15.6	LBS
5S11E27	ALMOND	02/26/06	G	10	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	3.9	LBS
5S11E27	ALMOND	02/28/06	G	10	PHOSTOXIN NEW COATED TABLETS	ALUMINUM PHOSPHIDE	120000	LBS
5S11E27	ALMOND	03/01/06	G	5	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	3.1	LBS
5S11E28	ALMOND	02/23/06	G	40	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	35.15	LBS
5S11E28	ALMOND	02/23/06	G	35	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	21.9	LBS
5S11E28	ALMOND	02/23/06	G	10	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	6.2	LBS
5S11E28	PEACH	02/27/06	G	13	THIOLUX JET	SULFUR	130	LBS
5S11E28	PEACH	02/27/06	G	13	VANGARD WG	CYPRODINIL	4.1	LBS
5S11E28	PEACH	02/27/06	G	13	BASIC COPPER 53	COPPER SULFATE (BASIC)	65	LBS
5S11E35	ALMOND	02/15/06	G	50	KOCIDE 101	COPPER HYDROXIDE	100	LBS
5S11E35	ALMOND	02/15/06	G	50	ROVRAL BRAND 4 FLOWABLE FUNGICIDE	IPRODIONE	6.3	GA
5S11E35	ALMOND	02/16/06	G	16	ROVRAL BRAND 4 FLOWABLE FUNGICIDE	IPRODIONE	2.5	GA
5S11E35	ALMOND	02/23/06	G	24.95	BASIC COPPER 53	COPPER SULFATE (BASIC)	124.8	LBS
5S11E35	ALMOND	02/23/06	G	24.95	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	15.6	LBS
5S11E35	ALMOND	02/25/06	G	12	AUXIGRO WP WETTABLE POWDER	GAMMA AMINOBUTYRIC ACID	3.0	LBS
5S11E35	ALMOND	02/25/06	G	12	AUXIGRO WP WETTABLE POWDER	GLUTAMIC ACID	3.0	LBS
5S11E35	ALMOND	02/25/06	G	12	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	7.5	LBS
5S11E35	ALMOND	02/28/06	G	24.95	BASIC COPPER 53	COPPER SULFATE (BASIC)	124.8	LBS
5S11E35	ALMOND	02/28/06	G	24.95	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	15.6	LBS
5S11E36	ALMOND	02/15/06	G	32	KOCIDE 101	COPPER HYDROXIDE	64	LBS
5S11E36	ALMOND	02/15/06	G	24	KOCIDE 101	COPPER HYDROXIDE	48	LBS
5S11E36	ALMOND	02/15/06	G	51	KOCIDE 101	COPPER HYDROXIDE	102	LBS

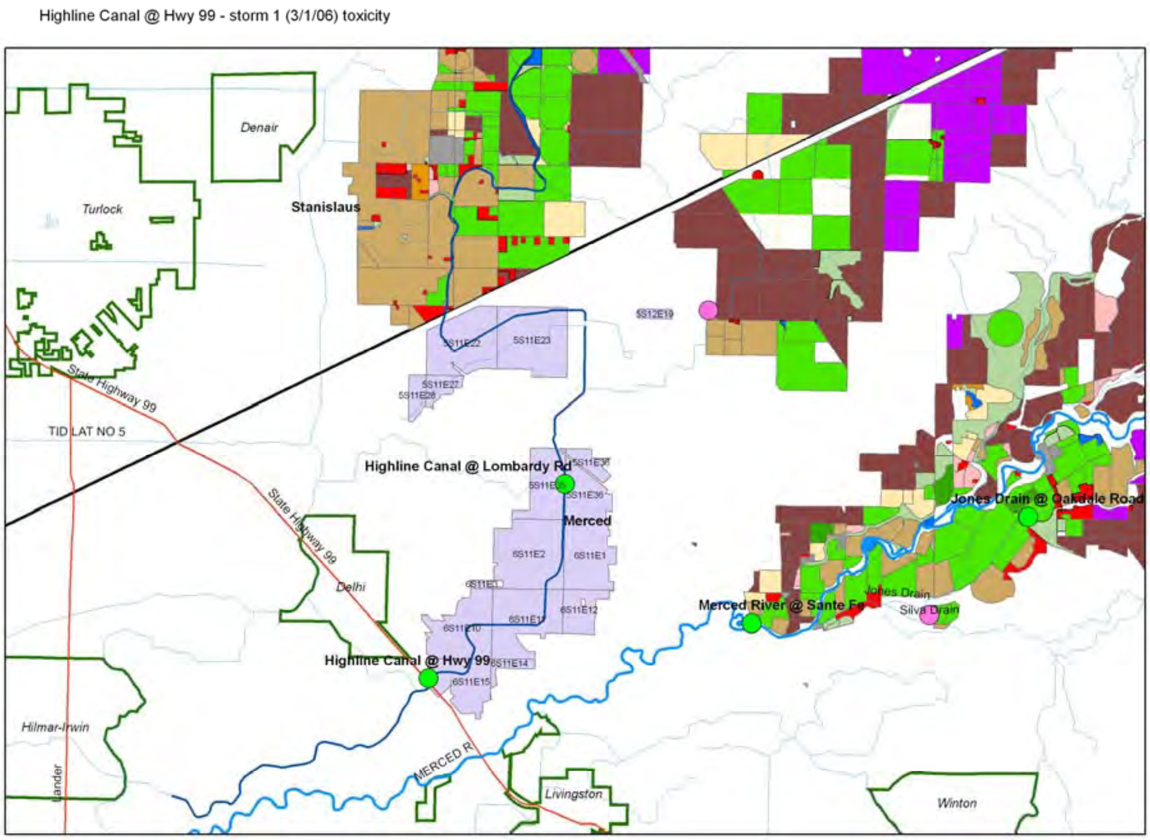
TRS	commodity	application date	application method	treated acres	EPA name	Chemical name	quantity used	units used
5S11E36	ALMOND	02/15/06	G	51	ROVRAL BRAND 4 FLOWABLE FUNGICIDE	IPRODIONE	6.4	GA
5S11E36	ALMOND	02/15/06	G	24	ROVRAL BRAND 4 FLOWABLE FUNGICIDE	IPRODIONE	3.0	GA
5S11E36	ALMOND	02/15/06	G	32	ROVRAL BRAND 4 FLOWABLE FUNGICIDE	IPRODIONE	4.0	GA
5S11E36	ALMOND	02/15/06	G	51	DIMILIN 2L	DIFLUBENZURON	5.1	GA
5S11E36	ALMOND	02/15/06	G	24	DIMILIN 2L	DIFLUBENZURON	2.4	GA
5S11E36	ALMOND	02/18/06	G	46	VANGARD WG	CYPRODINIL	14.4	LBS
5S11E36	ALMOND	02/23/06	G	17.52	BASIC COPPER 53	COPPER SULFATE (BASIC)	87.6	LBS
5S11E36	ALMOND	02/23/06	G	17.52	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	11	LBS
5S11E36	PEACH	02/24/06	G	4.22	THIOLUX JET	SULFUR	42.2	LBS
5S11E36	PEACH	02/24/06	G	4.22	VANGARD WG	CYPRODINIL	1.3	LBS
5S11E36	PEACH	02/24/06	G	4.22	BASIC COPPER 53	COPPER SULFATE (BASIC)	21.1	LBS
5S11E36	PEACH	02/27/06	G	6.95	THIOLUX JET	SULFUR	69.5	LBS
5S11E36	PEACH	02/27/06	G	8	THIOLUX JET	SULFUR	80	LBS
5S11E36	PEACH	02/27/06	G	6.62	THIOLUX JET	SULFUR	66.2	LBS
5S11E36	PEACH	02/27/06	G	1.42	THIOLUX JET	SULFUR	14.2	LBS
5S11E36	PEACH	02/27/06	G	1.42	VANGARD WG	CYPRODINIL	0.4	LBS
5S11E36	PEACH	02/27/06	G	6.95	VANGARD WG	CYPRODINIL	2.2	LBS
5S11E36	PEACH	02/27/06	G	6.62	VANGARD WG	CYPRODINIL	2.1	LBS
5S11E36	PEACH	02/27/06	G	8	VANGARD WG	CYPRODINIL	2.5	LBS
5S11E36	PEACH	02/27/06	G	8	BASIC COPPER 53	COPPER SULFATE (BASIC)	40	LBS
5S11E36	PEACH	02/27/06	G	6.95	BASIC COPPER 53	COPPER SULFATE (BASIC)	34.75	LBS
5S11E36	PEACH	02/27/06	G	6.62	BASIC COPPER 53	COPPER SULFATE (BASIC)	33.1	LBS
5S11E36	PEACH	02/27/06	G	1.42	BASIC COPPER 53	COPPER SULFATE (BASIC)	7.1	LBS
5S11E36	ALMOND	02/28/06	G	17.52	BASIC COPPER 53	COPPER SULFATE (BASIC)	87.6	LBS
5S11E36	ALMOND	02/28/06	G	17.52	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	11	LBS
5S12E19	CORN FOR/FOD	02/24/06	G	200	SHARK HERBICIDE	CARFENTRAZONE-ETHYL	1.0	GA
5S12E19	CORN FOR/FOD	02/24/06	G	200	CLARITY HERBICIDE	DIGLYCOLAMINE SALT OF 3,6-DICHLORO-O-ANISIC ACID	4.44	GA
6S11E1	ALMOND	02/15/06	G	70	KOCIDE 101	COPPER HYDROXIDE	140	LBS
6S11E1	ALMOND	02/15/06	G	70	ROVRAL BRAND 4	IPRODIONE	8.8	GA

TRS	commodity	application date	application method	treated acres	EPA name	Chemical name	quantity used	units used
					FLOWABLE FUNGICIDE			
6S11E1	ALMOND	02/15/06	G	8	GLY STAR PLUS	GLYPHOSATE, ISOPROPYLAMINE SALT	2.25	GA
6S11E1	ALMOND	02/15/06	G	10	GLY STAR PLUS	GLYPHOSATE, ISOPROPYLAMINE SALT	5	GA
6S11E1	ALMOND	02/16/06	G	40	VANGARD WG	CYPRODINIL	1.3	LBS
6S11E1	ALMOND	02/16/06	G	40	KOCIDE DF	COPPER HYDROXIDE	80	LBS
6S11E1	ALMOND	02/17/06	G	5	CAPTAN 50 WETTABLE POWDER	CAPTAN	30	LBS
6S11E1	ALMOND	02/17/06	G	10	CAPTAN 50 WETTABLE POWDER	CAPTAN	60	LBS
6S11E1	ALMOND	02/17/06	G	5	AUXIGRO WP WETTABLE POWDER	GAMMA AMINOBUTYRIC ACID	1.3	LBS
6S11E1	ALMOND	02/17/06	G	10	AUXIGRO WP WETTABLE POWDER	GAMMA AMINOBUTYRIC ACID	2.5	LBS
6S11E1	ALMOND	02/17/06	G	10	AUXIGRO WP WETTABLE POWDER	GLUTAMIC ACID	2.5	LBS
6S11E1	ALMOND	02/17/06	G	5	AUXIGRO WP WETTABLE POWDER	GLUTAMIC ACID	1.3	LBS
6S11E1	ALMOND	02/18/06	G	4.56	BASIC COPPER 53	COPPER SULFATE (BASIC)	22.8	LBS
6S11E1	ALMOND	02/18/06	G	4.56	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	2.9	LBS
6S11E1	ALMOND	02/21/06	G	34	VANGARD WG	CYPRODINIL	10.6	LBS
6S11E1	ALMOND	02/22/06	G	34	VANGARD WG	CYPRODINIL	10.6	LBS
6S11E1	PEACH	02/22/06	G	10	ELITE 45 WP FOLIAR FUNGICIDE IN WATER SO	Tebuconazole	4.0	LBS
6S11E1	ALMOND	02/23/06	G	4.56	BASIC COPPER 53	COPPER SULFATE (BASIC)	22.8	LBS
6S11E1	ALMOND	02/23/06	G	4.56	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	2.9	LBS
6S11E1	ALMOND	02/23/06	G	20	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	12.5	LBS
6S11E1	ALMOND	02/25/06	G	20	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	12.5	LBS
6S11E1	ALMOND	02/26/06	G	8	VANGARD WG	CYPRODINIL	2.5	LBS
6S11E1	ALMOND	02/26/06	G	8	AUXIGRO WP WETTABLE POWDER	GAMMA AMINOBUTYRIC ACID	2.0	LBS
6S11E1	ALMOND	02/26/06	G	8	AUXIGRO WP WETTABLE POWDER	GLUTAMIC ACID	2.0	LBS
6S11E1	ALMOND	03/01/06	G	15	AUXIGRO WP WETTABLE POWDER	GAMMA AMINOBUTYRIC ACID	3.8	LBS
6S11E1	ALMOND	03/01/06	G	15	AUXIGRO WP WETTABLE POWDER	GLUTAMIC ACID	3.8	LBS
6S11E1	ALMOND	03/01/06	G	15	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	12.2	LBS

TRS	commodity	application date	application method	treated acres	EPA name	Chemical name	quantity used	units used
6S11E10	ALMOND	02/17/06	G	15	KOCIDE 101	COPPER HYDROXIDE	1	LBS
6S11E10	ALMOND	02/17/06	G	0.5	ROVRAL 4 FLOWABLE	IPRODIONE	0.1	GA
6S11E10	ALMOND	02/24/06	G	15	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	10.3	LBS
6S11E10	ALMOND	03/01/06	G	15	KOCIDE 101	COPPER HYDROXIDE	1	LBS
6S11E10	ALMOND	03/01/06	G	15	ROVRAL 4 FLOWABLE	IPRODIONE	0.1	GA
6S11E11	ALMOND	02/15/06	G	25	KOCIDE 101	COPPER HYDROXIDE	50	LBS
6S11E11	ALMOND	02/15/06	G	25	ROVRAL BRAND 4 FLOWABLE FUNGICIDE	IPRODIONE	3.1	GA
6S11E11	ALMOND	02/15/06	G	25	DIMILIN 2L	DIFLUBENZURON	2.5	GA
6S11E11	ALMOND	02/23/06	G	40	ROVRAL BRAND 4 FLOWABLE FUNGICIDE	IPRODIONE	5.0	GA
6S11E11	ALMOND	02/25/06	G	145	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	90.6	LBS
6S11E11	ALMOND	02/28/06	G	180	PHOSTOXIN NEW COATED TABLETS	ALUMINUM PHOSPHIDE	2000	LBS
6S11E12	ALMOND	02/22/06	G	20	ROVRAL BRAND 4 FLOWABLE FUNGICIDE	IPRODIONE	2.5	GA
6S11E12	ALMOND	02/23/06	G	20	BREAK-THRU	DIMETHYLPOLYSILOXANE	0.3	GA
6S11E12	ALMOND	02/23/06	G	20	AUXIGRO WP WETTABLE POWDER	GAMMA AMINOBUTYRIC ACID	5	LBS
6S11E12	ALMOND	02/23/06	G	20	AUXIGRO WP WETTABLE POWDER	GLUTAMIC ACID	5	LBS
6S11E12	ALMOND	02/23/06	G	20	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	12.5	LBS
6S11E12	ALMOND	02/25/06	G	25	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	13.0	LBS
6S11E14	ALMOND	02/17/06	G	11.2	ROUNDUP ORIGINAL MAX HERBICIDE	GLYPHOSATE, POTASSIUM SALT	2.88	GA
6S11E14	ALMOND	02/17/06	G	11.2	CHATEAU HERBICIDE SW	FLUMIOXAZIN	2.07	LBS
6S11E14	ALMOND	02/28/06	G	28	ROVRAL 4 FLOWABLE	IPRODIONE	3.57	GA
6S11E14	ALMOND	02/28/06	G	18	ROVRAL BRAND 4 FLOWABLE FUNGICIDE	IPRODIONE	2.07	GA
6S11E15	ALMOND	02/18/06	G	23	VANGARD WG	CYPRODINIL	4.7	LBS
6S11E15	ALMOND	02/20/06	G	45	VANGARD WG	CYPRODINIL	15.6	LBS
6S11E15	ALMOND	02/28/06	G	45	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	30.0	LBS
6S11E2	ALMOND	02/15/06	G	33	KOCIDE 101	COPPER HYDROXIDE	66	LBS
6S11E2	ALMOND	02/15/06	G	33	ROVRAL BRAND 4 FLOWABLE FUNGICIDE	IPRODIONE	4.1	GA
6S11E2	ALMOND	02/15/06	G	20	ROVRAL BRAND 4 FLOWABLE FUNGICIDE	IPRODIONE	2.5	GA

TRS	commodity	application date	application method	treated acres	EPA name	Chemical name	quantity used	units used
6S11E2	ALMOND	02/18/06	G	5	VANGARD WG	CYPRODINIL	1.6	LBS
6S11E2	ALMOND	02/18/06	G	5	INTREPID 2F	METHOXYFENOZIDE	0.3	GA
6S11E2	ALMOND	02/21/06	G	15	VANGARD WG	CYPRODINIL	4.7	LBS
6S11E2	ALMOND	02/23/06	G	30	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	22.5	LBS
6S11E2	PEACH	02/24/06	G	1.84	THIOLUX JET	SULFUR	18.4	LBS
6S11E2	PEACH	02/24/06	G	1.84	VANGARD WG	CYPRODINIL	0.6	LBS
6S11E2	PEACH	02/24/06	G	1.84	BASIC COPPER 53	COPPER SULFATE (BASIC)	9.2	LBS
6S11E2	PEACH	02/26/06	G	3.31	THIOLUX JET	SULFUR	33.1	LBS
6S11E2	PEACH	02/26/06	G	6.09	THIOLUX JET	SULFUR	60.9	LBS
6S11E2	PEACH	02/26/06	G	6.09	VANGARD WG	CYPRODINIL	1.9	LBS
6S11E2	PEACH	02/26/06	G	3.31	VANGARD WG	CYPRODINIL	1.0	LBS
6S11E2	PEACH	02/26/06	G	3.31	BASIC COPPER 53	COPPER SULFATE (BASIC)	16.55	LBS
6S11E2	PEACH	02/26/06	G	6.09	BASIC COPPER 53	COPPER SULFATE (BASIC)	30.45	LBS
6S11E2	ALMOND	02/27/06	G	35	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	26.3	LBS
6S11E2	ALMOND	02/28/06	G	5	GLY STAR PLUS	GLYPHOSATE, ISOPROPYLAMINE SALT	1	GA
6S11E2	ALMOND	02/28/06	G	5	CHATEAU HERBICIDE SW	FLUMIOXAZIN	1	LBS
6S11E3	ALMOND	02/16/06	G	43	DREXEL CAPTAN 50W	CAPTAN	258	LBS
6S11E3	ALMOND	02/16/06	G	43	BASIC COPPER 53	COPPER SULFATE (BASIC)	215	LBS
6S11E3	ALMOND	02/16/06	G	43	TOPSIN M WSB	THIOPHANATE-METHYL	43	LBS
6S11E3	PEACH	02/24/06	G	2.15	THIOLUX JET	SULFUR	21.5	LBS
6S11E3	PEACH	02/24/06	G	2.15	VANGARD WG	CYPRODINIL	0.7	LBS
6S11E3	PEACH	02/24/06	G	2.15	BASIC COPPER 53	COPPER SULFATE (BASIC)	10.75	LBS
6S11E3	PEACH	02/25/06	G	1.78	THIOLUX JET	SULFUR	17.8	LBS
6S11E3	PEACH	02/25/06	G	1.78	VANGARD WG	CYPRODINIL	0.6	LBS
6S11E3	ALMOND	02/25/06	G	15	KOCIDE DF	COPPER HYDROXIDE	30	LBS
6S11E3	ALMOND	02/25/06	G	15	ROVRAL BRAND 4 FLOWABLE FUNGICIDE	IPRODIONE	0.3	GA
6S11E3	PEACH	02/25/06	G	1.78	BASIC COPPER 53	COPPER SULFATE (BASIC)	8.9	LBS

Figure 21. Map showing pesticide applications in the Highline Canal @ Hwy 99 subwatershed during the 2 weeks prior to March sampling.



Highline Canal @ Lombardy – Toxicity from storm 2 (3/16/06) sample.

Survival of 30% was reported for *Selenastrum* for samples collected at the Highline Canal @ Lombardy subwatershed during the storm 2 sampling. This survival was considered statistically significantly different from the controls and the sample was considered toxic. Pesticide use reports collected up to 2 weeks before the sampling showed close to 50 applications of various pesticides (Table 29, Figure 22). Data for Stanislaus were not available at the time of preparation for this report and the contribution of runoff from lands in Stanislaus into the subwatershed cannot be assessed.

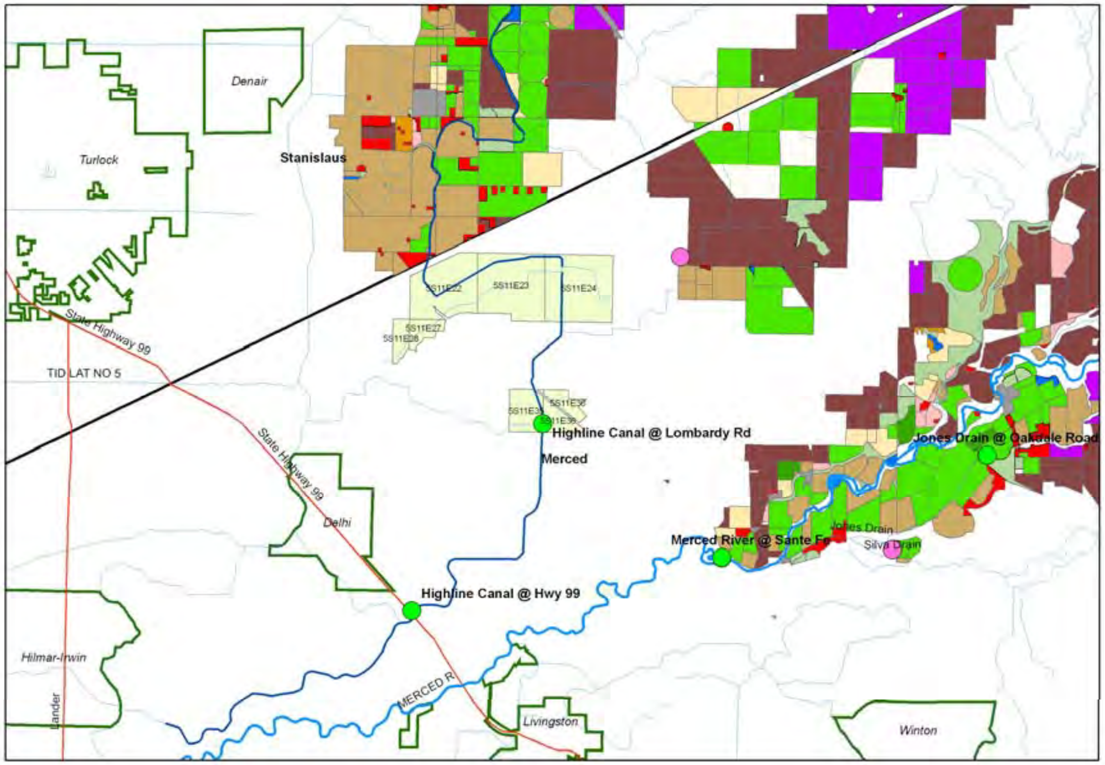
Table 29. Pesticide applications in the Highline Canal @ Lombardy subwatershed during the 2 weeks prior to March sampling.

TRS	commodity	application date	application method	treated acres	EPA name	Chemical name	quantity used	units
5S11E22	ALMOND	03/08/06	G	45	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	28.1	LBS
5S11E22	ALMOND	03/13/06	G	15	GLY STAR PLUS	GLYPHOSATE, ISOPROPYLAMINE SALT	3.8	GA
5S11E23	ALMOND	03/09/06	G	70	ABOUND FLOWABLE FUNGICIDE	AZOXYSTROBIN	7.0	GA
5S11E24	ALMOND	03/06/06	G	37	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	23.1	LBS
5S11E27	ALMOND	03/04/06	G	5	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	3.1	LBS
5S11E27	ALMOND	03/08/06	G	53	GASTOXIN FUMIGATION TABLETS	ALUMINUM PHOSPHIDE	9.9	LBS
5S11E27	ALMOND	03/13/06	G	5	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	3.1	LBS
5S11E27	ALMOND	03/15/06	G	27	GLY STAR PLUS	GLYPHOSATE, ISOPROPYLAMINE SALT	10.1	GA
5S11E27	WALNUT	03/15/06	G	2.5	GLY STAR PLUS	GLYPHOSATE, ISOPROPYLAMINE SALT	0.9	GA
5S11E27	ALMOND	03/15/06	G	10	BRAVO WEATHER STICK	CHLOROTHALONIL	5	GA
5S11E27	ALMOND	03/16/06	G	20	BRAVO WEATHER STICK	CHLOROTHALONIL	10	GA
5S11E27	ALMOND	03/16/06	G	10	BRAVO WEATHER STICK	CHLOROTHALONIL	5	GA
5S11E27	ALMOND	03/16/06	G	10	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	3.9	LBS
5S11E28	PEACH	03/09/06	G	10	THIOLUX JET	SULFUR	50	LBS
5S11E28	PEACH	03/09/06	G	10	ROVRAL BRAND 4 FLOWABLE FUNGICIDE	IPRODIONE	1.3	GA
5S11E28	ALMOND	03/15/06	G	40	ZIRAM 76DF FUNGICIDE	ZIRAM	320	LBS
5S11E28	ALMOND	03/15/06	G	40	TOPSIN M FUNGICIDE	THIOPHANATE-METHYL	40	LBS
5S11E28	ALMOND	03/15/06	G	35	BRAVO WEATHER STICK	CHLOROTHALONIL	17.5	GA

TRS	commodity	application date	application method	treated acres	EPA name	Chemical name	quantity used	units
5S11E35	ALMOND	03/04/06	G	30	AUXIGRO WP WETTABLE POWDER	GAMMA AMINOBUTYRIC ACID	7.5	LBS
5S11E35	ALMOND	03/04/06	G	30	AUXIGRO WP WETTABLE POWDER	GLUTAMIC ACID	7.5	LBS
5S11E35	ALMOND	03/04/06	G	30	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	18.8	LBS
5S11E36	ALMOND	03/07/06	G	11	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	6.9	LBS
5S11E36	ALMOND	03/08/06	G	46	BREAK-THRU	DIMETHYLPOLYSILOXANE	1.4	GA
5S11E36	ALMOND	03/08/06	G	46	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	30.19	LBS
5S11E36	ALMOND	03/08/06	G	19	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	11.9	LBS
5S11E36	PEACH	03/09/06	G	22	THIOLUX JET	SULFUR	110	LBS
5S11E36	PEACH	03/09/06	G	22	ROVRAL BRAND 4 FLOWABLE FUNGICIDE	IPRODIONE	2.8	GA
5S11E36	PEACH	03/11/06	G	13.24	CSC WETTABLE SULFUR	SULFUR	132.4	LBS
5S11E36	PEACH	03/11/06	G	13.9	CSC WETTABLE SULFUR	SULFUR	139	LBS
5S11E36	PEACH	03/11/06	G	13.24	SUCCESS	SPINOSAD	4.1	LBS
5S11E36	PEACH	03/11/06	G	13.9	SUCCESS	SPINOSAD	4.3	LBS
5S11E36	PEACH	03/11/06	G	13.9	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	9.1	LBS
5S11E36	PEACH	03/11/06	G	13.24	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	8.7	LBS
5S11E36	PEACH	03/14/06	G	22	KOLOSPRAY FUNGICIDE-INSECTICIDE	sulfur	440	LBS
5S11E36	PEACH	03/14/06	G	22	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	14.4	LBS

Figure 22. Map showing pesticide applications in the Highline Canal @ Lombardy subwatershed during the 2 weeks prior to March sampling.

Highline Canal @ Lombardy- storm 2 (3/16/06) toxicity



Ceriodaphnia dubia toxicity

Cottonwood Creek @ Rd 20 - Toxicity from storm 1 (2/28/06) sample.

Survival of 60% was reported for *Ceriodaphnia* for samples collected at the Cottonwood Creek @ Rd 20 subwatershed during the storm 1 sampling. This survival was considered statistically significantly different from the controls and the sample was considered toxic. Pesticide use data for Madera was not available at the time of preparation of this report.

Duck Slough @ Gurr Rd - Toxicity from storm 1 (2/28/06) sample.

Survival of 37% was reported for *Ceriodaphnia* for samples collected at the Duck Slough @ Gurr Rd subwatershed during the storm 1 sampling. This survival was considered statistically significantly different from the controls and the sample was considered toxic. Pesticide use reports collected up to 2 weeks before the sampling showed close to 200 applications of various pesticides (Table 30, Figure 23).

Table 30. Pesticide applications in the Duck Slough @ Gurr Rd subwatershed during the 2 weeks prior to the February sample sampling.

TRS	commodity	application date	application method	treated acres	EPA name	Chemical name	quantity used	units
8S13E14	OAT FOR/FOD	2/21/06	A	83	BANVEL	DICAMBA, DIMETHYLAMINE SALT	2.59	GA
8S13E14	OAT FOR/FOD	2/21/06	A	83	RIVERDALE MCPA-4 AMINE	MCPA, DIMETHYLAMINE SALT	7.78	GA
8S13E14	OAT FOR/FOD	2/21/06	A	83	SHARK HERBICIDE	CARFENTRAZONE-ETHYL	3.42	LBS
8S13E15	OAT FOR/FOD	2/21/06	A	40	BANVEL	DICAMBA, DIMETHYLAMINE SALT	1.25	GA
8S13E15	OAT FOR/FOD	2/21/06	A	50	BANVEL	DICAMBA, DIMETHYLAMINE SALT	1.56	GA
8S13E15	WHEAT	2/21/06	A	83	BANVEL	DICAMBA, DIMETHYLAMINE SALT	2.59	GA
8S13E15	OAT FOR/FOD	2/21/06	A	83	BANVEL	DICAMBA, DIMETHYLAMINE SALT	2.59	GA
8S13E15	OAT FOR/FOD	2/21/06	A	83	RIVERDALE MCPA-4 AMINE	MCPA, DIMETHYLAMINE SALT	7.78	GA

TRS	commodity	application date	application method	treated acres	EPA name	Chemical name	quantity used	units
8S13E15	WHEAT	2/21/06	A	83	RIVERDALE MCPA-4 AMINE	MCPA, DIMETHYLAMINE SALT	7.78	GA
8S13E15	OAT FOR/FOD	2/21/06	A	50	RIVERDALE MCPA-4 AMINE	MCPA, DIMETHYLAMINE SALT	4.69	GA
8S13E15	OAT FOR/FOD	2/21/06	A	40	RIVERDALE MCPA-4 AMINE	MCPA, DIMETHYLAMINE SALT	3.75	GA
8S13E15	OAT FOR/FOD	2/21/06	A	83	SHARK HERBICIDE	CARFENTRAZONE-ETHYL	3.42	LBS
8S13E15	OAT FOR/FOD	2/21/06	A	40	SHARK HERBICIDE	CARFENTRAZONE-ETHYL	1.65	LBS
8S13E15	OAT FOR/FOD	2/21/06	A	50	SHARK HERBICIDE	CARFENTRAZONE-ETHYL	2.06	LBS
8S13E15	WHEAT	2/21/06	A	83	SHARK HERBICIDE	CARFENTRAZONE-ETHYL	3.42	LBS
8S13E20	COTTON	2/24/06	G	96.2	GOAL 2XL	OXYFLUORFEN	3.8	GA
8S13E20	COTTON	2/24/06	G	96.2	NUFARM CREDIT SYSTEMIC HERBICIDE	GLYPHOSATE, ISOPROPYLAMINE SALT	24.1	GA
8S13E20	ALFALFA	2/26/06	A	58.4	TRILIN 10G HERBICIDE	TRIFLURALIN	1168	LBS
8S13E20	ALFALFA	2/26/06	G	78.7	TRILIN 10G HERBICIDE	TRIFLURALIN	1574	LBS
8S13E22	ALFALFA	2/26/06	A	90	TREFLAN TR-10	TRIFLURALIN	1800	LBS
8S13E23	OAT FOR/FOD	2/22/06	A	65	NUFARM RHOMENE MCPA BROADLEAF HERBICIDE	MCPA, DIMETHYLAMINE SALT	12.51	GA
8S13E23	ALFALFA	2/26/06	A	48	TREFLAN TR-10	TRIFLURALIN	960	LBS
8S13E27	COTTON	2/23/06	A	30	CAYUSE PLUS	AMMONIUM SULFATE	2.5	GA
8S13E27	COTTON	2/23/06	A	30	TENKOZ BUCCANEER PLUS HERBICIDE	GLYPHOSATE, ISOPROPYLAMINE SALT	7.51	GA
8S13E28	COTTON	2/23/06	A	63	GOAL 2XL HERBICIDE	OXYFLUORFEN	2.1	GA
8S13E28	COTTON	2/23/06	A	52	GOAL 2XL HERBICIDE	OXYFLUORFEN	1.73	GA
8S13E28	COTTON	2/23/06	A	63	NUFARM CREDIT SYSTEMIC HERBICIDE	GLYPHOSATE, ISOPROPYLAMINE SALT	15.75	GA
8S13E28	COTTON	2/23/06	A	52	NUFARM CREDIT SYSTEMIC HERBICIDE	GLYPHOSATE, ISOPROPYLAMINE SALT	13	GA
8S13E28	ALFALFA	2/26/06	A	77	TRILIN 10G HERBICIDE	TRIFLURALIN	1540	LBS
8S14E1	ALFALFA	2/14/06	G	10	BUTYRAC 200	4(2,4-DB), DIMETHYLAMINE SALT	2.5	GA
8S14E1	ALFALFA	2/14/06	G	10	PURSUIT HERBICIDE	IMAZETHAPYR, AMMONIUM SALT	0.47	GA
8S14E1	ALFALFA	2/14/06	G	10	PURSUIT HERBICIDE	IMAZETHAPYR, AMMONIUM SALT	0.0	GA
8S14E1	TOMATO FRESH	2/25/06	G	103	PRISM HERBICIDE	CLETHODIM	9.65	GA
8S14E1	TOMATO FRESH	2/25/06	G	103	ROUNDUP ULTRAMAX HERBICIDE	GLYPHOSATE, ISOPROPYLAMINE SALT	19.31	GA

TRS	commodity	application date	application method	treated acres	EPA name	Chemical name	quantity used	units
8S14E1	ALMOND	2/25/06	G	43	ROVRAL BRAND 4 FLOWABLE FUNGICIDE	IPRODIONE	5.38	GA
8S14E1	TOMATO FRESH	2/25/06	G	103	SHARK HERBICIDE	CARFENTRAZONE-ETHYL	6.43	LBS
8S14E12	ALMOND	2/16/06	G	60	AUXIGRO WP WETTABLE POWDER	GAMMA AMINOBUTYRIC ACID	15.0	LBS
8S14E12	ALMOND	2/16/06	G	60	BRITZ SILGLOW	2-(3-HYDROXYPROPYL)-HEPTA-METHYL TRISILOXANE, ETHOXYLATED, ACETATE	1.5	GA
8S14E12	ALMOND	2/16/06	G	60	SCALA BRAND SC FUNGICIDE	PYRIMETHANIL	544	GA
8S14E12	ALMOND	2/16/06	G	60	SCALA BRAND SC FUNGICIDE	PYRIMETHANIL	4.3	GA
8S14E12	ALMOND	2/16/06	G	60	SEIZE 35 WP INSECT GROWTH REGULATOR	PYRIPROXYFEN	15.0	LBS
8S14E12	ALMOND	2/21/06	G	15	PROWL 3.3 EC HERBICIDE	PENDIMETHALIN	15	GA
8S14E13	ALMOND	2/27/06	G	16	PRISTINE FUNGICIDE	BOSCALID	11.6	LBS
8S14E13	ALMOND	2/27/06	G	16	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	11.6	LBS
8S14E16	ALFALFA	2/18/06	G	44	TRILIN 10G HERBICIDE	TRIFLURALIN	880	LBS
8S14E16	ALFALFA	2/18/06	A	46	TRILIN 10G HERBICIDE	TRIFLURALIN	920	LBS
8S14E16	ALFALFA	2/18/06	A	60	TRILIN 10G HERBICIDE	TRIFLURALIN	1200	LBS
8S14E16	ALFALFA	2/18/06	A	48	TRILIN 10G HERBICIDE	TRIFLURALIN	960	LBS
8S14E16	ALFALFA	2/18/06	A	66	TRILIN 10G HERBICIDE	TRIFLURALIN	1320	LBS
8S14E2	ALFALFA	2/18/06	A	68	TRILIN 10G HERBICIDE	TRIFLURALIN	1360	LBS
8S14E2	ALFALFA	2/18/06	A	136	TRILIN 10G HERBICIDE	TRIFLURALIN	2720	LBS
8S14E21	OAT FOR/FOD	2/15/06	A	6	NUFARM RHOMENE MCPA BROADLEAF HERBICIDE	MCPA, DIMETHYLAMINE SALT	0.75	GA
8S14E21	OAT FOR/FOD	2/15/06	A	6	SHARK HERBICIDE	CARFENTRAZONE-ETHYL	0.38	LBS
8S14E21	ALFALFA	2/27/06	A	75.5	TRILIN 10G HERBICIDE	TRIFLURALIN	1510	LBS
8S14E29	ALFALFA	2/27/06	A	56.9	TRILIN 10G HERBICIDE	TRIFLURALIN	1138	LBS
8S14E29	ALFALFA	2/27/06	A	51.9	TRILIN 10G HERBICIDE	TRIFLURALIN	1038	LBS
8S14E29	ALFALFA	2/27/06	A	63	TRILIN 10G HERBICIDE	TRIFLURALIN	1260	LBS
8S14E8	SUGARBEET	2/14/06	A	61	RODENT BAIT ZINC PHOSPHIDE TREATED GRAIN	ZINC PHOSPHIDE	305	LBS
8S14E8	ALFALFA	2/18/06	A	62	TRILIN 10G HERBICIDE	TRIFLURALIN	1240	LBS

TRS	commodity	application date	application method	treated acres	EPA name	Chemical name	quantity used	units
8S14E9	ALFALFA	2/18/06	A	45	TRILIN 10G HERBICIDE	TRIFLURALIN	900	LBS
8S14E9	ALFALFA	2/18/06	A	43	TRILIN 10G HERBICIDE	TRIFLURALIN	860	LBS
8S14E9	ALFALFA	2/18/06	A	46	TRILIN 10G HERBICIDE	TRIFLURALIN	920	LBS
8S14E9	ALFALFA	2/18/06	A	48	TRILIN 10G HERBICIDE	TRIFLURALIN	960	LBS
8S15E10	ALMOND	2/16/06	G	21	AUXIGRO WP WETTABLE POWDER	GAMMA AMINOBUTYRIC ACID	5.3	LBS
8S15E10	ALMOND	2/16/06	G	21	BREAK-THRU	DIMETHYLPOLYSILOXANE	0.7	GA
8S15E10	ALMOND	2/16/06	G	21	SCALA BRAND SC FUNGICIDE	PYRIMETHANIL	1.5	GA
8S15E10	ALMOND	2/16/06	G	37	VANGARD WG	CYPRODINIL	11.5	LBS
8S15E10	ALMOND	2/18/06	G	30	DIMILIN 2L	DIFLUBENZURON	2.8	GA
8S15E10	ALMOND	2/18/06	G	40	DIMILIN 2L	DIFLUBENZURON	3.8	GA
8S15E10	ALMOND	2/18/06	G	40	VANGARD WG	CYPRODINIL	12.5	LBS
8S15E10	ALMOND	2/18/06	G	30	VANGARD WG	CYPRODINIL	9.4	LBS
8S15E10	ALMOND	2/20/06	G	79	VANGARD WG	CYPRODINIL	24.9	LBS
8S15E10	ALMOND	2/23/06	G	21	AUXIGRO WP WETTABLE POWDER	GAMMA AMINOBUTYRIC ACID	5.3	LBS
8S15E10	ALMOND	2/23/06	G	21	BREAK-THRU	DIMETHYLPOLYSILOXANE	0.7	GA
8S15E10	ALMOND	2/23/06	G	21	PRISTINE FUNGICIDE	BOSCALID	13.8	LBS
8S15E10	ALMOND	2/23/06	G	21	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	13.8	LBS
8S15E10	NECTARINE	2/25/06	G	20	ABOUND FLOWABLE FUNGICIDE	AZOXYSTROBIN	2.0	GA
8S15E10	ALMOND	2/25/06	A	37	PRISTINE FUNGICIDE	BOSCALID	24.28	LBS
8S15E10	ALMOND	2/25/06	A	37	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	24.28	LBS
8S15E10	ALMOND	2/26/06	A	18	BREAK-THRU	DIMETHYLPOLYSILOXANE	0.45	GA
8S15E10	ALMOND	2/26/06	A	18	IPRODIONE 4L AG	iprodione	2.25	GA
8S15E11	PLUM	2/18/06	G	10	ROVRAL BRAND 4 FLOWABLE FUNGICIDE	IPRODIONE	1.4	GA
8S15E11	PLUM	2/18/06	G	3	ROVRAL BRAND 4 FLOWABLE FUNGICIDE	IPRODIONE	0.4	GA
8S15E11	ALMOND	2/20/06	G	15	VANGARD WG	CYPRODINIL	4.7	LBS
8S15E11	PLUM	2/21/06	G	16	ROVRAL BRAND 4 FLOWABLE FUNGICIDE	IPRODIONE	2.2	GA
8S15E11	ALMOND	2/21/06	G	10	VANGARD WG	CYPRODINIL	3.2	LBS
8S15E11	ALMOND	2/22/06	G	8	GLYFOS HERBICIDE	GLYPHOSATE	1.5	GA
8S15E11	ALMOND	2/22/06	G	5	GLYFOS HERBICIDE	GLYPHOSATE	1	GA

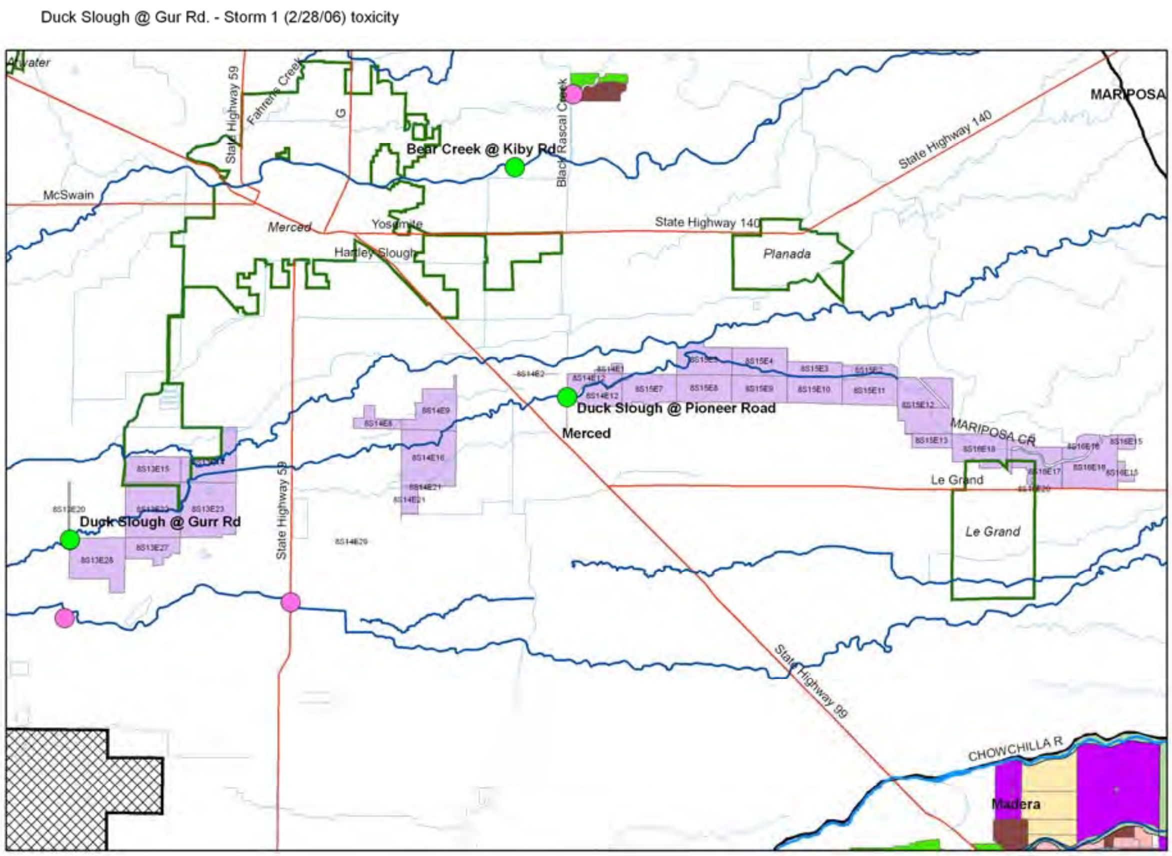
TRS	commodity	application date	application method	treated acres	EPA name	Chemical name	quantity used	units
8S15E11	ALMOND	2/22/06	G	8	GLYFOS HERBICIDE	GLYPHOSATE, ISOPROPYLAMINE SALT	1.5	GA
8S15E11	ALMOND	2/22/06	G	5	GLYFOS HERBICIDE	GLYPHOSATE, ISOPROPYLAMINE SALT	1	GA
8S15E11	ALMOND	2/23/06	G	22	GLYFOS HERBICIDE	GLYPHOSATE	4.2	GA
8S15E11	ALMOND	2/23/06	G	22	GLYFOS HERBICIDE	GLYPHOSATE, ISOPROPYLAMINE SALT	4.2	GA
8S15E11	ALMOND	2/24/06	G	35	VANGARD WG	CYPRODINIL	11	LBS
8S15E11	PLUM	2/25/06	G	20	ABOUND FLOWABLE FUNGICIDE	AZOXYSTROBIN	2.0	GA
8S15E11	ALMOND	2/26/06	A	63	BREAK-THRU	DIMETHYLPOLYSILOXANE	1.58	GA
8S15E11	ALMOND	2/26/06	A	63	IPRODIONE 4L AG	IPRODIONE	7.88	GA
8S15E11	N-OUTDR PLANTS	2/26/06	G	32	ROVRAL BRAND 4 FLOWABLE FUNGICIDE	IPRODIONE	4	GA
8S15E11	N-OUTDR PLANTS	2/26/06	G	4	ROVRAL BRAND 4 FLOWABLE FUNGICIDE	IPRODIONE	0.5	GA
8S15E12	ALMOND	2/18/06	G	7	VANGARD WG	CYPRODINIL	2.2	LBS
8S15E12	ALMOND	2/23/06	G	14	GLYFOS HERBICIDE	GLYPHOSATE	2.7	GA
8S15E12	ALMOND	2/23/06	G	14	GLYFOS HERBICIDE	GLYPHOSATE, ISOPROPYLAMINE SALT	2.7	GA
8S15E12	ALMOND	2/24/06	G	29	VANGARD WG	CYPRODINIL	9.2	LBS
8S15E12	ALMOND	2/25/06	G	7	PRISTINE FUNGICIDE	BOSCALID	4.6	LBS
8S15E12	ALMOND	2/25/06	G	7	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	4.6	LBS
8S15E12	ALMOND	2/25/06	G	14	VANGARD WG	CYPRODINIL	4.4	LBS
8S15E12	ALMOND	2/25/06	G	13	VANGARD WG	CYPRODINIL	4.1	LBS
8S15E12	ALMOND	2/28/06	G	18	SCALA BRAND SC FUNGICIDE	PYRIMETHANIL	162	GA
8S15E12	ALMOND	2/28/06	G	18	SCALA BRAND SC FUNGICIDE	PYRIMETHANIL	1.3	GA
8S15E13	ALMOND	2/14/06	G	38	VANGARD WG	CYPRODINIL	11.9	LBS
8S15E13	ALMOND	2/15/06	G	17	VANGARD WG	CYPRODINIL	5.3	LBS
8S15E13	ALMOND	2/18/06	G	37	VANGARD WG	CYPRODINIL	11.6	LBS
8S15E13	ALMOND	2/23/06	G	16	GLYFOS HERBICIDE	GLYPHOSATE	3.1	GA
8S15E13	ALMOND	2/23/06	G	16	GLYFOS HERBICIDE	GLYPHOSATE, ISOPROPYLAMINE SALT	3.1	GA
8S15E13	ALMOND	2/24/06	G	38	ROVRAL BRAND 4 FLOWABLE FUNGICIDE	IPRODIONE	4.75	GA
8S15E13	ALMOND	2/24/06	G	35	VANGARD WG	CYPRODINIL	6.6	LBS

TRS	commodity	application date	application method	treated acres	EPA name	Chemical name	quantity used	units
8S15E13	ALMOND	2/25/06	A	37	PRISTINE FUNGICIDE	BOSCALID	24.28	LBS
8S15E13	ALMOND	2/25/06	A	37	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	24.28	LBS
8S15E13	ALMOND	2/26/06	A	160	AUXIGRO WP WETTABLE POWDER	GAMMA AMINOBUTYRIC ACID	40	LBS
8S15E13	ALMOND	2/26/06	A	160	PRISTINE FUNGICIDE	BOSCALID	105	LBS
8S15E13	ALMOND	2/26/06	A	160	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	105	LBS
8S15E13	ALMOND	2/28/06	A	18	DIMILIN 2L	DIFLUBENZURON	1.8	GA
8S15E13	ALMOND	2/28/06	A	18	PRISTINE FUNGICIDE	BOSCALID	12.26	LBS
8S15E13	ALMOND	2/28/06	A	18	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	12.26	LBS
8S15E13	ALMOND	2/28/06	G	38	VANGARD WG	CYPRODINIL	12.0	LBS
8S15E2	ALMOND	2/21/06	G	14	VANGARD WG	CYPRODINIL	4.4	LBS
8S15E3	ALMOND	2/25/06	G	134	DIMILIN 2L	DIFLUBENZURON	13.4	GA
8S15E3	ALMOND	2/25/06	G	134	VANGARD WG	CYPRODINIL	41.9	LBS
8S15E3	ALMOND	2/26/06	G	105	VANGARD WG	CYPRODINIL	32.8	LBS
8S15E4	TOMATO FRESH	2/23/06	G	40	GLY-4 PLUS HERBICIDE	GLYPHOSATE, ISOPROPYLAMINE SALT	10.0	GA
8S15E5	TOMATO FRESH	2/28/06	G	153	PRISM HERBICIDE	CLETHODIM	14.34	GA
8S15E5	TOMATO FRESH	2/28/06	G	153	ROUNDUP ULTRAMAX HERBICIDE	GLYPHOSATE, ISOPROPYLAMINE SALT	28.68	GA
8S15E5	TOMATO FRESH	2/28/06	G	153	SHARK HERBICIDE	CARFENTRAZONE-ETHYL	9.56	LBS
8S15E7	ALMOND	2/16/06	G	10	VANGARD WG	CYPRODINIL	3.1	LBS
8S15E7	ALMOND	2/16/06	G	70.8	VANGARD WG	CYPRODINIL	21.9	LBS
8S15E7	ALMOND	2/24/06	G	51	VANGARD WG	CYPRODINIL	15.6	LBS
8S15E7	ALMOND	2/25/06	G	70.8	PRISTINE FUNGICIDE	BOSCALID	45.6	LBS
8S15E7	ALMOND	2/25/06	G	70.8	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	45.6	LBS
8S15E7	ALMOND	2/25/06	G	40.76	VANGARD WG	CYPRODINIL	10.9	LBS
8S15E7	ALMOND	2/26/06	G	10	VANGARD WG	CYPRODINIL	3.1	LBS
8S15E8	ALMOND	2/15/06	G	23.84	VANGARD WG	CYPRODINIL	9.4	LBS
8S15E8	ALMOND	2/26/06	A	23.84	PRISTINE FUNGICIDE	BOSCALID	15.64	LBS
8S15E8	ALMOND	2/26/06	A	23.84	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	15.64	LBS
8S15E9	ALMOND	2/14/06	G	45	ROVRAL BRAND 4 FLOWABLE FUNGICIDE	IPRODIONE	2.8	GA
8S15E9	ALMOND	2/14/06	G	45	TOPSIN M 70 WP	THIOPHANATE-METHYL	11.3	LBS

TRS	commodity	application date	application method	treated acres	EPA name	Chemical name	quantity used	units
8S15E9	ALMOND	2/17/06	G	38	VANGARD WG	CYPRODINIL	9.4	LBS
8S15E9	ALMOND	2/20/06	G	45	ROVRAL BRAND 4 FLOWABLE FUNGICIDE	IPRODIONE	2.8	GA
8S15E9	ALMOND	2/20/06	G	45	TOPSIN M 70 WP	THIOPHANATE-METHYL	11.3	LBS
8S15E9	ALMOND	2/25/06	G	24	PRISTINE FUNGICIDE	BOSCALID	15.8	LBS
8S15E9	ALMOND	2/25/06	G	24	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	15.8	LBS
8S15E9	ALMOND	2/26/06	A	17	BREAK-THRU	DIMETHYLPOLYSILOXANE	0.43	GA
8S15E9	ALMOND	2/26/06	A	43	BREAK-THRU	DIMETHYLPOLYSILOXANE	1.08	GA
8S15E9	ALMOND	2/26/06	A	46	BREAK-THRU	DIMETHYLPOLYSILOXANE	1.15	GA
8S15E9	ALMOND	2/26/06	A	17	IPRODIONE 4L AG	IPRODIONE	2.13	GA
8S15E9	ALMOND	2/26/06	A	46	IPRODIONE 4L AG	IPRODIONE	5.75	GA
8S15E9	ALMOND	2/26/06	A	43	IPRODIONE 4L AG	IPRODIONE	5.38	GA
8S15E9	ALMOND	2/26/06	A	38	PRISTINE FUNGICIDE	BOSCALID	23.75	LBS
8S15E9	ALMOND	2/26/06	A	38	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	23.75	LBS
8S16E15	ALMOND	2/28/06	A	69	VANGARD WG	CYPRODINIL	25.9	LBS
8S16E16	ALMOND	2/28/06	G	70	ROVRAL BRAND 4 FLOWABLE FUNGICIDE	IPRODIONE	4.4	GA
8S16E16	ALMOND	2/28/06	G	70	TOPSIN M WSB	THIOPHANATE-METHYL	17.5	LBS
8S16E17	ALMOND	2/15/06	G	11	AUXIGRO WP WETTABLE POWDER	GAMMA AMINOBUTYRIC ACID	2.8	LBS
8S16E17	ALMOND	2/15/06	G	11	BREAK-THRU	DIMETHYLPOLYSILOXANE	0.2	GA
8S16E17	ALMOND	2/15/06	G	18	RIDOMIL GOLD PC GR	MEFENOXAM	5.6	LBS
8S16E17	ALMOND	2/15/06	G	18	RIDOMIL GOLD PC GR	PCNB	5.6	LBS
8S16E17	ALMOND	2/15/06	G	11	SCALA BRAND SC FUNGICIDE	PYRIMETHANIL	0.8	GA
8S16E17	ALMOND	2/25/06	G	7	AUXIGRO WP WETTABLE POWDER	GAMMA AMINOBUTYRIC ACID	1.8	LBS
8S16E17	ALMOND	2/25/06	G	7	BREAK-THRU	DIMETHYLPOLYSILOXANE	0.1	GA
8S16E17	ALMOND	2/25/06	A	18	PRISTINE FUNGICIDE	BOSCALID	11.81	LBS
8S16E17	ALMOND	2/25/06	A	18	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	11.81	LBS
8S16E17	ALMOND	2/25/06	G	7	SCALA BRAND SC FUNGICIDE	PYRIMETHANIL	63	GA
8S16E17	ALMOND	2/25/06	G	7	SCALA BRAND SC FUNGICIDE	PYRIMETHANIL	0.5	GA
8S16E18	ALMOND	2/14/06	G	16	TOPSIN M WSB	THIOPHANATE-METHYL	6.4	LBS
8S16E18	ALMOND	2/14/06	G	16	VANGARD WG	CYPRODINIL	4.7	LBS

TRS	commodity	application date	application method	treated acres	EPA name	Chemical name	quantity used	units
8S16E18	ALMOND	2/15/06	G	19	TOPSIN M WSB	THIOPHANATE-METHYL	7.6	LBS
8S16E18	ALMOND	2/15/06	G	19	VANGARD WG	CYPRODINIL	5.9	LBS
8S16E18	ALMOND	2/16/06	G	85	AUXIGRO WP WETTABLE POWDER	GAMMA AMINOBUTYRIC ACID	21.3	LBS
8S16E18	ALMOND	2/16/06	G	85	BREAK-THRU	DIMETHYLPOLYSILOXANE	2.7	GA
8S16E18	ALMOND	2/16/06	G	85	SCALA BRAND SC FUNGICIDE	PYRIMETHANIL	6.0	GA
8S16E18	ALMOND	2/20/06	G	16	TOPSIN M WSB	THIOPHANATE-METHYL	6.4	LBS
8S16E18	ALMOND	2/20/06	G	16	VANGARD WG	CYPRODINIL	5.0	LBS
8S16E18	ALMOND	2/21/06	G	19	TOPSIN M WSB	THIOPHANATE-METHYL	7.6	LBS
8S16E18	ALMOND	2/21/06	G	19	VANGARD WG	CYPRODINIL	5.9	LBS
8S16E18	ALMOND	2/23/06	G	85	AUXIGRO WP WETTABLE POWDER	GAMMA AMINOBUTYRIC ACID	21.3	LBS
8S16E18	ALMOND	2/23/06	G	85	BREAK-THRU	DIMETHYLPOLYSILOXANE	2.7	GA
8S16E18	ALMOND	2/23/06	G	85	PRISTINE FUNGICIDE	BOSCALID	55.8	LBS
8S16E18	ALMOND	2/23/06	G	85	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	55.8	LBS
8S16E18	ALMOND	2/24/06	G	15	TOPSIN M WSB	THIOPHANATE-METHYL	6	LBS
8S16E18	ALMOND	2/24/06	G	15	VANGARD WG	CYPRODINIL	4.7	LBS
8S16E20	ALMOND	2/14/06	G	58	KOCIDE DF	COPPER HYDROXIDE	72.5	LBS
8S16E20	ALMOND	2/14/06	G	58	ROVRAL BRAND 4 FLOWABLE FUNGICIDE	IPRODIONE	7.3	GA
8S16E20	ALMOND	2/14/06	G	15	TOPSIN M WSB	THIOPHANATE-METHYL	6	LBS
8S16E20	ALMOND	2/14/06	G	15	VANGARD WG	CYPRODINIL	4.7	LBS
8S16E20	ALMOND	2/15/06	G	56	VANGARD WG	CYPRODINIL	17.5	LBS
8S16E20	ALMOND	2/17/06	G	25	DIMILIN 2L	DIFLUBENZURON	3.1	GA
8S16E20	ALMOND	2/17/06	G	25	VANGARD WG	CYPRODINIL	7.8	LBS
8S16E20	ALMOND	2/23/06	G	15	TOPSIN M WSB	THIOPHANATE-METHYL	6	LBS
8S16E20	ALMOND	2/23/06	G	15	VANGARD WG	CYPRODINIL	4.7	LBS
8S16E20	ALMOND	2/26/06	A	56	ROVRAL BRAND 4 FLOWABLE FUNGICIDE	IPRODIONE	7	GA

Figure 23. Map showing pesticide applications in the Duck Slough @ Gurr Rd subwatershed during the 2 weeks prior to the February sample sampling.



Duck Slough @ Gurr Rd - Toxicity from storm 1 re-sample (3/10/06).

Survival of 35% was reported for *Ceriodaphnia* for samples collected at the Duck Slough @ Gurr Rd subwatershed during the storm 1 re-sampling. This survival was considered statistically significantly different from the controls and the sample was considered toxic. Pesticide use reports collected up to 2 weeks before the sampling showed close to 150 applications of various pesticides (Table 31, Figure 24).

Table 31. Pesticide applications in the Duck Slough @ Gurr Rd subwatershed during the 2 weeks prior to the March re-sample.

TRS	commodity	application date	application method	treated acres	EPA name	Chemical name	quantity used	units
8S13E20	COTTON	2/24/06	G	96.2	GOAL 2XL	OXYFLUORFEN	481	OZ
8S13E20	COTTON	2/24/06	G	96.2	NUFARM CREDIT SYSTEMIC HERBICIDE	GLYPHOSATE, ISOPROPYLAMINE SALT	192.4	PT
8S13E20	ALFALFA	2/26/06	A	58.4	TRILIN 10G HERBICIDE	TRIFLURALIN	1168	LBS
8S13E20	ALFALFA	2/26/06	G	78.7	TRILIN 10G HERBICIDE	TRIFLURALIN	1574	LBS
8S13E20	ALFALFA	3/8/06	G	72	WARRIOR INSECTICIDE WITH ZEON TECHNOLOGY	LAMBDA-CYHALOTHRIN	1.97	GA
8S13E20	ALFALFA	3/8/06	G	74	WARRIOR INSECTICIDE WITH ZEON TECHNOLOGY	LAMBDA-CYHALOTHRIN	2.02	GA
8S13E22	ALFALFA	2/26/06	A	90	TREFLAN TR-10	TRIFLURALIN	1800	LBS
8S13E23	ALFALFA	2/26/06	A	48	TREFLAN TR-10	TRIFLURALIN	960	LBS
8S13E28	ALFALFA	2/26/06	A	77	TRILIN 10G HERBICIDE	TRIFLURALIN	1540	LBS
8S13E33	ALFALFA	3/8/06	G	124	WARRIOR INSECTICIDE WITH ZEON TECHNOLOGY	LAMBDA-CYHALOTHRIN	3.39	GA
8S14E1	ALMOND	2/25/06	G	43	ROVRAL BRAND 4 FLOWABLE FUNGICIDE	IPRODIONE	5.38	GA
8S14E1	TOMATO FRESH	2/25/06	G	103	SHARK HERBICIDE	CARFENTRAZONE-ETHYL	6.43	LBS
8S14E1	TOMATO FRESH	2/25/06	G	103	ROUNDUP ULTRAMAX HERBICIDE	GLYPHOSATE, ISOPROPYLAMINE SALT	19.31	GA
8S14E1	TOMATO FRESH	2/25/06	G	103	PRISM HERBICIDE	CLETHODIM	9.65	GA
8S14E1	ALMOND	3/10/06	A	43	ABOUND FLOWABLE FUNGICIDE	AZOXYSTROBIN	4.03	GA
8S14E11	ALMOND	3/4/06	G	80	NORDOX 75 WG	COPPER OXIDE (OUS)	80	LBS

TRS	commodity	application date	application method	treated acres	EPA name	Chemical name	quantity used	units
8S14E11	ALMOND	3/4/06	G	80	SERENADE MAX	BACILLUS SUBTILIS	160	LBS
8S14E12	ALMOND	3/9/06	A	80	DIMILIN 2L	DIFLUBENZURON	8	GA
8S14E12	ALMOND	3/9/06	A	80	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	50	LBS
8S14E12	ALMOND	3/9/06	A	80	PRISTINE FUNGICIDE	BOSCALID	50	LBS
8S14E13	ALMOND	2/27/06	G	16	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	186	OZ
8S14E13	ALMOND	2/27/06	G	16	PRISTINE FUNGICIDE	BOSCALID	186	OZ
8S14E13	ALMOND	3/9/06	G	16	ABOUND FLOWABLE FUNGICIDE	AZOXYSTROBIN	1.41	GA
8S14E13	ALMOND	3/9/06	G	16	FOSPHITE FUNGICIDE	POTASSIUM PHOSPHITE	8	GA
8S14E13	PEACH	3/10/06	G	16	VANGARD WG	CYPRODINIL	80	OZ
8S14E21	ALFALFA	2/27/06	A	75.5	TRILIN 10G HERBICIDE	TRIFLURALIN	1510	LBS
8S14E29	ALFALFA	2/27/06	A	56.9	TRILIN 10G HERBICIDE	TRIFLURALIN	1138	LBS
8S14E29	ALFALFA	2/27/06	A	51.9	TRILIN 10G HERBICIDE	TRIFLURALIN	1038	LBS
8S14E29	ALFALFA	2/27/06	A	63	TRILIN 10G HERBICIDE	TRIFLURALIN	1260	LBS
8S14E9	ALFALFA	3/1/06	G	13	PURSUIT HERBICIDE	IMAZETHAPYR, AMMONIUM SALT	39	GA
8S14E9	ALFALFA	3/1/06	G	45	RAPTOR HERBICIDE	IMAZAMOX, AMMONIUM SALT	52	OZ
8S15E10	NECTARINE	2/25/06	G	20	ABOUND FLOWABLE FUNGICIDE	AZOXYSTROBIN	256	OZ
8S15E10	ALMOND	2/25/06	A	37	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	24.28	LBS
8S15E10	ALMOND	2/25/06	A	37	PRISTINE FUNGICIDE	BOSCALID	24.28	LBS
8S15E10	ALMOND	2/26/06	A	18	IPRODIONE 4L AG	IPRODIONE	2.25	GA
8S15E10	NECTARINE	3/1/06	G	20	ABOUND FLOWABLE FUNGICIDE	AZOXYSTROBIN	256	OZ
8S15E10	ALMOND	3/1/06	G	46	VANGARD WG	CYPRODINIL	230	OZ
8S15E10	ALMOND	3/1/06	G	30	VANGARD WG	CYPRODINIL	150	OZ
8S15E10	ALMOND	3/8/06	A	40	MICRO FLO CAPTEC 4L	CAPTAN	120	PT
8S15E10	ALMOND	3/8/06	A	28	MICRO FLO CAPTEC 4L	CAPTAN	84	PT
8S15E10	ALMOND	3/8/06	A	21	ECHO 720 AGRICULTURAL FUNGICIDE	CHLOROTHALONIL	10.5	GA
8S15E10	ALMOND	3/8/06	A	21	AUXIGRO WP WETTABLE POWDER	GLUTAMIC ACID	84	OZ
8S15E10	ALMOND	3/8/06	A	21	AUXIGRO WP WETTABLE POWDER	GAMMA AMINOBUTYRIC ACID	84	OZ
8S15E10	ALMOND	3/9/06	G	79	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	855.8	OZ

TRS	commodity	application date	application method	treated acres	EPA name	Chemical name	quantity used	units
8S15E10	ALMOND	3/9/06	G	79	PRISTINE FUNGICIDE	BOSCALID	855.8	OZ
8S15E10	ALMOND	3/9/06	A	18	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	11.25	LBS
8S15E10	ALMOND	3/9/06	A	18	PRISTINE FUNGICIDE	BOSCALID	11.25	LBS
8S15E11	ALMOND	2/24/06	G	35	VANGARD WG	CYPRODINIL	11	LBS
8S15E11	PLUM	2/25/06	G	20	ABOUND FLOWABLE FUNGICIDE	AZOXYSTROBIN	256	OZ
8S15E11	N-OUTDR PLANTS	2/26/06	G	32	ROVRAL BRAND 4 FLOWABLE FUNGICIDE	IPRODIONE	4	GA
8S15E11	N-OUTDR PLANTS	2/26/06	G	4	ROVRAL BRAND 4 FLOWABLE FUNGICIDE	IPRODIONE	0.5	GA
8S15E11	ALMOND	2/26/06	A	63	IPRODIONE 4L AG	IPRODIONE	7.88	GA
8S15E11	NECTARINE	3/1/06	G	10	ABOUND FLOWABLE FUNGICIDE	AZOXYSTROBIN	128	OZ
8S15E11	ALMOND	3/2/06	G	25	VANGARD WG	CYPRODINIL	7.8	LBS
8S15E11	ALMOND	3/7/06	G	47	VANGARD WG	CYPRODINIL	237.4	OZ
8S15E11	ALMOND	3/8/06	G	65	VANGARD WG	CYPRODINIL	328.3	OZ
8S15E11	ALMOND	3/8/06	G	8	ROVRAL BRAND 4 FLOWABLE FUNGICIDE	IPRODIONE	1	GA
8S15E11	PLUM	3/8/06	A	20	PRISTINE FUNGICIDE	BOSCALID	13.13	LBS
8S15E11	PLUM	3/8/06	A	20	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	13.13	LBS
8S15E11	ALMOND	3/9/06	A	59	ECHO 720 AGRICULTURAL FUNGICIDE	CHLOROTHALONIL	29.5	GA
8S15E11	ALMOND	3/9/06	A	63	AUXIGRO WP WETTABLE POWDER	GLUTAMIC ACID	252	OZ
8S15E11	ALMOND	3/9/06	A	63	AUXIGRO WP WETTABLE POWDER	GAMMA AMINOBUTYRIC ACID	252	OZ
8S15E11	ALMOND	3/9/06	G	10	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	108.3	OZ
8S15E11	ALMOND	3/9/06	G	10	PRISTINE FUNGICIDE	BOSCALID	108.3	OZ
8S15E11	ALMOND	3/9/06	G	15	PRISTINE FUNGICIDE	BOSCALID	162.5	OZ
8S15E11	ALMOND	3/9/06	G	15	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	162.5	OZ
8S15E11	ALMOND	3/9/06	A	63	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	39.38	LBS
8S15E11	ALMOND	3/9/06	A	63	PRISTINE FUNGICIDE	BOSCALID	39.38	LBS
8S15E12	ALMOND	2/24/06	G	29	VANGARD WG	CYPRODINIL	146.5	OZ
8S15E12	ALMOND	2/25/06	G	14	VANGARD WG	CYPRODINIL	70	OZ
8S15E12	ALMOND	2/25/06	G	13	VANGARD WG	CYPRODINIL	65	OZ
8S15E12	ALMOND	2/25/06	G	7	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	73.5	OZ

TRS	commodity	application date	application method	treated acres	EPA name	Chemical name	quantity used	units
8S15E12	ALMOND	2/25/06	G	7	PRISTINE FUNGICIDE	BOSCALID	73.5	OZ
8S15E12	ALMOND	2/28/06	G	18	SCALA BRAND SC FUNGICIDE	PYRIMETHANIL	162	OZ
8S15E12	ALMOND	2/28/06	G	18	SCALA BRAND SC FUNGICIDE	PYRIMETHANIL	162	GA
8S15E12	ALMOND	3/4/06	G	21	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	220.5	OZ
8S15E12	ALMOND	3/4/06	G	21	PRISTINE FUNGICIDE	BOSCALID	220.5	OZ
8S15E12	ALMOND	3/5/06	G	13	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	136.5	OZ
8S15E12	ALMOND	3/5/06	G	13	PRISTINE FUNGICIDE	BOSCALID	136.5	OZ
8S15E12	PEACH	3/8/06	A	10	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	8.75	LBS
8S15E12	PEACH	3/8/06	A	10	PRISTINE FUNGICIDE	BOSCALID	8.75	LBS
8S15E12	ALMOND	3/8/06	A	10	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	8.75	LBS
8S15E12	ALMOND	3/8/06	A	10	PRISTINE FUNGICIDE	BOSCALID	8.75	LBS
8S15E12	ALMOND	3/9/06	A	25	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	16.41	LBS
8S15E12	ALMOND	3/9/06	A	25	PRISTINE FUNGICIDE	BOSCALID	16.41	LBS
8S15E12	ALMOND	3/10/06	G	4	ROVRAL BRAND 4 FLOWABLE FUNGICIDE	IPRODIONE	0.4	GA
8S15E13	ALMOND	2/24/06	G	35	VANGARD WG	CYPRODINIL	6.6	LBS
8S15E13	ALMOND	2/24/06	G	38	ROVRAL BRAND 4 FLOWABLE FUNGICIDE	IPRODIONE	4.75	GA
8S15E13	ALMOND	2/25/06	A	37	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	24.28	LBS
8S15E13	ALMOND	2/25/06	A	37	PRISTINE FUNGICIDE	BOSCALID	24.28	LBS
8S15E13	ALMOND	2/26/06	A	160	AUXIGRO WP WETTABLE POWDER	GAMMA AMINOBUTYRIC ACID	40	LBS
8S15E13	ALMOND	2/26/06	A	160	AUXIGRO WP WETTABLE POWDER	GLUTAMIC ACID	40	LBS
8S15E13	ALMOND	2/26/06	A	160	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	105	LBS
8S15E13	ALMOND	2/26/06	A	160	PRISTINE FUNGICIDE	BOSCALID	105	LBS
8S15E13	ALMOND	2/28/06	G	38	VANGARD WG	CYPRODINIL	191.9	OZ
8S15E13	ALMOND	2/28/06	A	18	DIMILIN 2L	DIFLUBENZURON	1.8	GA
8S15E13	ALMOND	2/28/06	A	18	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	12.26	LBS
8S15E13	ALMOND	2/28/06	A	18	PRISTINE FUNGICIDE	BOSCALID	12.26	LBS
8S15E13	ALMOND	3/8/06	G	16	ROVRAL BRAND 4 FLOWABLE FUNGICIDE	IPRODIONE	2	GA
8S15E13	ALMOND	3/8/06	A	40	AUXIGRO WP WETTABLE POWDER	GLUTAMIC ACID	10	LBS
8S15E13	ALMOND	3/8/06	A	40	AUXIGRO WP WETTABLE POWDER	GAMMA AMINOBUTYRIC ACID	10	LBS

TRS	commodity	application date	application method	treated acres	EPA name	Chemical name	quantity used	units
8S15E13	ALMOND	3/8/06	A	40	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	26.25	LBS
8S15E13	ALMOND	3/8/06	A	40	PRISTINE FUNGICIDE	BOSCALID	26.25	LBS
8S15E13	ALMOND	3/10/06	G	16	PRISTINE FUNGICIDE	BOSCALID	173.3	OZ
8S15E13	ALMOND	3/10/06	G	16	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	173.3	OZ
8S15E2	ALMOND	3/9/06	A	14	PRISTINE FUNGICIDE	BOSCALID	9.19	LBS
8S15E2	ALMOND	3/9/06	A	14	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	9.19	LBS
8S15E3	ALMOND	2/25/06	G	134	VANGARD WG	CYPRODINIL	670	OZ
8S15E3	ALMOND	2/25/06	G	134	DIMILIN 2L	DIFLUBENZURON	1715.2	OZ
8S15E3	ALMOND	2/26/06	G	105	VANGARD WG	CYPRODINIL	525	OZ
8S15E3	ALMOND	3/8/06	A	239	MICRO FLO CAPTEC 4L	CAPTAN	717	PT
8S15E5	TOMATO FRESH	2/28/06	G	153	SHARK HERBICIDE	CARFENTRAZONE-ETHYL	9.56	LBS
8S15E5	TOMATO FRESH	2/28/06	G	153	ROUNDUP ULTRAMAX HERBICIDE	GLYPHOSATE, ISOPROPYLAMINE SALT	28.68	GA
8S15E5	TOMATO FRESH	2/28/06	G	153	PRISM HERBICIDE	CLETHODIM	14.34	GA
8S15E7	ALMOND	2/24/06	G	51	VANGARD WG	CYPRODINIL	250	OZ
8S15E7	ALMOND	2/25/06	G	40.76	VANGARD WG	CYPRODINIL	175	OZ
8S15E7	ALMOND	2/25/06	G	70.8	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	45.6	LBS
8S15E7	ALMOND	2/25/06	G	70.8	PRISTINE FUNGICIDE	BOSCALID	45.6	LBS
8S15E7	ALMOND	2/26/06	G	10	VANGARD WG	CYPRODINIL	50	OZ
8S15E7	ALMOND	3/6/06	A	210	VANGARD WG	CYPRODINIL	1050	OZ
8S15E7	ALMOND	3/7/06	A	54	PRISTINE FUNGICIDE	BOSCALID	33.75	LBS
8S15E7	ALMOND	3/7/06	A	54	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	33.75	LBS
8S15E7	ALMOND	3/7/06	A	40.76	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	407.6	OZ
8S15E7	ALMOND	3/7/06	A	40.76	PRISTINE FUNGICIDE	BOSCALID	407.6	OZ
8S15E8	ALMOND	2/26/06	A	23.84	PRISTINE FUNGICIDE	BOSCALID	15.64	LBS
8S15E8	ALMOND	2/26/06	A	23.84	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	15.64	LBS
8S15E8	ALMOND	3/9/06	A	38	AUXIGRO WP WETTABLE POWDER	GAMMA AMINOBUTYRIC ACID	152	OZ
8S15E8	ALMOND	3/9/06	A	39	AUXIGRO WP WETTABLE POWDER	GAMMA AMINOBUTYRIC ACID	156	OZ
8S15E8	ALMOND	3/9/06	A	38	AUXIGRO WP WETTABLE POWDER	GLUTAMIC ACID	152	OZ
8S15E8	ALMOND	3/9/06	A	39	AUXIGRO WP WETTABLE POWDER	GLUTAMIC ACID	156	OZ

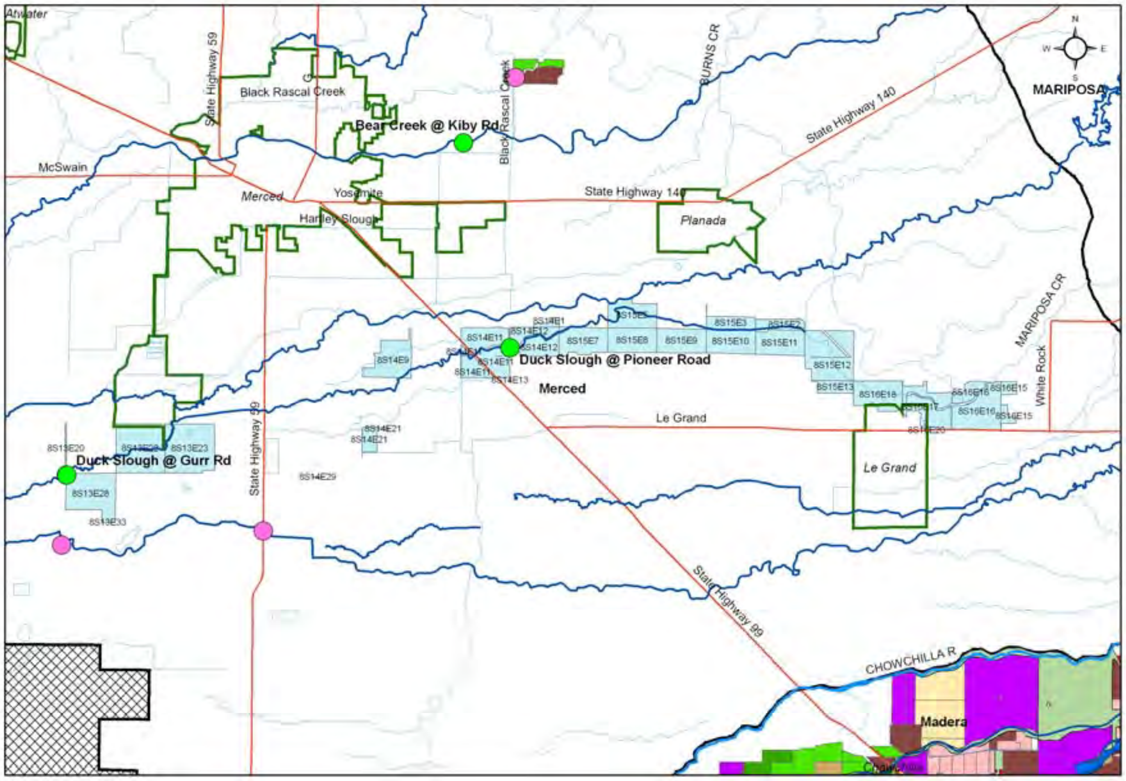
TRS	commodity	application date	application method	treated acres	EPA name	Chemical name	quantity used	units
8S15E8	ALMOND	3/9/06	A	38.9	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	24.38	LBS
8S15E8	ALMOND	3/9/06	A	38.9	PRISTINE FUNGICIDE	BOSCALID	24.38	LBS
8S15E8	ALMOND	3/9/06	A	38	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	23.75	LBS
8S15E8	ALMOND	3/9/06	A	38	PRISTINE FUNGICIDE	BOSCALID	23.75	LBS
8S15E8	ALMOND	3/9/06	A	39	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	24.38	LBS
8S15E8	ALMOND	3/9/06	A	39	PRISTINE FUNGICIDE	BOSCALID	24.38	LBS
8S15E9	ALMOND	2/25/06	G	24	PRISTINE FUNGICIDE	BOSCALID	252	OZ
8S15E9	ALMOND	2/25/06	G	24	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	252	OZ
8S15E9	ALMOND	2/26/06	A	17	IPRODIONE 4L AG	IPRODIONE	2.13	GA
8S15E9	ALMOND	2/26/06	A	46	IPRODIONE 4L AG	IPRODIONE	5.75	GA
8S15E9	ALMOND	2/26/06	A	43	IPRODIONE 4L AG	IPRODIONE	5.38	GA
8S15E9	ALMOND	2/26/06	A	38	PRISTINE FUNGICIDE	BOSCALID	23.75	LBS
8S15E9	ALMOND	2/26/06	A	38	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	23.75	LBS
8S15E9	ALMOND	3/8/06	A	160	ABOUND FLOWABLE FUNGICIDE	AZOXYSTROBIN	1920	OZ
8S15E9	ALMOND	3/8/06	A	156	ABOUND FLOWABLE FUNGICIDE	AZOXYSTROBIN	1872	OZ
8S15E9	ALMOND	3/9/06	A	150	ABOUND FLOWABLE FUNGICIDE	AZOXYSTROBIN	1800	OZ
8S15E9	ALMOND	3/9/06	A	46	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	28.75	LBS
8S15E9	ALMOND	3/9/06	A	46	PRISTINE FUNGICIDE	BOSCALID	28.75	LBS
8S15E9	ALMOND	3/9/06	A	43	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	26.88	LBS
8S15E9	ALMOND	3/9/06	A	43	PRISTINE FUNGICIDE	BOSCALID	26.88	LBS
8S15E9	ALMOND	3/9/06	A	17	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	10.63	LBS
8S15E9	ALMOND	3/9/06	A	17	PRISTINE FUNGICIDE	BOSCALID	10.63	LBS
8S15E9	ALMOND	3/10/06	A	38	ROVRAL BRAND 4 FLOWABLE FUNGICIDE	IPRODIONE	4.75	GA
8S15E9	ALMOND	3/10/06	A	38	ZIRAM 76DF FUNGICIDE	ZIRAM	228	LBS
8S15E9	ALMOND	3/10/06	G	45	MICRO FLO CAPTEC 4L	CAPTAN	360	OZ
8S16E15	ALMOND	2/28/06	A	69	VANGARD WG	CYPRODINIL	414	OZ
8S16E16	ALMOND	2/28/06	G	70	ROVRAL BRAND 4 FLOWABLE FUNGICIDE	IPRODIONE	4.4	GA
8S16E16	ALMOND	2/28/06	G	70	TOPSIN M WSB	THIOPHANATE-METHYL	17.5	LBS
8S16E17	ALMOND	2/25/06	G	7	SCALA BRAND SC FUNGICIDE	PYRIMETHANIL	63	OZ

TRS	commodity	application date	application method	treated acres	EPA name	Chemical name	quantity used	units
8S16E17	ALMOND	2/25/06	G	7	SCALA BRAND SC FUNGICIDE	PYRIMETHANIL	63	GA
8S16E17	ALMOND	2/25/06	G	7	AUXIGRO WP WETTABLE POWDER	GAMMA AMINOBUTYRIC ACID	28	OZ
8S16E17	ALMOND	2/25/06	G	7	AUXIGRO WP WETTABLE POWDER	GLUTAMIC ACID	28	OZ
8S16E17	ALMOND	2/25/06	A	18	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	11.81	LBS
8S16E17	ALMOND	2/25/06	A	18	PRISTINE FUNGICIDE	BOSCALID	11.81	LBS
8S16E17	ALMOND	3/1/06	A	20	VANGARD WG	CYPRODINIL	100	OZ
8S16E17	ALMOND	3/1/06	A	20	AUXIGRO WP WETTABLE POWDER	GLUTAMIC ACID	80	OZ
8S16E17	ALMOND	3/1/06	G	10	AUXIGRO WP WETTABLE POWDER	GLUTAMIC ACID	40	OZ
8S16E17	ALMOND	3/1/06	G	10	AUXIGRO WP WETTABLE POWDER	GAMMA AMINOBUTYRIC ACID	40	OZ
8S16E17	ALMOND	3/1/06	A	20	AUXIGRO WP WETTABLE POWDER	GAMMA AMINOBUTYRIC ACID	80	OZ
8S16E17	ALMOND	3/1/06	G	10	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	105	OZ
8S16E17	ALMOND	3/1/06	G	10	PRISTINE FUNGICIDE	BOSCALID	105	OZ
8S16E17	ALMOND	3/5/06	G	50	DEGESCH PHOSTOXIN TABLETS-R	ALUMINUM PHOSPHIDE	150	UNITS
8S16E17	ALMOND	3/9/06	A	42	ECHO 720 AGRICULTURAL FUNGICIDE	CHLOROTHALONIL	21	GA
8S16E18	ALMOND	2/24/06	G	15	VANGARD WG	CYPRODINIL	75	OZ
8S16E18	ALMOND	2/24/06	G	15	TOPSIN M WSB	THIOPHANATE-METHYL	6	LBS
8S16E18	ALMOND	3/1/06	A	18	ROVRAL BRAND 4 FLOWABLE FUNGICIDE	IPRODIONE	2.25	GA
8S16E18	ALMOND	3/1/06	A	71	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	945.5	OZ
8S16E18	ALMOND	3/1/06	A	71	PRISTINE FUNGICIDE	BOSCALID	945.5	OZ
8S16E18	ALMOND	3/7/06	A	15	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	157.5	OZ
8S16E18	ALMOND	3/7/06	A	15	PRISTINE FUNGICIDE	BOSCALID	157.5	OZ
8S16E18	ALMOND	3/8/06	A	85	ECHO 720 AGRICULTURAL FUNGICIDE	CHLOROTHALONIL	42.5	GA
8S16E18	ALMOND	3/8/06	A	85	AUXIGRO WP WETTABLE POWDER	GLUTAMIC ACID	340	OZ
8S16E18	ALMOND	3/8/06	A	85	AUXIGRO WP WETTABLE POWDER	GAMMA AMINOBUTYRIC ACID	340	OZ
8S16E18	ALMOND	3/9/06	G	30	ABOUND FLOWABLE FUNGICIDE	AZOXYSTROBIN	3	GA
8S16E20	ALMOND	2/26/06	A	56	ROVRAL BRAND 4 FLOWABLE	IPRODIONE	7	GA

TRS	commodity	application date	application method	treated acres	EPA name	Chemical name	quantity used	units
					FUNGICIDE			
8S16E20	ALMOND	3/1/06	A	28	ROVRAL BRAND 4 FLOWABLE FUNGICIDE	IPRODIONE	3.5	GA
8S16E20	ALMOND	3/5/06	G	58	PRISTINE FUNGICIDE	BOSCALID	638	OZ
8S16E20	ALMOND	3/5/06	G	58	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	638	OZ
8S16E20	ALMOND	3/7/06	A	28	PRISTINE FUNGICIDE	BOSCALID	294	OZ
8S16E20	ALMOND	3/7/06	A	28	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	294	OZ

Figure 24. Map showing pesticide applications in the Duck Slough @ Gurr Rd subwatershed during the 2 weeks prior to the March re-sample.

Duck Slough @ Gurr Rd - storm 1 re-sample (3/10/06) toxicity



Duck Slough @ Gurr Rd - Toxicity from storm 2 (3/15/06) sample.

Survival of 52% was reported for *Ceriodaphnia* for samples collected at the Duck Slough @ Gurr Rd subwatershed during the storm 2sampling. This survival was considered statistically significantly different from the controls and the sample was considered toxic. Pesticide use reports collected up to 2 weeks before the sampling showed close to 150 applications of various pesticides (Table 32, Figure 25.

Table 32. Pesticide applications in the Duck Slough @ Gurr Rd subwatershed during the 2 weeks prior to the March (storm 2) sample.

TRS	commodity	application date	application method	treated acres	EPA name	Chemical name	quantity used	units
8S13E16	CORN, HUMAN CON	3/15/06	A	5	WEEDAR 64 BROADLEAF HERBICIDE	2,4-D, DIMETHYLAMINE SALT	1.25	GA
8S13E16	TOMATO FRESH	3/15/06	A	75	TENKOZ BUCCANEER HERBICIDE	GLYPHOSATE, ISOPROPYLAMINE SALT	14.06	GA
8S13E16	TOMATO FRESH	3/15/06	A	98	TENKOZ BUCCANEER HERBICIDE	GLYPHOSATE, ISOPROPYLAMINE SALT	18.38	GA
8S13E16	TOMATO FRESH	3/15/06	A	75	GOAL 2XL	OXYFLUORFEN	2.34	GA
8S13E16	TOMATO FRESH	3/15/06	A	98	GOAL 2XL	OXYFLUORFEN	3.06	GA
8S13E16	CORN, HUMAN CON	3/15/06	A	5	NUFARM RECOIL BROAD SPECTRUM HERBICIDE	2,4-D (636) & GLYPHOSATE, ISOPROPYLAMINE SALT	1.56	GA
8S13E16	CORN, HUMAN CON	3/15/06	A	6.1	NUFARM RECOIL BROAD SPECTRUM HERBICIDE	2,4-D (636) & GLYPHOSATE, ISOPROPYLAMINE SALT	1.91	GA
8S13E16	CORN, HUMAN CON	3/15/06	A	55.8	NUFARM RECOIL BROAD SPECTRUM HERBICIDE	2,4-D (636) & GLYPHOSATE, ISOPROPYLAMINE SALT	17.44	GA
8S13E20	ALFALFA	3/8/06	G	72	WARRIOR INSECTICIDE WITH ZEON TECHNOLOGY	LAMBDA-CYHALOTHRIN	1.97	GA
8S13E20	ALFALFA	3/8/06	G	74	WARRIOR INSECTICIDE WITH ZEON TECHNOLOGY	LAMBDA-CYHALOTHRIN	2.02	GA
8S13E21	CORN, HUMAN CON	3/15/06	A	9	NUFARM RECOIL BROAD SPECTRUM HERBICIDE	2,4-D (636) & GLYPHOSATE, ISOPROPYLAMINE SALT	2.81	GA
8S13E33	ALFALFA	3/8/06	G	124	WARRIOR INSECTICIDE WITH ZEON TECHNOLOGY	LAMBDA-CYHALOTHRIN	3.39	GA
8S14E1	ALMOND	3/10/06	A	43	ABOUND FLOWABLE FUNGICIDE	AZOXYSTROBIN	4.03	GA
8S14E1	ALMOND	3/11/06	G	50	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	31.3	LBS
8S14E11	ALMOND	3/4/06	G	80	NORDOX 75 WG	COPPER OXIDE (OUS)	80	LBS
8S14E11	ALMOND	3/4/06	G	80	SERENADE MAX	BACILLUS SUBTILIS	160	LBS
8S14E11	ALMOND	3/4/06	G	80	MILLER NU-FILM-P	POLY-I-PARA-MENTHENE	3.8	GA

TRS	commodity	application date	application method	treated acres	EPA name	Chemical name	quantity used	units
8S14E12	ALMOND	3/9/06	A	80	DIMILIN 2L	DIFLUBENZURON	8	GA
8S14E12	ALMOND	3/9/06	A	80	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	50	LBS
8S14E13	ALMOND	3/9/06	G	16	ABOUND FLOWABLE FUNGICIDE	AZOXYSTROBIN	1.41	GA
8S14E13	ALMOND	3/9/06	G	16	FOSPHITE FUNGICIDE	POTASSIUM PHOSPHITE	8	GA
8S14E13	PEACH	3/10/06	G	16	VANGARD WG	CYPRODINIL	5.0	LBS
8S14E9	ALFALFA	3/1/06	G	13	PURSUIT HERBICIDE	IMAZETHAPYR, AMMONIUM SALT	39	GA
8S14E9	ALFALFA	3/1/06	G	45	RAPTOR HERBICIDE	IMAZAMOX, AMMONIUM SALT	0.4	GA
8S15E10	NECTARINE	3/1/06	G	20	ABOUND FLOWABLE FUNGICIDE	AZOXYSTROBIN	2.0	GA
8S15E10	ALMOND	3/1/06	G	46	VANGARD WG	CYPRODINIL	14.4	LBS
8S15E10	ALMOND	3/1/06	G	30	VANGARD WG	CYPRODINIL	9.4	LBS
8S15E10	ALMOND	3/8/06	A	40	MICRO FLO CAPTEC 4L	CAPTAN	15.0	GA
8S15E10	ALMOND	3/8/06	A	28	MICRO FLO CAPTEC 4L	CAPTAN	10.5	GA
8S15E10	ALMOND	3/8/06	A	21	ECHO 720 AGRICULTURAL FUNGICIDE	CHLOROTHALONIL	10.5	GA
8S15E10	ALMOND	3/8/06	A	21	AUXIGRO WP WETTABLE POWDER	GAMMA AMINOBUTYRIC ACID	5.3	LBS
8S15E10	ALMOND	3/8/06	A	21	AUXIGRO WP WETTABLE POWDER	GLUTAMIC ACID	5.3	LBS
8S15E10	ALMOND	3/9/06	A	18	BREAK-THRU	DIMETHYLPOLYSILOXANE	0.34	GA
8S15E10	ALMOND	3/9/06	A	18	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	11.25	LBS
8S15E10	ALMOND	3/9/06	G	79	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	53.5	LBS
8S15E10	ALMOND	3/11/06	A	21	ECHO 720 AGRICULTURAL FUNGICIDE	CHLOROTHALONIL	10.5	GA
8S15E10	ALMOND	3/11/06	A	21	AUXIGRO WP WETTABLE POWDER	GAMMA AMINOBUTYRIC ACID	5.3	LBS
8S15E10	ALMOND	3/11/06	A	21	AUXIGRO WP WETTABLE POWDER	GLUTAMIC ACID	5.3	LBS
8S15E10	ALMOND	3/13/06	A	37	ECHO 720 AGRICULTURAL FUNGICIDE	CHLOROTHALONIL	18.5	GA
8S15E10	NECTARINE	3/15/06	A	53	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	39.75	LBS
8S15E11	NECTARINE	3/1/06	G	10	ABOUND FLOWABLE FUNGICIDE	AZOXYSTROBIN	1.0	GA
8S15E11	ALMOND	3/2/06	G	25	VANGARD WG	CYPRODINIL	7.8	LBS
8S15E11	ALMOND	3/7/06	G	47	VANGARD WG	CYPRODINIL	14.8	LBS
8S15E11	ALMOND	3/8/06	G	65	VANGARD WG	CYPRODINIL	20.5	LBS
8S15E11	ALMOND	3/8/06	G	8	ROVRAL BRAND 4 FLOWABLE FUNGICIDE	IPRODIONE	1	GA
8S15E11	PLUM	3/8/06	A	20	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	13.13	LBS

TRS	commodity	application date	application method	treated acres	EPA name	Chemical name	quantity used	units
8S15E11	ALMOND	3/9/06	A	59	ECHO 720 AGRICULTURAL FUNGICIDE	CHLOROTHALONIL	29.5	GA
8S15E11	ALMOND	3/9/06	A	63	BREAK-THRU	DIMETHYLPOLYSILOXANE	1.18	GA
8S15E11	ALMOND	3/9/06	A	63	AUXIGRO WP WETTABLE POWDER	GAMMA AMINOBUTYRIC ACID	15.8	LBS
8S15E11	ALMOND	3/9/06	A	63	AUXIGRO WP WETTABLE POWDER	GLUTAMIC ACID	15.8	LBS
8S15E11	ALMOND	3/9/06	A	63	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	39.38	LBS
8S15E11	ALMOND	3/9/06	G	10	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	6.8	LBS
8S15E11	ALMOND	3/9/06	G	15	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	10.2	LBS
8S15E12	ALMOND	3/4/06	G	21	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	13.8	LBS
8S15E12	ALMOND	3/5/06	G	13	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	8.5	LBS
8S15E12	PEACH	3/8/06	A	10	KINETIC	DIMETHYLPOLYSILOXANE	0.25	GA
8S15E12	ALMOND	3/8/06	A	10	KINETIC	DIMETHYLPOLYSILOXANE	0.25	GA
8S15E12	PEACH	3/8/06	A	10	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	8.75	LBS
8S15E12	ALMOND	3/8/06	A	10	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	8.75	LBS
8S15E12	ALMOND	3/9/06	A	25	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	16.41	LBS
8S15E12	ALMOND	3/10/06	G	4	ROVRAL BRAND 4 FLOWABLE FUNGICIDE	IPRODIONE	0.4	GA
8S15E12	ALMOND	3/15/06	A	13	ECHO 720 AGRICULTURAL FUNGICIDE	CHLOROTHALONIL	6.5	GA
8S15E12	ALMOND	3/15/06	A	21	ECHO 720 AGRICULTURAL FUNGICIDE	CHLOROTHALONIL	10.5	GA
8S15E13	ALMOND	3/8/06	G	16	ROVRAL BRAND 4 FLOWABLE FUNGICIDE	IPRODIONE	2	GA
8S15E13	ALMOND	3/8/06	A	40	AUXIGRO WP WETTABLE POWDER	GAMMA AMINOBUTYRIC ACID	10	LBS
8S15E13	ALMOND	3/8/06	A	40	AUXIGRO WP WETTABLE POWDER	GLUTAMIC ACID	10	LBS
8S15E13	ALMOND	3/8/06	A	40	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	26.25	LBS
8S15E13	ALMOND	3/10/06	G	16	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	10.8	LBS
8S15E13	ALMOND	3/11/06	G	20	ROVRAL BRAND 4 FLOWABLE FUNGICIDE	IPRODIONE	2.1	GA
8S15E13	ALMOND	3/13/06	A	120	ECHO 720 AGRICULTURAL FUNGICIDE	CHLOROTHALONIL	60	GA
8S15E13	ALMOND	3/13/06	A	37	ECHO 720 AGRICULTURAL FUNGICIDE	CHLOROTHALONIL	18.5	GA
8S15E13	ALMOND	3/13/06	A	35	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	22.97	LBS
8S15E13	ALMOND	3/15/06	G	73	DUPONT KOCIDE 2000 FUNGICIDE/BACTERICIDE	COPPER HYDROXIDE	27.4	GA
8S15E13	ALMOND	3/15/06	A	18	ECHO 720 AGRICULTURAL	CHLOROTHALONIL	9	GA

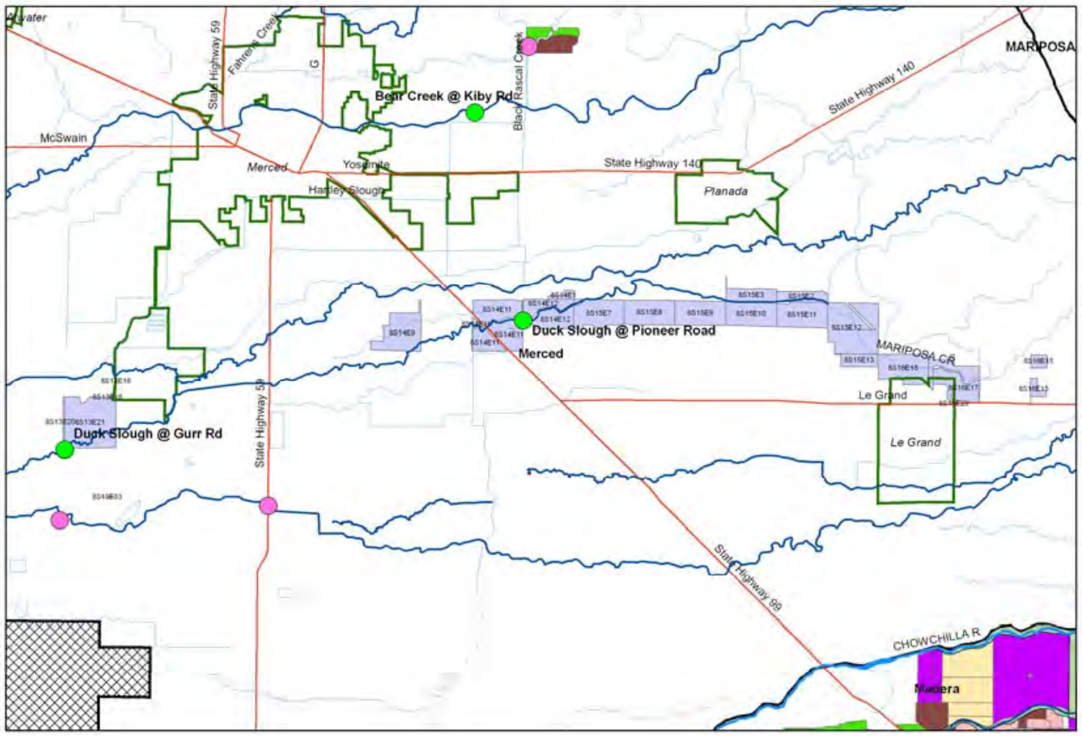
TRS	commodity	application date	application method	treated acres	EPA name	Chemical name	quantity used	units
					FUNGICIDE			
8S15E13	ALMOND	3/15/06	G	73	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	55.89	LBS
8S15E2	ALMOND	3/9/06	A	14	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	9.19	LBS
8S15E3	ALMOND	3/8/06	A	239	MICRO FLO CAPTEC 4L	CAPTAN	89.6	GA
8S15E7	ALMOND	3/6/06	A	210	VANGARD WG	CYPRODINIL	65.6	LBS
8S15E7	ALMOND	3/7/06	A	54	MILLER NU-FILM-P	POLY-I-PARA-MENTHENE	1.27	GA
8S15E7	ALMOND	3/7/06	A	40.76	MILLER NU-FILM-P	POLY-I-PARA-MENTHENE	1.0	GA
8S15E7	ALMOND	3/7/06	A	54	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	33.75	LBS
8S15E7	ALMOND	3/7/06	A	40.76	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	25.5	LBS
8S15E8	ALMOND	3/9/06	A	38	BREAK-THRU	DIMETHYLPOLYSILOXANE	0.71	GA
8S15E8	ALMOND	3/9/06	A	39	BREAK-THRU	DIMETHYLPOLYSILOXANE	0.73	GA
8S15E8	ALMOND	3/9/06	A	38.9	BREAK-THRU	DIMETHYLPOLYSILOXANE	0.73	GA
8S15E8	ALMOND	3/9/06	A	38	AUXIGRO WP WETTABLE POWDER	GAMMA AMINOBUTYRIC ACID	9.5	LBS
8S15E8	ALMOND	3/9/06	A	39	AUXIGRO WP WETTABLE POWDER	GAMMA AMINOBUTYRIC ACID	9.8	LBS
8S15E8	ALMOND	3/9/06	A	38	AUXIGRO WP WETTABLE POWDER	GLUTAMIC ACID	9.5	LBS
8S15E8	ALMOND	3/9/06	A	39	AUXIGRO WP WETTABLE POWDER	GLUTAMIC ACID	9.8	LBS
8S15E8	ALMOND	3/9/06	A	38.9	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	24.38	LBS
8S15E8	ALMOND	3/9/06	A	38	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	23.75	LBS
8S15E8	ALMOND	3/9/06	A	39	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	24.38	LBS
8S15E9	ALMOND	3/8/06	A	160	ABOUND FLOWABLE FUNGICIDE	AZOXYSTROBIN	15.0	GA
8S15E9	ALMOND	3/8/06	A	156	ABOUND FLOWABLE FUNGICIDE	AZOXYSTROBIN	14.6	GA
8S15E9	ALMOND	3/9/06	A	150	ABOUND FLOWABLE FUNGICIDE	AZOXYSTROBIN	14.1	GA
8S15E9	ALMOND	3/9/06	A	46	BREAK-THRU	DIMETHYLPOLYSILOXANE	0.86	GA
8S15E9	ALMOND	3/9/06	A	17	BREAK-THRU	DIMETHYLPOLYSILOXANE	0.32	GA
8S15E9	ALMOND	3/9/06	A	43	BREAK-THRU	DIMETHYLPOLYSILOXANE	0.81	GA
8S15E9	ALMOND	3/9/06	A	46	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	28.75	LBS
8S15E9	ALMOND	3/9/06	A	43	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	26.88	LBS
8S15E9	ALMOND	3/9/06	A	17	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	10.63	LBS
8S15E9	ALMOND	3/10/06	A	38	ROVRAL BRAND 4 FLOWABLE FUNGICIDE	IPRODIONE	4.75	GA
8S15E9	ALMOND	3/10/06	A	38	ZIRAM 76DF FUNGICIDE	ZIRAM	228	LBS
8S15E9	ALMOND	3/10/06	G	45	MICRO FLO CAPTEC 4L	CAPTAN	2.8	GA

TRS	commodity	application date	application method	treated acres	EPA name	Chemical name	quantity used	units
8S16E15	ALMOND	3/13/06	A	69	ECHO 720 AGRICULTURAL FUNGICIDE	CHLOROTHALONIL	34.5	GA
8S16E17	ALMOND	3/1/06	A	20	VANGARD WG	CYPRODINIL	6.3	LBS
8S16E17	ALMOND	3/1/06	G	10	BREAK-THRU	DIMETHYLPOLYSILOXANE	0.2	GA
8S16E17	ALMOND	3/1/06	G	10	AUXIGRO WP WETTABLE POWDER	GAMMA AMINOBUTYRIC ACID	2.5	LBS
8S16E17	ALMOND	3/1/06	A	20	AUXIGRO WP WETTABLE POWDER	GAMMA AMINOBUTYRIC ACID	5.0	LBS
8S16E17	ALMOND	3/1/06	A	20	AUXIGRO WP WETTABLE POWDER	GLUTAMIC ACID	5.0	LBS
8S16E17	ALMOND	3/1/06	G	10	AUXIGRO WP WETTABLE POWDER	GLUTAMIC ACID	2.5	LBS
8S16E17	ALMOND	3/1/06	G	10	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	6.6	LBS
8S16E17	ALMOND	3/5/06	G	50	DEGESCH PHOSTOXIN TABLETS-R	ALUMINUM PHOSPHIDE	150	UNITS
8S16E17	ALMOND	3/9/06	A	42	ECHO 720 AGRICULTURAL FUNGICIDE	CHLOROTHALONIL	21	GA
8S16E17	ALMOND	3/13/06	G	11	ECHO 720 TURF AND ORNAMENTAL FUNGICIDE	CHLOROTHALONIL	5.5	GA
8S16E17	ALMOND	3/13/06	G	5	BREAK-THRU	DIMETHYLPOLYSILOXANE	0.1	GA
8S16E17	ALMOND	3/13/06	G	16	AUXIGRO WP WETTABLE POWDER	GAMMA AMINOBUTYRIC ACID	4.0	LBS
8S16E17	ALMOND	3/13/06	G	16	AUXIGRO WP WETTABLE POWDER	GLUTAMIC ACID	4.0	LBS
8S16E17	ALMOND	3/13/06	G	5	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	3.3	LBS
8S16E17	ALMOND	3/15/06	A	18	ECHO 720 AGRICULTURAL FUNGICIDE	CHLOROTHALONIL	9	GA
8S16E18	ALMOND	3/1/06	A	18	ROVRAL BRAND 4 FLOWABLE FUNGICIDE	IPRODIONE	2.25	GA
8S16E18	ALMOND	3/1/06	A	71	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	59.1	LBS
8S16E18	ALMOND	3/7/06	A	15	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	9.8	LBS
8S16E18	ALMOND	3/8/06	A	85	ECHO 720 AGRICULTURAL FUNGICIDE	CHLOROTHALONIL	42.5	GA
8S16E18	ALMOND	3/8/06	A	85	AUXIGRO WP WETTABLE POWDER	GAMMA AMINOBUTYRIC ACID	21.3	LBS
8S16E18	ALMOND	3/8/06	A	85	AUXIGRO WP WETTABLE POWDER	GLUTAMIC ACID	21.3	LBS
8S16E18	ALMOND	3/9/06	G	30	ABOUND FLOWABLE FUNGICIDE	AZOXYSTROBIN	3	GA
8S16E18	ALMOND	3/11/06	A	85	ECHO 720 AGRICULTURAL FUNGICIDE	CHLOROTHALONIL	42.5	GA
8S16E18	ALMOND	3/11/06	A	85	AUXIGRO WP WETTABLE POWDER	GAMMA AMINOBUTYRIC ACID	21.3	LBS
8S16E18	ALMOND	3/11/06	A	85	AUXIGRO WP WETTABLE POWDER	GLUTAMIC ACID	21.3	LBS
8S16E18	ALMOND	3/15/06	A	71	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	46.6	LBS
8S16E20	ALMOND	3/1/06	A	28	ROVRAL BRAND 4 FLOWABLE FUNGICIDE	IPRODIONE	3.5	GA

TRS	commodity	application date	application method	treated acres	EPA name	Chemical name	quantity used	units
8S16E20	ALMOND	3/5/06	G	58	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	39.9	LBS
8S16E20	ALMOND	3/7/06	A	28	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	18.4	LBS
8S16E20	ALMOND	3/13/06	A	56	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	36.75	LBS

Figure 25. Map showing pesticide applications in the Duck Slough @ Gurr Rd subwatershed during the 2 weeks prior to the March (storm 2) sample.

Duck Slough @ Gur Rd. - Storm 2 (3/15/06) toxicity



Highline Canal @ Hwy 99 - Toxicity from storm 2 (3/16/06) sample.

Survival of 0% was reported for *Ceriodaphnia* for samples collected at the Highline Canal @ Hwy 99 subwatershed during the storm 2 sampling. This survival was considered statistically significantly different from the controls and the sample was considered toxic. Pesticide use reports collected up to 2 weeks before the sampling showed close to 80 applications of various pesticides (Table 33, Figure 26). Data for Stanislaus was not available at the time of preparation for this report and the contribution of runoff from lands in Stanislaus into the subwatershed cannot be assessed.

Table 33. Pesticide applications in the Highline Canal @ Hwy 99 subwatershed during the 2 weeks prior to the March (storm 2) sample.

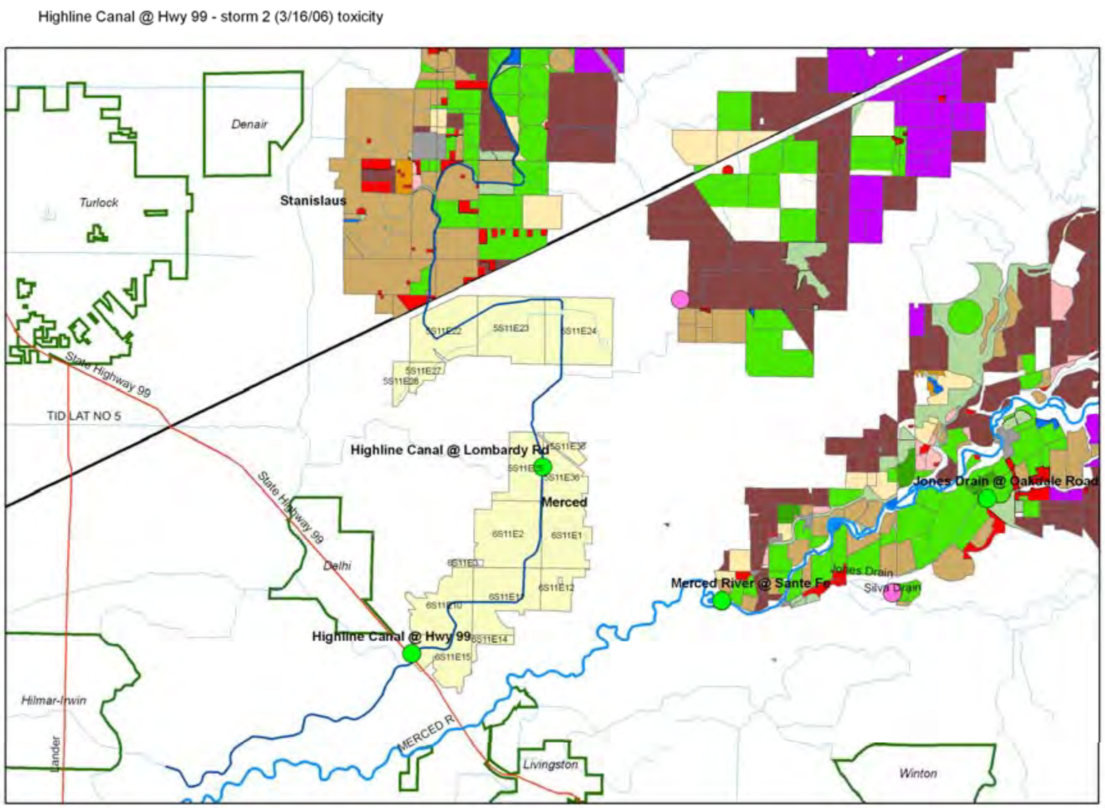
TRS	commodity	application date	application method	treated acres	EPA name	Chemical name	quantity used	units
5S11E22	ALMOND	03/08/06	G	45	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	28.1	LBS
5S11E22	ALMOND	03/13/06	G	15	GLY STAR PLUS	GLYPHOSATE, ISOPROPYLAMINE SALT	3.8	GA
5S11E23	ALMOND	03/09/06	G	70	ABOUND FLOWABLE FUNGICIDE	AZOXYSTROBIN	7.0	GA
5S11E24	ALMOND	03/06/06	G	37	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	23.1	LBS
5S11E27	ALMOND	03/04/06	G	5	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	3.1	LBS
5S11E27	ALMOND	03/08/06	G	53	GASTOXIN FUMIGATION TABLETS	ALUMINUM PHOSPHIDE	9.9	LBS
5S11E27	ALMOND	03/13/06	G	5	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	3.1	LBS
5S11E27	ALMOND	03/15/06	G	27	GLY STAR PLUS	GLYPHOSATE, ISOPROPYLAMINE SALT	10.1	GA
5S11E27	WALNUT	03/15/06	G	2.5	GLY STAR PLUS	GLYPHOSATE, ISOPROPYLAMINE SALT	0.9	GA
5S11E27	ALMOND	03/15/06	G	10	BRAVO WEATHER STICK	CHLOROTHALONIL	5	GA
5S11E27	ALMOND	03/16/06	G	20	BRAVO WEATHER STICK	CHLOROTHALONIL	10	GA
5S11E27	ALMOND	03/16/06	G	10	BRAVO WEATHER STICK	CHLOROTHALONIL	5	GA
5S11E27	ALMOND	03/16/06	G	10	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	3.9	LBS
5S11E28	PEACH	03/09/06	G	10	THIOLUX JET	SULFUR	50	LBS
5S11E28	PEACH	03/09/06	G	10	ROVRAL BRAND 4 FLOWABLE FUNGICIDE	IPRODIONE	1.3	GA
5S11E28	ALMOND	03/15/06	G	40	ZIRAM 76DF FUNGICIDE	ZIRAM	320	LBS

TRS	commodity	application date	application method	treated acres	EPA name	Chemical name	quantity used	units
5S11E28	ALMOND	03/15/06	G	40	TOPSIN M FUNGICIDE	THIOPHANATE-METHYL	40	LBS
5S11E28	ALMOND	03/15/06	G	35	BRAVO WEATHER STICK	CHLOROTHALONIL	17.5	GA
5S11E35	ALMOND	03/04/06	G	30	AUXIGRO WP WETTABLE POWDER	GAMMA AMINOBUTYRIC ACID	7.5	LBS
5S11E35	ALMOND	03/04/06	G	30	AUXIGRO WP WETTABLE POWDER	GLUTAMIC ACID	7.5	LBS
5S11E35	ALMOND	03/04/06	G	30	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	18.8	LBS
5S11E36	ALMOND	03/07/06	G	11	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	6.9	LBS
5S11E36	ALMOND	03/08/06	G	46	BREAK-THRU	DIMETHYLPOLYSILOXANE	1.4	GA
5S11E36	ALMOND	03/08/06	G	46	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	30.19	LBS
5S11E36	ALMOND	03/08/06	G	19	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	11.9	LBS
5S11E36	PEACH	03/09/06	G	22	THIOLUX JET	SULFUR	110	LBS
5S11E36	PEACH	03/09/06	G	22	ROVRAL BRAND 4 FLOWABLE FUNGICIDE	IPRODIONE	2.8	GA
5S11E36	PEACH	03/11/06	G	13.24	CSC WETTABLE SULFUR	SULFUR	132.4	LBS
5S11E36	PEACH	03/11/06	G	13.9	CSC WETTABLE SULFUR	SULFUR	139	LBS
5S11E36	PEACH	03/11/06	G	13.24	SUCCESS	SPINOSAD	4.1	LBS
5S11E36	PEACH	03/11/06	G	13.9	SUCCESS	SPINOSAD	4.3	LBS
5S11E36	PEACH	03/11/06	G	13.9	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	9.1	LBS
5S11E36	PEACH	03/11/06	G	13.24	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	8.7	LBS
5S11E36	PEACH	03/14/06	G	22	KOLOSPRAY FUNGICIDE-INSECTICIDE	sulfur	440	LBS
5S11E36	PEACH	03/14/06	G	22	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	14.4	LBS
6S11E1	ALMOND	03/08/06	G	20	HONCHO PLUS HERBICIDE	GLYPHOSATE, ISOPROPYLAMINE SALT	2.7	GA
6S11E1	ALMOND	03/08/06	G	20	CHATEAU HERBICIDE SW	FLUMIOXAZIN	5.0	LBS
6S11E1	ALMOND	03/08/06	G	20	SURFLAN A.S. AGRICULTURAL HERBICIDE	ORYZALIN	0.3	GA
6S11E1	ALMOND	03/11/06	G	20	AUXIGRO WP WETTABLE POWDER	GAMMA AMINOBUTYRIC ACID	5.0	LBS
6S11E1	ALMOND	03/11/06	G	20	AUXIGRO WP WETTABLE POWDER	GLUTAMIC ACID	5.0	LBS
6S11E1	ALMOND	03/11/06	G	20	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	12.5	LBS
6S11E1	ALMOND	03/14/06	G	40	ZIRAM 76DF FUNGICIDE	ZIRAM	320	LBS
6S11E1	ALMOND	03/16/06	G	34	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	25	LBS
6S11E10	ALMOND	03/08/06	G	15	NORDOX 75 WG	COPPER OXIDE (OUS)	0.8	LBS

TRS	commodity	application date	application method	treated acres	EPA name	Chemical name	quantity used	units
6S11E10	ALMOND	03/08/06	G	15	ECHO 720 AGRICULTURAL FUNGICIDE	CHLOROTHALONIL	4.0	LBS
6S11E11	ALMOND	03/07/06	G	3	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	1.9	LBS
6S11E11	ALMOND	03/08/06	G	65	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	40.6	LBS
6S11E12	ALMOND	03/04/06	G	10	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	6.3	LBS
6S11E12	ALMOND	03/08/06	G	25	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	12.5	LBS
6S11E12	ALMOND	03/13/06	G	30	MANEX	MANEB	30	GA
6S11E14	ALMOND	03/08/06	G	17	CAYUSE PLUS	AMMONIUM SULFATE	1.65	GA
6S11E14	ALMOND	03/08/06	G	17	ROUNDUP ORIGINAL MAX HERBICIDE	GLYPHOSATE, POTASSIUM SALT	4.13	GA
6S11E14	ALMOND	03/11/06	G	34	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	21.3	LBS
6S11E14	ALMOND	03/13/06	G	11	CAYUSE PLUS	AMMONIUM SULFATE	0.98	GA
6S11E14	ALMOND	03/13/06	G	11	ROUNDUP ORIGINAL MAX HERBICIDE	GLYPHOSATE, POTASSIUM SALT	2.44	GA
6S11E14	ALMOND	03/16/06	G	28	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	17.2	LBS
6S11E14	ALMOND	03/16/06	G	18	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	10.9	LBS
6S11E15	ALMOND	03/03/06	G	15	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	9.8	LBS
6S11E15	ALMOND	03/03/06	G	23	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	15.1	LBS
6S11E15	PEACH	03/04/06	G	29.6	THIOLUX JET	SULFUR	300	LBS
6S11E15	PEACH	03/04/06	G	29.6	VANGARD WG	CYPRODINIL	9.38	LBS
6S11E15	PEACH	03/04/06	G	29.6	BASIC COPPER 53	COPPER SULFATE (BASIC)	150	LBS
6S11E15	PEACH	03/16/06	G	29	THIOLUX JET	SULFUR	290	LBS
6S11E15	PEACH	03/16/06	G	29	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	19.0	LBS
6S11E2	PEACH	03/08/06	G	11	CSC WETTABLE SULFUR	SULFUR	110	LBS
6S11E2	PEACH	03/08/06	G	5	CSC WETTABLE SULFUR	SULFUR	50	LBS
6S11E2	PEACH	03/08/06	G	11	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	8.3	LBS
6S11E2	PEACH	03/08/06	G	5	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	3.8	LBS
6S11E2	PEACH	03/09/06	G	3.69	VANGARD WG	CYPRODINIL	1.2	LBS
6S11E2	PEACH	03/09/06	G	3.69	CSC WETTABLE SULFUR	SULFUR	36.9	LBS
6S11E2	ALMOND	03/10/06	G	5	BREAK-THRU	DIMETHYLPOLYSILOXANE	0.1	GA
6S11E2	ALMOND	03/10/06	G	5	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	3.1	LBS
6S11E2	ALMOND	03/15/06	G	65	ABOUND FLOWABLE FUNGICIDE	AZOXYSTROBIN	6.5	GA
6S11E3	ALMOND	03/07/06	G	43	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	26.9	LBS

TRS	commodity	application date	application method	treated acres	EPA name	Chemical name	quantity used	units
6S11E3	PEACH	03/11/06	G	4.31	CSC WETTABLE SULFUR	SULFUR	43.1	LBS
6S11E3	PEACH	03/11/06	G	4.31	SUCCESS	SPINOSAD	1.3	LBS
6S11E3	PEACH	03/11/06	G	4.31	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	2.8	LBS

Figure 26. Map showing pesticide applications in the Highline Canal @ Hwy 99 Rd subwatershed during the 2 weeks prior to the March (storm 2) sample.



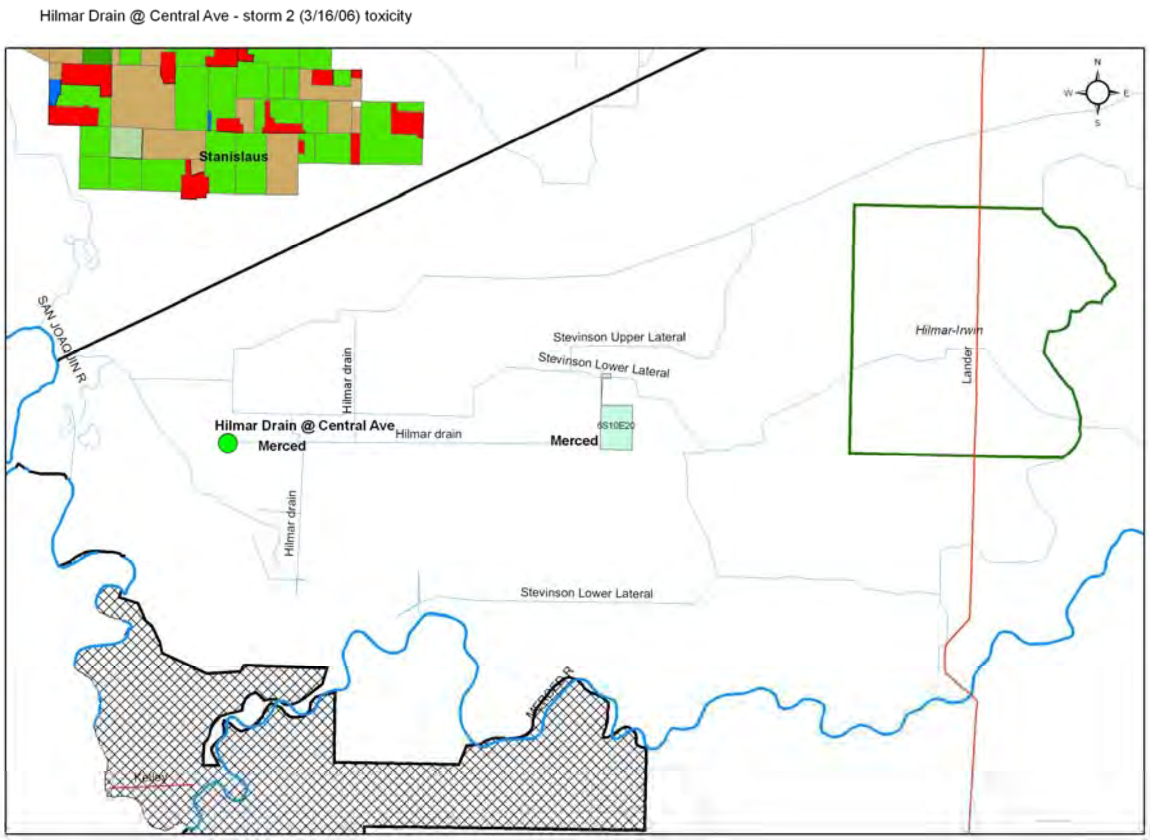
Hilmar Drain @ Central Ave. - Toxicity from storm 2 (3/16/06) sample.

Survival of 0% was reported for *Ceriodaphnia* for samples collected at the Hilmar Drain @ Central Ave subwatershed during the storm 2 sampling. This survival was considered statistically significantly different from the controls and the sample was considered toxic. Pesticide use reports collected up to 2 weeks before the sampling showed 4 applications of various pesticides (Table 34, Figure 27).

Table 34. Pesticide applications in the Hilmar Drain @ Central Ave subwatershed during the 2 weeks prior to the March (storm 2) sample.

TRS	Commodity	Application date	Application method	Treated acres	EPA name	Chemical name	Quantity used	Units
6S10E20	ALMOND	3/12/06	G	14	KOCIDE 101	COPPER HYDROXIDE	14	LBS
6S10E20	ALMOND	3/12/06	G	14	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	9.19	LBS
6S10E20	ALMOND	3/15/06	G	50	KOCIDE 101	COPPER HYDROXIDE	50	LBS
6S10E20	ALMOND	3/15/06	G	50	ECHO 720 AGRICULTURAL FUNGICIDE	CHLOROTHALONIL	25	GA

Figure 27. Map showing pesticide applications in the Hilmar Drain @ Central Ave subwatershed during the 2 weeks prior to the March (storm 2) sample.



Merced River @ Santa Fe. - Toxicity from storm 2 (3/16/06) sample.

Survival of 0% was reported for *Ceriodaphnia* for samples collected at the Merced River @ Santa Fe. subwatershed during the storm 2 sampling. This survival was considered statistically significantly different from the controls and the sample was considered toxic. Pesticide use reports collected up to 2 weeks before the sampling showed close to 80 applications of various pesticides (Table 35, Figure 28).

Table 35. Pesticide applications in the Merced River @ Santa Fe. subwatershed during the 2 weeks prior to the March (storm 2) sample.

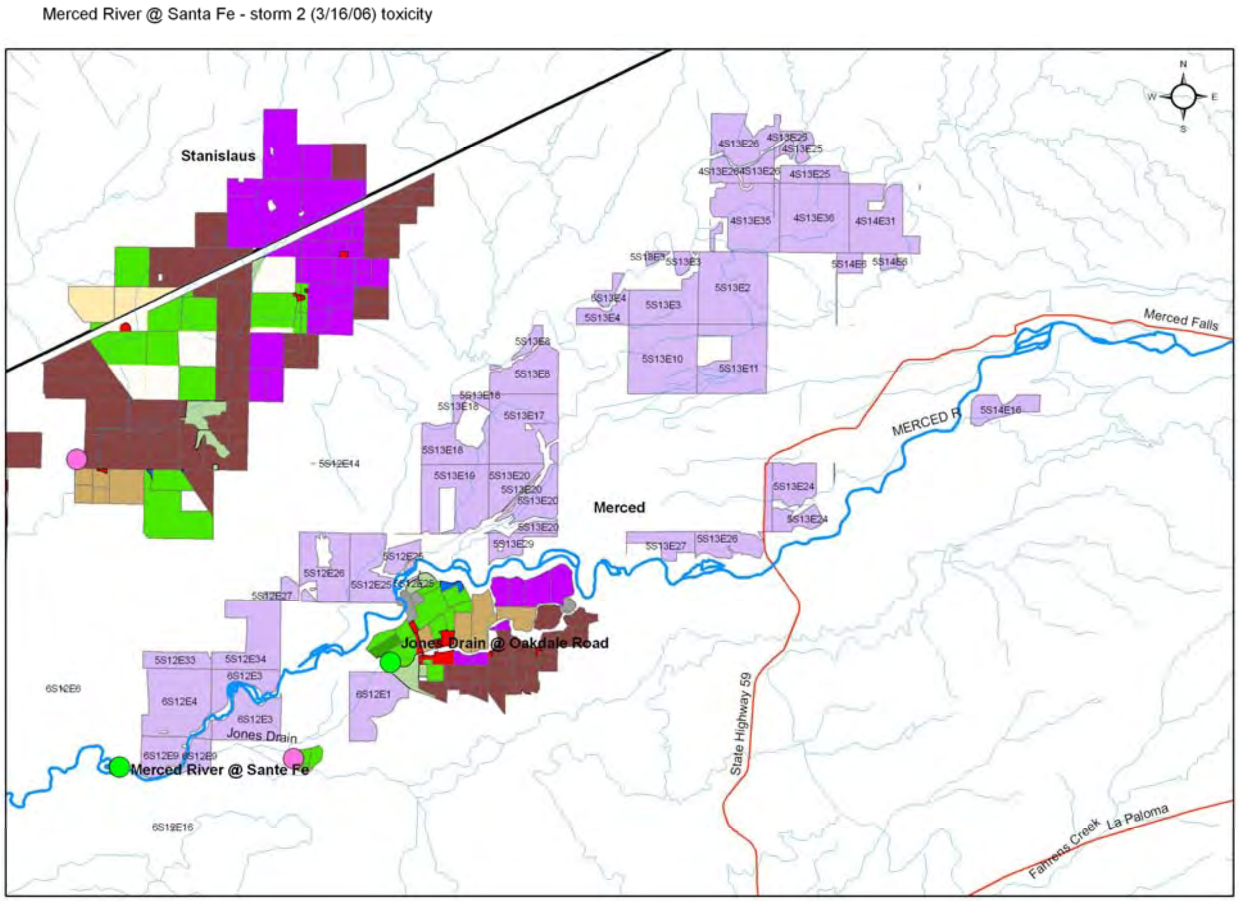
TRS	commodity	application date	application method	treated acres	EPA name	Chemical name	quantity used	units
4S13E25	PEACH	3/8/06	G	45.2	SCALA BRAND SC FUNGICIDE	PYRIMETHANIL	0.0	GA
4S13E25	PEACH	3/8/06	G	45.2	KINETIC	DIMETHYLPOLYSILOXANE	0.75	GA
4S13E25	ALMOND	3/16/06	G	360	ROVRAL BRAND 4 FLOWABLE FUNGICIDE	IPRODIONE	45.0	GA
4S13E26	PEACH	3/7/06	G	20	SCALA BRAND SC FUNGICIDE	PYRIMETHANIL	0.0	GA
4S13E26	PEACH	3/7/06	G	30.6	SCALA BRAND SC FUNGICIDE	PYRIMETHANIL	3.1	GA
4S13E26	PEACH	3/7/06	G	22.3	SCALA BRAND SC FUNGICIDE	PYRIMETHANIL	2.2	GA
4S13E26	PEACH	3/7/06	G	20	KINETIC	DIMETHYLPOLYSILOXANE	0.31	GA
4S13E26	PEACH	3/7/06	G	30.6	KINETIC	DIMETHYLPOLYSILOXANE	0.48	GA
4S13E26	PEACH	3/7/06	G	22.3	KINETIC	DIMETHYLPOLYSILOXANE	0.35	GA
4S13E26	PEACH	3/8/06	G	40.5	SCALA BRAND SC FUNGICIDE	PYRIMETHANIL	0.0	GA
4S13E26	APRICOT	3/8/06	G	56.5	SCALA BRAND SC FUNGICIDE	PYRIMETHANIL	6	GA
4S13E26	PEACH	3/8/06	G	20	SCALA BRAND SC FUNGICIDE	PYRIMETHANIL	2	GA
4S13E26	PEACH	3/8/06	G	20	SCALA BRAND SC FUNGICIDE	PYRIMETHANIL	2	GA
4S13E26	PEACH	3/8/06	G	20	SCALA BRAND SC FUNGICIDE	PYRIMETHANIL	2	GA

TRS	commodity	application date	application method	treated acres	EPA name	Chemical name	quantity used	units
4S13E26	PEACH	3/8/06	G	20	KINETIC	DIMETHYLPOLYSILOXANE	0.31	GA
4S13E26	PEACH	3/8/06	G	40.5	KINETIC	DIMETHYLPOLYSILOXANE	0.64	GA
4S13E26	APRICOT	3/8/06	G	56.5	KINETIC	DIMETHYLPOLYSILOXANE	0.94	GA
4S13E26	PEACH	3/8/06	G	20	KINETIC	DIMETHYLPOLYSILOXANE	0.31	GA
4S13E26	PEACH	3/8/06	G	20	KINETIC	DIMETHYLPOLYSILOXANE	0.31	GA
4S13E35	ALMOND	3/2/06	G	450	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	351.6	LBS
4S13E36	ALMOND	3/8/06	G	36	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	22.5	LBS
4S13E36	ALMOND	3/11/06	G	36	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	22.5	LBS
4S13E36	ALMOND	3/16/06	G	100	ROVRAL BRAND 4 FLOWABLE FUNGICIDE	IPRODIONE	12.5	GA
4S14E31	ALMOND	3/16/06	G	100	ROVRAL BRAND 4 FLOWABLE FUNGICIDE	IPRODIONE	12.5	GA
5S12E14	ALMOND	3/5/06	G	240	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	187.5	LBS
5S12E25	ALMOND	3/7/06	G	20	SCALA BRAND SC FUNGICIDE	PYRIMETHANIL	2.3	GA
5S12E25	ALMOND	3/7/06	G	30	SCALA BRAND SC FUNGICIDE	PYRIMETHANIL	3.5	GA
5S12E25	ALMOND	3/7/06	G	17.5	SCALA BRAND SC FUNGICIDE	PYRIMETHANIL	2.1	GA
5S12E25	ALMOND	3/7/06	G	17.5	SCALA BRAND SC FUNGICIDE	PYRIMETHANIL	262.5	GA
5S12E25	ALMOND	3/7/06	G	20	SCALA BRAND SC FUNGICIDE	PYRIMETHANIL	37.5	GA
5S12E25	ALMOND	3/11/06	G	50	HONCHO PLUS HERBICIDE	GLYPHOSATE, ISOPROPYLAMINE SALT	18.8	GA
5S12E26	ALMOND	3/15/06	G	40	ROUNDUP WEATHERMAX HERBICIDE	GLYPHOSATE, POTASSIUM SALT	3.3	GA
5S12E27	ALMOND	3/4/06	G	30	TOUCHDOWN HITECH	GLYPHOSATE, POTASSIUM SALT	11.3	GA
5S12E27	ALMOND	3/4/06	G	30	SHARK HERBICIDE	CARFENTRAZONE-ETHYL	1.9	LBS
5S12E27	ALMOND	3/11/06	G	40	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	26.25	LBS
5S12E33	ALMOND	3/15/06	G	42	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	10	LBS
5S12E34	ALMOND	3/4/06	G	38	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	24.4	LBS
5S12E34	ALMOND	3/9/06	G	38	WILCO	STRYCHNINE	30.02	LBS
5S12E34	ALMOND	3/11/06	G	104	HONCHO PLUS HERBICIDE	GLYPHOSATE, ISOPROPYLAMINE SALT	39.0	GA
5S13E10	ALMOND	3/2/06	G	285	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	222.7	LBS
5S13E11	ALMOND	3/2/06	G	213	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	166.4	LBS

TRS	commodity	application date	application method	treated acres	EPA name	Chemical name	quantity used	units
5S13E17	ALMOND	3/2/06	G	20	AUXIGRO WP WETTABLE POWDER	GAMMA AMINOBUTYRIC ACID	5.0	LBS
5S13E17	ALMOND	3/2/06	G	20	AUXIGRO WP WETTABLE POWDER	GLUTAMIC ACID	5.0	LBS
5S13E17	ALMOND	3/2/06	G	20	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	13.8	LBS
5S13E17	ALMOND	3/2/06	G	60	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	46.9	LBS
5S13E18	ALMOND	3/10/06	G	160	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	125.0	LBS
5S13E19	GRAPE, WINE	3/10/06	G	12.8	GLY STAR PLUS	GLYPHOSATE, ISOPROPYLAMINE SALT	8.0	GA
5S13E19	GRAPE, WINE	3/10/06	G	11	GLY STAR PLUS	GLYPHOSATE, ISOPROPYLAMINE SALT	6.9	GA
5S13E19	ALMOND	3/10/06	G	300	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	234.4	LBS
5S13E2	ALMOND	3/2/06	G	65	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	50.8	LBS
5S13E2	ALMOND	3/6/06	G	107	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	83.6	LBS
5S13E20	ALMOND	3/3/06	G	80	KOCIDE DF	COPPER HYDROXIDE	80	LBS
5S13E20	ALMOND	3/3/06	G	80	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	58	LBS
5S13E20	ALMOND	3/4/06	G	80	KOCIDE DF	COPPER HYDROXIDE	80	LBS
5S13E20	ALMOND	3/4/06	G	80	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	58	LBS
5S13E20	ALMOND	3/6/06	G	80	KOCIDE DF	COPPER HYDROXIDE	80	LBS
5S13E20	ALMOND	3/6/06	G	80	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	58	LBS
5S13E20	ALMOND	3/7/06	G	60	KOCIDE DF	COPPER HYDROXIDE	60	LBS
5S13E20	ALMOND	3/7/06	G	60	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	43.5	LBS
5S13E20	ALMOND	3/8/06	G	80	KOCIDE DF	COPPER HYDROXIDE	80	LBS
5S13E20	ALMOND	3/8/06	G	80	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	58	LBS
5S13E20	ALMOND	3/9/06	G	40	KOCIDE DF	COPPER HYDROXIDE	40	LBS
5S13E20	GRAPE, WINE	3/9/06	G	10.6	GLY STAR PLUS	GLYPHOSATE, ISOPROPYLAMINE SALT	6.7	GA
5S13E20	ALMOND	3/9/06	G	40	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	29	LBS
5S13E20	ALMOND	3/10/06	G	80	KOCIDE DF	COPPER HYDROXIDE	80	LBS
5S13E20	ALMOND	3/10/06	G	80	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	58	LBS
5S13E24	WHEAT SEED	3/16/06	A	175	RHOMENE MCPA AMINE HERBICIDE	MCPA, DIMETHYLAMINE SALT	16.41	GA
5S13E24	WHEAT SEED	3/16/06	A	175	SHARK HERBICIDE	CARFENTRAZONE-ETHYL	7.2	LBS
5S13E26	ALMOND	3/15/06	G	70	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	44	LBS
5S13E27	ALMOND	3/4/06	G	30	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	22.5	LBS

TRS	commodity	application date	application method	treated acres	EPA name	Chemical name	quantity used	units
5S13E29	GRAPE, WINE	3/10/06	G	28	GLY STAR PLUS	GLYPHOSATE, ISOPROPYLAMINE SALT	17.5	GA
5S13E3	ALMOND	3/2/06	G	244	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	190.6	LBS
5S13E4	ALMOND	3/2/06	G	124	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	96.9	LBS
5S13E8	ALMOND	3/2/06	G	315	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	246.1	LBS
5S13E8	ALMOND	3/5/06	G	5	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	3.1	LBS
5S14E16	OAT FOR/FOD	3/7/06	G	20	BUCTRIL 4 EC HERBICIDE	BROMOXYNIL HEPTANOATE	2.5	GA
5S14E16	OAT FOR/FOD	3/7/06	G	20	BUCTRIL 4 EC HERBICIDE	BROMOXYNIL OCTANOATE	2.5	GA
5S14E6	ALMOND	3/16/06	G	40	ROVRAL BRAND 4 FLOWABLE FUNGICIDE	IPRODIONE	5.0	GA
6S12E1	ALMOND	3/16/06	G	35	ZIRAM 76DF FUNGICIDE	ZIRAM	280	LBS
6S12E16	ALMOND	3/6/06	G	18	ROVRAL BRAND 4 FLOWABLE FUNGICIDE	IPRODIONE	2.5	GA
6S12E16	ALMOND	3/15/06	G	18	DELIVER BIOLOGICAL INSECTICIDE	Bt	10	LBS
6S12E3	ALMOND	3/4/06	G	18	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	11.9	LBS
6S12E3	ALMOND	3/15/06	G	11	CAYUSE PLUS	AMMONIUM SULFATE	0.83	GA
6S12E3	ALMOND	3/15/06	G	11	ROUNDUP ORIGINAL MAX HERBICIDE	GLYPHOSATE, POTASSIUM SALT	2.06	GA
6S12E4	ALMOND	3/5/06	G	34	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	21.3	LBS
6S12E4	ALMOND	3/5/06	G	27	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	16.9	LBS
6S12E4	PEACH	3/11/06	G	70	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	43.8	LBS
6S12E6	ALMOND	3/2/06	G	35.1	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	12.1	LBS
6S12E6	PEACH	3/7/06	G	5	ROVRAL BRAND 4 FLOWABLE FUNGICIDE	IPRODIONE	0.6	GA
6S12E6	ALMOND	3/15/06	G	20	ABOUND FLOWABLE FUNGICIDE	AZOXYSTROBIN	6.3	LBS
6S12E6	PEACH	3/16/06	G	5	CSC 80% THIOSPERSE/THIOBEN	SULFUR	30	LBS
6S12E6	PEACH	3/16/06	G	5	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	1.7	LBS
6S12E9	ALMOND	3/2/06	G	15	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	6.3	LBS
6S12E9	ALMOND	3/13/06	G	39.5	ABOUND FLOWABLE FUNGICIDE	AZOXYSTROBIN	31.6	LBS

Figure 28. Map showing pesticide applications in the Merced River @ Santa Fe subwatershed during the 2 weeks prior to the March sample.



Prairie Flower Drain @ Crows Landing. - Toxicity from storm 2 (3/16/06) sample.

Survival of 75% was reported for *Ceriodaphnia* for samples collected at the Prairie Flower Drain @ Crows Lnding. subwatershed during the storm 2 sampling. This survival was considered statistically significantly different from the controls and the sample was considered toxic. Pesticide use data for Stanislaus ws not available at the preparation of this report.

Pimephales promelas toxicity

Duck Slough @ Gurr Rd - Toxicity from storm 1 re-sample (3/1/06).

Survival of 35% was reported for *Ceriodaphnia* for samples collected at the Duck Slough @ Gurr Rd. subwatershed during the storm 1 re-sampling. This survival was considered statistically significantly different from the controls and the sample was considered toxic. Pesticide use reports collected up to 2 weeks before the sampling showed over 200 applications of various pesticides (Table 36, Figure 29).

Table 36. Pesticide applications in the Duck Slough @ Gurr Rd subwatershed during the 2 weeks prior to the March re-sample.

TRS	commodity	application date	application method	treated acres	EPA name	Chemical name	quantity used	units
8S13E20	COTTON	2/24/06	G	96.2	GOAL 2XL	OXYFLUORFEN	481	OZ
8S13E20	COTTON	2/24/06	G	96.2	NUFARM CREDIT SYSTEMIC HERBICIDE	GLYPHOSATE, ISOPROPYLAMINE SALT	192.4	PT
8S13E20	ALFALFA	2/26/06	A	58.4	TRILIN 10G HERBICIDE	TRIFLURALIN	1168	LBS
8S13E20	ALFALFA	2/26/06	G	78.7	TRILIN 10G HERBICIDE	TRIFLURALIN	1574	LBS
8S13E20	ALFALFA	3/8/06	G	72	WARRIOR INSECTICIDE WITH ZEON TECHNOLOGY	LAMBDA-CYHALOTHRIN	1.97	GA
8S13E20	ALFALFA	3/8/06	G	74	WARRIOR INSECTICIDE WITH ZEON TECHNOLOGY	LAMBDA-CYHALOTHRIN	2.02	GA
8S13E22	ALFALFA	2/26/06	A	90	TREFLAN TR-10	TRIFLURALIN	1800	LBS
8S13E23	ALFALFA	2/26/06	A	48	TREFLAN TR-10	TRIFLURALIN	960	LBS
8S13E28	ALFALFA	2/26/06	A	77	TRILIN 10G HERBICIDE	TRIFLURALIN	1540	LBS
8S13E33	ALFALFA	3/8/06	G	124	WARRIOR INSECTICIDE WITH ZEON TECHNOLOGY	LAMBDA-CYHALOTHRIN	3.39	GA
8S14E1	ALMOND	2/25/06	G	43	ROVRAL BRAND 4 FLOWABLE FUNGICIDE	IPRODIONE	5.38	GA
8S14E1	TOMATO FRESH	2/25/06	G	103	SHARK HERBICIDE	CARFENTRAZONE-ETHYL	6.43	LBS
8S14E1	TOMATO FRESH	2/25/06	G	103	ROUNDUP ULTRAMAX HERBICIDE	GLYPHOSATE, ISOPROPYLAMINE SALT	19.31	GA

TRS	commodity	application date	application method	treated acres	EPA name	Chemical name	quantity used	units
8S14E1	TOMATO FRESH	2/25/06	G	103	PRISM HERBICIDE	CLETHODIM	9.65	GA
8S14E1	ALMOND	3/10/06	A	43	ABOUND FLOWABLE FUNGICIDE	AZOXYSTROBIN	4.03	GA
8S14E11	ALMOND	3/4/06	G	80	NORDOX 75 WG	COPPER OXIDE (OUS)	80	LBS
8S14E11	ALMOND	3/4/06	G	80	SERENADE MAX	BACILLUS SUBTILIS	160	LBS
8S14E12	ALMOND	3/9/06	A	80	DIMILIN 2L	DIFLUBENZURON	8	GA
8S14E12	ALMOND	3/9/06	A	80	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	50	LBS
8S14E12	ALMOND	3/9/06	A	80	PRISTINE FUNGICIDE	BOSCALID	50	LBS
8S14E13	ALMOND	2/27/06	G	16	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	186	OZ
8S14E13	ALMOND	2/27/06	G	16	PRISTINE FUNGICIDE	BOSCALID	186	OZ
8S14E13	ALMOND	3/9/06	G	16	ABOUND FLOWABLE FUNGICIDE	AZOXYSTROBIN	1.41	GA
8S14E13	ALMOND	3/9/06	G	16	FOSPHITE FUNGICIDE	POTASSIUM PHOSPHITE	8	GA
8S14E13	PEACH	3/10/06	G	16	VANGARD WG	CYPRODINIL	80	OZ
8S14E21	ALFALFA	2/27/06	A	75.5	TRILIN 10G HERBICIDE	TRIFLURALIN	1510	LBS
8S14E29	ALFALFA	2/27/06	A	56.9	TRILIN 10G HERBICIDE	TRIFLURALIN	1138	LBS
8S14E29	ALFALFA	2/27/06	A	51.9	TRILIN 10G HERBICIDE	TRIFLURALIN	1038	LBS
8S14E29	ALFALFA	2/27/06	A	63	TRILIN 10G HERBICIDE	TRIFLURALIN	1260	LBS
8S14E9	ALFALFA	3/1/06	G	13	PURSUIT HERBICIDE	IMAZETHAPYR, AMMONIUM SALT	39	GA
8S14E9	ALFALFA	3/1/06	G	45	RAPTOR HERBICIDE	IMAZAMOX, AMMONIUM SALT	52	OZ
8S15E10	NECTARINE	2/25/06	G	20	ABOUND FLOWABLE FUNGICIDE	AZOXYSTROBIN	256	OZ
8S15E10	ALMOND	2/25/06	A	37	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	24.28	LBS
8S15E10	ALMOND	2/25/06	A	37	PRISTINE FUNGICIDE	BOSCALID	24.28	LBS
8S15E10	ALMOND	2/26/06	A	18	IPRODIONE 4L AG	IPRODIONE	2.25	GA
8S15E10	NECTARINE	3/1/06	G	20	ABOUND FLOWABLE FUNGICIDE	AZOXYSTROBIN	256	OZ
8S15E10	ALMOND	3/1/06	G	46	VANGARD WG	CYPRODINIL	230	OZ
8S15E10	ALMOND	3/1/06	G	30	VANGARD WG	CYPRODINIL	150	OZ
8S15E10	ALMOND	3/8/06	A	40	MICRO FLO CAPTEC 4L	CAPTAN	120	PT
8S15E10	ALMOND	3/8/06	A	28	MICRO FLO CAPTEC 4L	CAPTAN	84	PT
8S15E10	ALMOND	3/8/06	A	21	ECHO 720 AGRICULTURAL FUNGICIDE	CHLOROTHALONIL	10.5	GA

TRS	commodity	application date	application method	treated acres	EPA name	Chemical name	quantity used	units
8S15E10	ALMOND	3/8/06	A	21	AUXIGRO WP WETTABLE POWDER	GLUTAMIC ACID	84	OZ
8S15E10	ALMOND	3/8/06	A	21	AUXIGRO WP WETTABLE POWDER	GAMMA AMINOBUTYRIC ACID	84	OZ
8S15E10	ALMOND	3/9/06	G	79	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	855.8	OZ
8S15E10	ALMOND	3/9/06	G	79	PRISTINE FUNGICIDE	BOSCALID	855.8	OZ
8S15E10	ALMOND	3/9/06	A	18	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	11.25	LBS
8S15E10	ALMOND	3/9/06	A	18	PRISTINE FUNGICIDE	BOSCALID	11.25	LBS
8S15E11	ALMOND	2/24/06	G	35	VANGARD WG	CYPRODINIL	11	LBS
8S15E11	PLUM	2/25/06	G	20	ABOUND FLOWABLE FUNGICIDE	AZOXYSTROBIN	256	OZ
8S15E11	N-OUTDR PLANTS	2/26/06	G	32	ROVRAL BRAND 4 FLOWABLE FUNGICIDE	IPRODIONE	4	GA
8S15E11	N-OUTDR PLANTS	2/26/06	G	4	ROVRAL BRAND 4 FLOWABLE FUNGICIDE	IPRODIONE	0.5	GA
8S15E11	ALMOND	2/26/06	A	63	IPRODIONE 4L AG	IPRODIONE	7.88	GA
8S15E11	NECTARINE	3/1/06	G	10	ABOUND FLOWABLE FUNGICIDE	AZOXYSTROBIN	128	OZ
8S15E11	ALMOND	3/2/06	G	25	VANGARD WG	CYPRODINIL	7.8	LBS
8S15E11	ALMOND	3/7/06	G	47	VANGARD WG	CYPRODINIL	237.4	OZ
8S15E11	ALMOND	3/8/06	G	65	VANGARD WG	CYPRODINIL	328.3	OZ
8S15E11	ALMOND	3/8/06	G	8	ROVRAL BRAND 4 FLOWABLE FUNGICIDE	IPRODIONE	1	GA
8S15E11	PLUM	3/8/06	A	20	PRISTINE FUNGICIDE	BOSCALID	13.13	LBS
8S15E11	PLUM	3/8/06	A	20	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	13.13	LBS
8S15E11	ALMOND	3/9/06	A	59	ECHO 720 AGRICULTURAL FUNGICIDE	CHLOROTHALONIL	29.5	GA
8S15E11	ALMOND	3/9/06	A	63	AUXIGRO WP WETTABLE POWDER	GLUTAMIC ACID	252	OZ
8S15E11	ALMOND	3/9/06	A	63	AUXIGRO WP WETTABLE POWDER	GAMMA AMINOBUTYRIC ACID	252	OZ
8S15E11	ALMOND	3/9/06	G	10	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	108.3	OZ
8S15E11	ALMOND	3/9/06	G	10	PRISTINE FUNGICIDE	BOSCALID	108.3	OZ
8S15E11	ALMOND	3/9/06	G	15	PRISTINE FUNGICIDE	BOSCALID	162.5	OZ
8S15E11	ALMOND	3/9/06	G	15	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	162.5	OZ
8S15E11	ALMOND	3/9/06	A	63	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	39.38	LBS
8S15E11	ALMOND	3/9/06	A	63	PRISTINE FUNGICIDE	BOSCALID	39.38	LBS

TRS	commodity	application date	application method	treated acres	EPA name	Chemical name	quantity used	units
8S15E12	ALMOND	2/24/06	G	29	VANGARD WG	CYPRODINIL	146.5	OZ
8S15E12	ALMOND	2/25/06	G	14	VANGARD WG	CYPRODINIL	70	OZ
8S15E12	ALMOND	2/25/06	G	13	VANGARD WG	CYPRODINIL	65	OZ
8S15E12	ALMOND	2/25/06	G	7	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	73.5	OZ
8S15E12	ALMOND	2/25/06	G	7	PRISTINE FUNGICIDE	BOSCALID	73.5	OZ
8S15E12	ALMOND	2/28/06	G	18	SCALA BRAND SC FUNGICIDE	PYRIMETHANIL	162	OZ
8S15E12	ALMOND	2/28/06	G	18	SCALA BRAND SC FUNGICIDE	PYRIMETHANIL	162	GA
8S15E12	ALMOND	3/4/06	G	21	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	220.5	OZ
8S15E12	ALMOND	3/4/06	G	21	PRISTINE FUNGICIDE	BOSCALID	220.5	OZ
8S15E12	ALMOND	3/5/06	G	13	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	136.5	OZ
8S15E12	ALMOND	3/5/06	G	13	PRISTINE FUNGICIDE	BOSCALID	136.5	OZ
8S15E12	PEACH	3/8/06	A	10	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	8.75	LBS
8S15E12	PEACH	3/8/06	A	10	PRISTINE FUNGICIDE	BOSCALID	8.75	LBS
8S15E12	ALMOND	3/8/06	A	10	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	8.75	LBS
8S15E12	ALMOND	3/8/06	A	10	PRISTINE FUNGICIDE	BOSCALID	8.75	LBS
8S15E12	ALMOND	3/9/06	A	25	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	16.41	LBS
8S15E12	ALMOND	3/9/06	A	25	PRISTINE FUNGICIDE	BOSCALID	16.41	LBS
8S15E12	ALMOND	3/10/06	G	4	ROVRAL BRAND 4 FLOWABLE FUNGICIDE	IPRODIONE	0.4	GA
8S15E13	ALMOND	2/24/06	G	35	VANGARD WG	CYPRODINIL	6.6	LBS
8S15E13	ALMOND	2/24/06	G	38	ROVRAL BRAND 4 FLOWABLE FUNGICIDE	IPRODIONE	4.75	GA
8S15E13	ALMOND	2/25/06	A	37	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	24.28	LBS
8S15E13	ALMOND	2/25/06	A	37	PRISTINE FUNGICIDE	BOSCALID	24.28	LBS
8S15E13	ALMOND	2/26/06	A	160	AUXIGRO WP WETTABLE POWDER	GAMMA AMINOBUTYRIC ACID	40	LBS
8S15E13	ALMOND	2/26/06	A	160	AUXIGRO WP WETTABLE POWDER	GLUTAMIC ACID	40	LBS
8S15E13	ALMOND	2/26/06	A	160	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	105	LBS
8S15E13	ALMOND	2/26/06	A	160	PRISTINE FUNGICIDE	BOSCALID	105	LBS
8S15E13	ALMOND	2/28/06	G	38	VANGARD WG	CYPRODINIL	191.9	OZ
8S15E13	ALMOND	2/28/06	A	18	DIMILIN 2L	DIFLUBENZURON	1.8	GA
8S15E13	ALMOND	2/28/06	A	18	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	12.26	LBS
8S15E13	ALMOND	2/28/06	A	18	PRISTINE FUNGICIDE	BOSCALID	12.26	LBS

TRS	commodity	application date	application method	treated acres	EPA name	Chemical name	quantity used	units
8S15E13	ALMOND	3/8/06	G	16	ROVRAL BRAND 4 FLOWABLE FUNGICIDE	IPRODIONE	2	GA
8S15E13	ALMOND	3/8/06	A	40	AUXIGRO WP WETTABLE POWDER	GLUTAMIC ACID	10	LBS
8S15E13	ALMOND	3/8/06	A	40	AUXIGRO WP WETTABLE POWDER	GAMMA AMINOBUTYRIC ACID	10	LBS
8S15E13	ALMOND	3/8/06	A	40	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	26.25	LBS
8S15E13	ALMOND	3/8/06	A	40	PRISTINE FUNGICIDE	BOSCALID	26.25	LBS
8S15E13	ALMOND	3/10/06	G	16	PRISTINE FUNGICIDE	BOSCALID	173.3	OZ
8S15E13	ALMOND	3/10/06	G	16	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	173.3	OZ
8S15E2	ALMOND	3/9/06	A	14	PRISTINE FUNGICIDE	BOSCALID	9.19	LBS
8S15E2	ALMOND	3/9/06	A	14	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	9.19	LBS
8S15E3	ALMOND	2/25/06	G	134	VANGARD WG	CYPRODINIL	670	OZ
8S15E3	ALMOND	2/25/06	G	134	DIMILIN 2L	DIFLUBENZURON	1715.2	OZ
8S15E3	ALMOND	2/26/06	G	105	VANGARD WG	CYPRODINIL	525	OZ
8S15E3	ALMOND	3/8/06	A	239	MICRO FLO CAPTEC 4L	CAPTAN	717	PT
8S15E5	TOMATO FRESH	2/28/06	G	153	SHARK HERBICIDE	CARFENTRAZONE-ETHYL	9.56	LBS
8S15E5	TOMATO FRESH	2/28/06	G	153	ROUNDUP ULTRAMAX HERBICIDE	GLYPHOSATE, ISOPROPYLAMINE SALT	28.68	GA
8S15E5	TOMATO FRESH	2/28/06	G	153	PRISM HERBICIDE	CLETHODIM	14.34	GA
8S15E7	ALMOND	2/24/06	G	51	VANGARD WG	CYPRODINIL	250	OZ
8S15E7	ALMOND	2/25/06	G	40.76	VANGARD WG	CYPRODINIL	175	OZ
8S15E7	ALMOND	2/25/06	G	70.8	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	45.6	LBS
8S15E7	ALMOND	2/25/06	G	70.8	PRISTINE FUNGICIDE	BOSCALID	45.6	LBS
8S15E7	ALMOND	2/26/06	G	10	VANGARD WG	CYPRODINIL	50	OZ
8S15E7	ALMOND	3/6/06	A	210	VANGARD WG	CYPRODINIL	1050	OZ
8S15E7	ALMOND	3/7/06	A	54	PRISTINE FUNGICIDE	BOSCALID	33.75	LBS
8S15E7	ALMOND	3/7/06	A	54	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	33.75	LBS
8S15E7	ALMOND	3/7/06	A	40.76	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	407.6	OZ
8S15E7	ALMOND	3/7/06	A	40.76	PRISTINE FUNGICIDE	BOSCALID	407.6	OZ
8S15E8	ALMOND	2/26/06	A	23.84	PRISTINE FUNGICIDE	BOSCALID	15.64	LBS
8S15E8	ALMOND	2/26/06	A	23.84	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	15.64	LBS
8S15E8	ALMOND	3/9/06	A	38	AUXIGRO WP WETTABLE POWDER	GAMMA AMINOBUTYRIC ACID	152	OZ

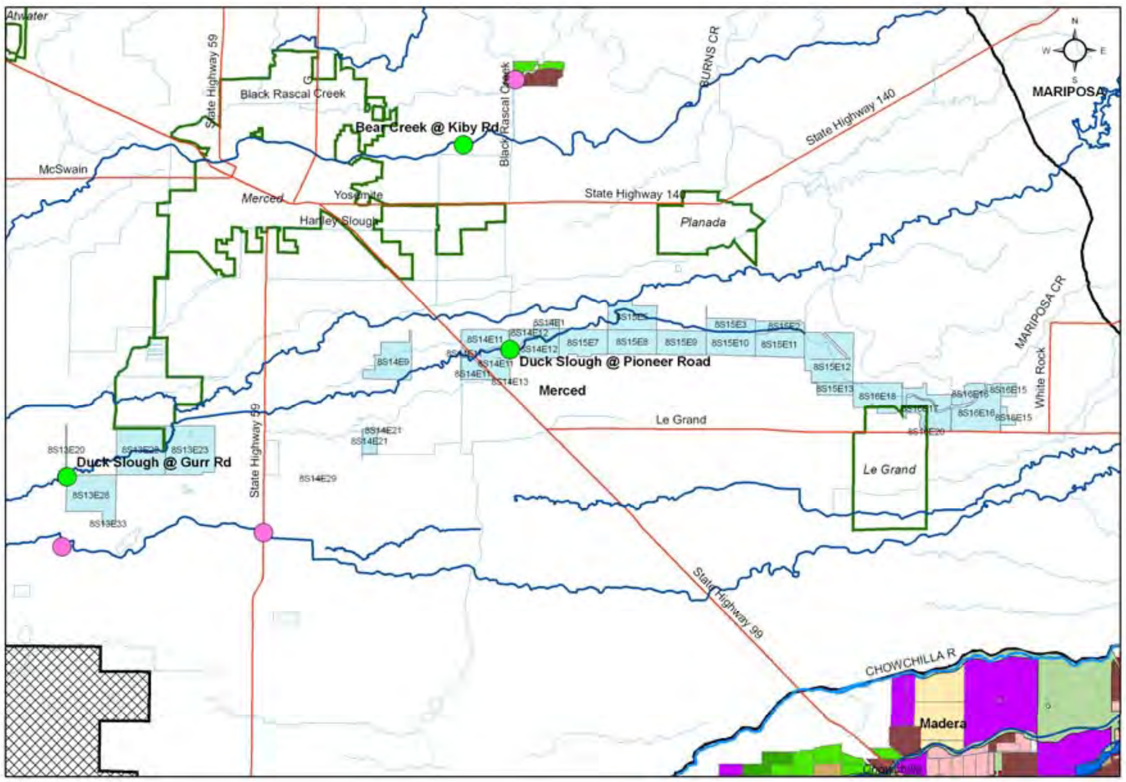
TRS	commodity	application date	application method	treated acres	EPA name	Chemical name	quantity used	units
8S15E8	ALMOND	3/9/06	A	39	AUXIGRO WP WETTABLE POWDER	GAMMA AMINOBUTYRIC ACID	156	OZ
8S15E8	ALMOND	3/9/06	A	38	AUXIGRO WP WETTABLE POWDER	GLUTAMIC ACID	152	OZ
8S15E8	ALMOND	3/9/06	A	39	AUXIGRO WP WETTABLE POWDER	GLUTAMIC ACID	156	OZ
8S15E8	ALMOND	3/9/06	A	38.9	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	24.38	LBS
8S15E8	ALMOND	3/9/06	A	38.9	PRISTINE FUNGICIDE	BOSCALID	24.38	LBS
8S15E8	ALMOND	3/9/06	A	38	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	23.75	LBS
8S15E8	ALMOND	3/9/06	A	38	PRISTINE FUNGICIDE	BOSCALID	23.75	LBS
8S15E8	ALMOND	3/9/06	A	39	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	24.38	LBS
8S15E8	ALMOND	3/9/06	A	39	PRISTINE FUNGICIDE	BOSCALID	24.38	LBS
8S15E9	ALMOND	2/25/06	G	24	PRISTINE FUNGICIDE	BOSCALID	252	OZ
8S15E9	ALMOND	2/25/06	G	24	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	252	OZ
8S15E9	ALMOND	2/26/06	A	17	IPRODIONE 4L AG	IPRODIONE	2.13	GA
8S15E9	ALMOND	2/26/06	A	46	IPRODIONE 4L AG	IPRODIONE	5.75	GA
8S15E9	ALMOND	2/26/06	A	43	IPRODIONE 4L AG	IPRODIONE	5.38	GA
8S15E9	ALMOND	2/26/06	A	38	PRISTINE FUNGICIDE	BOSCALID	23.75	LBS
8S15E9	ALMOND	2/26/06	A	38	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	23.75	LBS
8S15E9	ALMOND	3/8/06	A	160	ABOUND FLOWABLE FUNGICIDE	AZOXYSTROBIN	1920	OZ
8S15E9	ALMOND	3/8/06	A	156	ABOUND FLOWABLE FUNGICIDE	AZOXYSTROBIN	1872	OZ
8S15E9	ALMOND	3/9/06	A	150	ABOUND FLOWABLE FUNGICIDE	AZOXYSTROBIN	1800	OZ
8S15E9	ALMOND	3/9/06	A	46	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	28.75	LBS
8S15E9	ALMOND	3/9/06	A	46	PRISTINE FUNGICIDE	BOSCALID	28.75	LBS
8S15E9	ALMOND	3/9/06	A	43	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	26.88	LBS
8S15E9	ALMOND	3/9/06	A	43	PRISTINE FUNGICIDE	BOSCALID	26.88	LBS
8S15E9	ALMOND	3/9/06	A	17	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	10.63	LBS
8S15E9	ALMOND	3/9/06	A	17	PRISTINE FUNGICIDE	BOSCALID	10.63	LBS
8S15E9	ALMOND	3/10/06	A	38	ROVRAL BRAND 4 FLOWABLE FUNGICIDE	IPRODIONE	4.75	GA
8S15E9	ALMOND	3/10/06	A	38	ZIRAM 76DF FUNGICIDE	ZIRAM	228	LBS
8S15E9	ALMOND	3/10/06	G	45	MICRO FLO CAPTEC 4L	CAPTAN	360	OZ
8S16E15	ALMOND	2/28/06	A	69	VANGARD WG	CYPRODINIL	414	OZ

TRS	commodity	application date	application method	treated acres	EPA name	Chemical name	quantity used	units
8S16E16	ALMOND	2/28/06	G	70	ROVRAL BRAND 4 FLOWABLE FUNGICIDE	IPRODIONE	4.4	GA
8S16E16	ALMOND	2/28/06	G	70	TOPSIN M WSB	THIOPHANATE-METHYL	17.5	LBS
8S16E17	ALMOND	2/25/06	G	7	SCALA BRAND SC FUNGICIDE	PYRIMETHANIL	63	OZ
8S16E17	ALMOND	2/25/06	G	7	SCALA BRAND SC FUNGICIDE	PYRIMETHANIL	63	GA
8S16E17	ALMOND	2/25/06	G	7	AUXIGRO WP WETTABLE POWDER	GAMMA AMINOBUTYRIC ACID	28	OZ
8S16E17	ALMOND	2/25/06	G	7	AUXIGRO WP WETTABLE POWDER	GLUTAMIC ACID	28	OZ
8S16E17	ALMOND	2/25/06	A	18	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	11.81	LBS
8S16E17	ALMOND	2/25/06	A	18	PRISTINE FUNGICIDE	BOSCALID	11.81	LBS
8S16E17	ALMOND	3/1/06	A	20	VANGARD WG	CYPRODINIL	100	OZ
8S16E17	ALMOND	3/1/06	A	20	AUXIGRO WP WETTABLE POWDER	GLUTAMIC ACID	80	OZ
8S16E17	ALMOND	3/1/06	G	10	AUXIGRO WP WETTABLE POWDER	GLUTAMIC ACID	40	OZ
8S16E17	ALMOND	3/1/06	G	10	AUXIGRO WP WETTABLE POWDER	GAMMA AMINOBUTYRIC ACID	40	OZ
8S16E17	ALMOND	3/1/06	A	20	AUXIGRO WP WETTABLE POWDER	GAMMA AMINOBUTYRIC ACID	80	OZ
8S16E17	ALMOND	3/1/06	G	10	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	105	OZ
8S16E17	ALMOND	3/1/06	G	10	PRISTINE FUNGICIDE	BOSCALID	105	OZ
8S16E17	ALMOND	3/5/06	G	50	DEGESCH PHOSTOXIN TABLETS-R	ALUMINUM PHOSPHIDE	150	UNITS
8S16E17	ALMOND	3/9/06	A	42	ECHO 720 AGRICULTURAL FUNGICIDE	CHLOROTHALONIL	21	GA
8S16E18	ALMOND	2/24/06	G	15	VANGARD WG	CYPRODINIL	75	OZ
8S16E18	ALMOND	2/24/06	G	15	TOPSIN M WSB	THIOPHANATE-METHYL	6	LBS
8S16E18	ALMOND	3/1/06	A	18	ROVRAL BRAND 4 FLOWABLE FUNGICIDE	IPRODIONE	2.25	GA
8S16E18	ALMOND	3/1/06	A	71	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	945.5	OZ
8S16E18	ALMOND	3/1/06	A	71	PRISTINE FUNGICIDE	BOSCALID	945.5	OZ
8S16E18	ALMOND	3/7/06	A	15	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	157.5	OZ
8S16E18	ALMOND	3/7/06	A	15	PRISTINE FUNGICIDE	BOSCALID	157.5	OZ
8S16E18	ALMOND	3/8/06	A	85	ECHO 720 AGRICULTURAL FUNGICIDE	CHLOROTHALONIL	42.5	GA
8S16E18	ALMOND	3/8/06	A	85	AUXIGRO WP WETTABLE POWDER	GLUTAMIC ACID	340	OZ

TRS	commodity	application date	application method	treated acres	EPA name	Chemical name	quantity used	units
8S16E18	ALMOND	3/8/06	A	85	AUXIGRO WP WETTABLE POWDER	GAMMA AMINOBUTYRIC ACID	340	OZ
8S16E18	ALMOND	3/9/06	G	30	ABOUND FLOWABLE FUNGICIDE	AZOXYSTROBIN	3	GA
8S16E20	ALMOND	2/26/06	A	56	ROVRAL BRAND 4 FLOWABLE FUNGICIDE	IPRODIONE	7	GA
8S16E20	ALMOND	3/1/06	A	28	ROVRAL BRAND 4 FLOWABLE FUNGICIDE	IPRODIONE	3.5	GA
8S16E20	ALMOND	3/5/06	G	58	PRISTINE FUNGICIDE	BOSCALID	638	OZ
8S16E20	ALMOND	3/5/06	G	58	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	638	OZ
8S16E20	ALMOND	3/7/06	A	28	PRISTINE FUNGICIDE	BOSCALID	294	OZ
8S16E20	ALMOND	3/7/06	A	28	PRISTINE FUNGICIDE	PYRACLOSTROBIN (5759)	294	OZ

Figure 29. Map showing pesticide applications in the Duck Slough @ Gurr Rd subwatershed during the 2 weeks prior to the March re-sample.

Duck Slough @ Gurr Rd - storm 1 re-sample (3/10/06) toxicity



Data Interpretation 2006

Water Quality Objectives relevant to the Coalition are provided below in Table 37.

Table 37. Relevant Water Quality Objectives for the ESJWQC.

			Basin Plan Objectives		
Analyte	**Units**	**MDL**	**WQO**	**WQO Basis**	**Application**
Temperature	°F	NA	narr.	<5°F increase above natural	All waters designated WARM or COLD
Dissolved Oxygen	mg/L	NA	5.0	Minimum	waters designated WARM
			7.0	Minimum	waters designated COLD
pH	$-log[H^+]$	NA	6.5-8.5	"appropriate averaging period" protective of beneficial uses	All waters
Conductivity	µmhos/cm	NA	700	NA	California secondary MCL
Color	CU	2	narr.	NA	All waters
Turbidity	NTU	0.1	50 150	NA	50 for Delta 150 for other Delta
Total Dissolved Solids (TDS)	mg/L	6	450	NA	California secondary MCL
Total Suspended Solids (TSS)	mg/L	2	narr.	NA	All waters
E. Coli bacteria	MPN/100mL	2	126	5-sample geometric mean;	waters designated REC-1
			235	Single sample max	waters designated REC-1
			Other Objectives		
Analyte	**Units**	**MDL**	**WQO**	**WQO Basis**	**Application**
Chlorpyrifos	µg/L	0.005	0.014 0.02	4-day average 1-hour maximum	All receiving waters (CDFG 2000)
Diazinon	µg/L	0.005	0.05 0.08	4-day average 1-hour maximum	All receiving waters (CDFG 2000)
			Monitored Analytes Without Objectives		
Analyte	**Units**	**MDL**	**WQO**	**WQO Basis**	**Application**
Total Organic Carbon (TOC)	mg/L	0.3	none	NA	NA

To characterize storm water runoff during the dormant season, we collected water from a storm early in the winter when we could expect to see pesticides in the receiving waters. We selected a storm that occurred after several days of dry weather suitable for spraying. The first event of storm sampling for ESJWQC occurred on February 28-March 1, 2006 (see weather data below from Ballioco, Lat: N 37 ° 25 ' 48 " (37.430 °), Long: W 120 ° 43 ' 12 " (-120.720 °), Elevation: 107 ft)

The amount of precipitation that occurred from February 27 to March 1, 2006 varied within the sampling region but was close to or greater than 0.5 inches in most areas over the three day storm period. The storm was preceded by a long dry period in which farmers were able to apply dormant sprays and herbicides and was followed by a second storm on March 5, 2006 that lasted three days.

Date	Temperature (°F)			Dew Point (°F)			Humidity (%)			Pressure (in)		Wind (mph)		Gust Speed (mph)	Precipitation (in)
	high	avg	low	high	avg	low	high	avg	low	high	low	high	avg	high	sum
February															
26	65	54	48	47	42	38	84	66	37	29.96	29.86	15	4	22	0.21
27	64	58	52	55	49	39	89	73	48	29.86	29.55	25	11	36	0.75
28	61	54	44	55	44	38	89	69	43	30.12	29.63	16	5	28	0.04
March															
1	62	50	38	45	40	36	92	71	46	30.12	29.98	10	2	10	0.00
2	56	48	43	46	42	37	90	80	62	30.05	29.81	13	3	14	0.06
3	55	46	40	44	39	36	90	77	50	30.09	29.72	11	4	15	0.16
4	54	45	34	41	37	32	94	75	53	30.13	30.02	10	3	16	0.00

The second storm event for the ESJWQC was sampled on March 15-16, 2006 . Although there was substantial rain March 5 and 6th it was decided that this rain event was too close to the previous storm sampling on February 27th and would not allow adequate time for the laboratories to analyze samples from the last storm. From March 11-14 the Ballioco rain station recorded 0.58 inches of rain. Although this was less than the usual trigger of 0.5 inches in 24 hours, do to the soil saturation and the continual rain over four days, sampling was initiated on March 15 for the ESJWQC.

Date	Temperature (°F)			Dew Point (°F)			Humidity (%)			Pressure (in)		Wind (mph)		Gust Speed (mph)	Precipitation (in)
	high	avg	low	high	avg	low	high	avg	low	high	low	high	avg	high	sum
March															
1	62	50	38	45	40	36	92	71	46	30.12	29.98	10	2	10	0.00
2	56	48	43	46	42	37	90	80	62	30.05	29.81	13	3	14	0.06
3	55	46	40	44	39	36	90	77	50	30.09	29.72	11	4	15	0.16
4	54	45	34	41	37	32	94	75	53	30.13	30.02	10	3	16	0.00
5	61	54	48	42	40	36	76	59	41	30.06	29.94	19	7	25	0.05
6	61	52	47	49	44	40	91	75	51	30.12	29.94	11	3	19	0.37
7	56	48	42	47	43	39	94	82	60	30.14	30.05	11	2	24	0.16
8	59	49	38	43	39	34	93	70	40	30.18	30.03	12	3	17	0.00
9	56	49	42	45	40	31	90	71	40	30.02	29.68	16	4	24	0.06
10	49	42	36	38	36	33	91	78	55	29.70	29.60	15	3	18	0.00
11	49	40	34	39	35	32	93	81	54	29.85	29.58	11	2	17	0.26
12	50	43	36	41	38	33	92	81	61	30.17	29.85	16	5	18	0.12
13	56	47	37	42	37	32	93	71	41	30.25	30.03	12	3	15	0.01
14	52	47	45	46	41	32	90	79	68	30.03	29.72	12	5	21	0.19
15	59	53	41	43	41	39	92	65	47	30.14	30.06	7	3	12	0.00

Pesticides

During the 2006 storm season, there were 3 exceedances of the chlorpyrifos water quality objective. Two of these were in the Highline Canal during the first storm event, one at Lombardy Road (0.027 µg/L) and one at Highway 99 (0.021 µg/L), and the third at Ash Slough (0.029 µg/L) during the second storm event. The amount of chlorpyrifos in the water was barely over the level of exceedance in all three cases. A review of the pesticide use reports that are available for the Highline Canal sites indicate that in both cases chlorpyrifos was applied in the watershed in the period immediately preceeding the sampling. Both applications were made by ground on almonds. Both locations are immediately adjacent to the Highline Canal where spray drift could occur.

Toxicity

During the 2006 storm season, there were 5 sample with significant toxicity to *Ceriodaphnia* and 3 with significant reductions in growth to *Selenastrum*.

Event 1

Selenastrum toxicity was observed at two sites, Ash Slough @ Ave 21 and Highline Canal @ Highway 99. The growth of the *Selenastrum* in the Ash Slough site was 67% and a TIE was not performed. The Highline Canal @ Highway 99 site growth was <1% of the control sample, but due to a miscommunication with the laboratory, a TIE was not initiated. The Highline Canal site was re-sampled for persistence, and the sample was not toxic. The Ash Slough site was dry when the field crew attempted to collect a persistence sample.

One sample from Duck Slough @ Gurr Road was toxic to *Ceriodaphnia* with the survival in the sample being 37% of the survival in the control. The re-sample indicated that the water remained toxic with the survival in the sample being 35% of the survival in the control. A TIE was performed on the sample but was inconclusive due to a lack of persistence in the sample.

Event 2
Selenastrum toxicity was observed in a single sample, Highline Canal @ Lombardy Road with the sample growth at 30% of the control. Because the sample growth was less than 50% of the control, a TIE was initiated. Results indicated that there was a single contaminant that was an organic with some cationic properties (e.g., a surfactant of an organic acid compound) or that there were two compounds responsible for the toxicity, one an organic compound and the second a cationic compound. Persistence sampling at the site indicated that the toxicity was not persistent.

Four samples during the second event were toxic to *Ceriodaphnia*, Duck Slough @ Gurr Road, Merced River @ Santa Fe Drive, Prairie Flower Drain @ Crows Landing Road, and Highline Canal @ Highway 99. Survival in the Highline Canal site was 0% and a dilution series test was initiated. Toxicity Identification Evaluations (TIEs) were initiated on all samples except for the Prairie Flower Drain site which did not have survival less than 50% of the control. Persistence sampling was conducted at all sites within 72 hours of notification of toxicity. None of the persistence samples was toxic.

Hilmar Drain @ Central Ave initially had 5% survival of *Ceriodaphnia*. The pH of the original Hilmar Drain sample was 9.46. When the pH was adjusted to 7.0, toxicity was eliminated indicating that the high pH was the probable source of the toxicity. The result reported for Hilmar Drain @ Central Ave is 100% survival with the notation that pH was adjusted to 7.0.

The dilution series test indicated that less than 1.0 TUa was present in the sample. The TIEs were inconclusive for the Highline Canal @ Highway 99, the Duck Slough @ Gurr Road, and the Merced River @ Santa Fe Drive sites because the toxicity was not persistent.

With one exception, in all cases in which toxicity was observed, there were chemicals identified through the pesticide use reports that have chemical properties that would allow them to be the cause of the toxicity. When sediment toxicity was observed, there were applications of chemicals that bind strongly to sediment and could run off during rain events. When water column toxicity was observed, there were soluble chemicals that could cause the toxicity.

E. coli

E. coli remains a problem in the Coalition region with 14 exceedances over the two storm events, 6 in the first event and 8 in the second event. Cottonwood Creek @ Road 20, Dry Creek @ Wellsford Road, and Prairie Flower Drain @ Crows Landing Road all experienced exceedances during both storms. Ash Slough @ Ave 21, Jones Drain @ Oakdale Road, and the Merced River @ Santa Fe Drive all experienced exceedances during the first storm. Dusk Slough @ Gurr Road, Duck Slough @ Pioneer Road, Highline Canal @ Highway 99, and Highline Canal @ Lombardy Road experienced exceedances during the second storm event. The latter four exceedances were on two water bodies, one upstream and one downstream, and it is not clear if one or more sources exist between the two sites in the watershed.

Because it is clear that the exceedances are a continuing issue, the Coalition will perform a study to determine the source (taxonomic) of the *E. coli*. E. coli is a marker of fecal contamination and that contamination can arise from any number of sources. The study to be performed during the summer of 2006 will allow us to determine sources and then focus on the various land use activities that can generate those sources.

Physical Parameters

There were numerous exceedances of dissolved oxygen, pH, specific conductivity (EC), and total dissolved solids (TDS).

Dissolved Oxygen

The DO standard by which an exceedance was determined was 7.0 mg/L and is based on the cold water fisheries beneficial use standard. Dissolved oxygen is not a conserved constituent which is static as a bolus of water moves downstream. As water moves, it can gain or lose dissolved oxygen depending on the water temperature, rate and the turbulence of the flow, photosynthetic rate, and the biological oxygen demand (BOD) including sediment oxygen demand (SOD). Diel changes can be significant, and source identification for low DO is not possible. However, potential causes of low DO may be possible to assign if other conditions are present at the time of the measurements. For example, if the TOC measure is elevated, it may provide an indication that BOD is high driving DO lower. If there is a substantial amount of carbon of terrestrial origin or carbon from emergent aquatic plants, that carbon is often recalcitrant and breaks down slowly compared to algal derived carbon. As it does, it drives a much higher BOD than would carbon of aquatic origin. Low DO can also be a function of the respiration by photosynthetic organisms during periods when respiration occurs. Generally, this occurs during the night when no photosynthesis takes place, not during the daytime when photosynthesis should be ongoing.

pH

There were 4 exceedances of pH at two sites over 3 events. All exceedances were present at Prairie Flower Drain @ Crows Landing Road, and Hilmar Drain @ Central Ave. The pH was sufficiently high at the Hilmar Drain site to be the probable cause of toxicity to Ceriodaphnia.

pH is a function of the carbonic acid content of the water which is a function of the photosynthetic rate of the algae and rooted aquatic plants in the water. During periods when the algae are experiencing high photosynthetic rates, the carbon dioxide content of the water declines and the dissolved oxygen content of the water increases. This shift decreases the carbonic acid level in the water and the pH increases. Consequently, pH is not a conserved constituent and source identification is not possible.

EC and TDS

EC and TDS are generally correlated with each other to a certain degree. The term TDS describes all solids (usually mineral salts) that are dissolved in water. The more salts that are dissolved in the water, the higher the value of the electric conductivity. The relationship between the conductivity of a solution and its content varies not only by the concentration of the dissolved ions, but is also based upon the charge and mobility of the dissolved ionic species. A small ion and a large ion can have the same electrical charge. The small ion will find it easier to move through the water molecules, so it "conducts" that charge faster, resulting in a higher EC for the same concentration (TDS) in the solution. Likewise, if two ions have the same size, but one has a higher charge than the other, the higher charged ion will result in a higher EC. It follows that if the correlation between EC and TDS is high for measurements made across several sites at several different times, the source of the ions in the water are constant, i.e., the types of ions in solution and/or their ratios are constant across time and/or space. Alternatively, if there is little or no correlation between EC and TDS, the types of ions and/or their ratios vary across time and/or space.

There are two general sources of EC (or TDS) in agricultural landscapes; fertilizers and native soils. A commercial fertilizer can be made up of dozens of different chemicals each of which ionize, and contribute to the EC of the solution. Different brands of fertilizer can use different chemicals to make up the total formula indicating that there will not be a standard signal for fertilizer-generated EC or TDS.

In the Coalition area, the EC and TDS exceedances occur at the Prairie Flower Drain and Hilmar Drain sites. Both sites are located very close to the San Joaquin River and have the largest amount of field drains present in the nearby fields. Depth to ground water is very shallow and the field drains pump high salinity ground water to allow plant growth. In addition, the two main drains do not have a concrete liner and can be recharged directly from shallow ground water. Consequently, it is not clear if the high salts, which are also found on the west side of the river, are a function of agricultural inputs or recharge from local shallow ground water. The Coalition will perform a study this summer to determine the source of the water in the two main drains and consequently, the source of the salts in the two drains.

Summary of Management Practices Used

Because E. coli was the most common problem in the watershed over the last two years, the Coalition focused its outreach and survey efforts at understanding the management of manure in the watersheds. At each workshop described in the section below, attendees were asked to complete a survey that will help the Coalition establish baseline information on types of animal manure applied to their crops, proximity to waterways and other information about farming practices.

A total of 70 surveys were completed by growers in the coalition region. Application practices were determined (Table 38) as was the type (source) of the manure used.

Table 38. Manure application information from ESJWQC region.

Who is responsible for making decisions on manure application?		Who applies manure?		Manure Types	Applied in Past 5 Years	Applied Currently	Intend to apply in Next 5 Years
Owner	49	Owner	12	Dairy	26	21	22
Employee	4	Employee	12	Chicken	12	8	6
Other	13	Contractor	23	Other	10	5	7
No answer	5	Other	23				

The growers were asked about their proximity to surface water and while the majority were over 300ft from the nearest water, a substantial portion of the applications were made in close proximity to water (Table 39). However, there were a substantial number of BMPs employed by growers to eliminate movement of manure and *E. coli* to surface waters (Table 40). Education about these BMPs were were obtained from numerous sources (Table 41). Finally, if BMPs were not employed, the Coalition requested information on the reason(s) for not implementing BMPs (Table 42).

Table 39. Distance to surface water of applications of manure.

Distance between fields and surface water ways (creeks, drains, irrigation ditches or canals)							
Surface Water	Chowchilla	Crow's Landing	Denair	Madera	Merced	Modesto	Total
Adjacent	1	1	2	3	2	2	11
Very close (within 100 ft)	2	2	1		2		7
Close (within 300 ft)	1		2	2			5
Distant (> 300 ft)	3	5	2	2	5	6	23
Total	7	8	7	7	9	8	46

Table 40. Manure BMPs employed by growers in the ESJWQC region.

	Area						
BMPs used	**Chowchilla**	**Crow's Landing**	**Denair**	**Madera**	**Merced**	**Modesto**	**Total**
Get Soils Nutrient Analysis	8	6	4	9	12	7	46
Use vegetative buffers and/or grass swales	3		2	3	3	1	12
Use a nutrient management plan	8	6	5	7	9	5	40
Get Agronomist's advice on practices	3	4	2	7	5	1	22
Attend commodity-specific training sessions	6	2	3	8	6	3	28
Obtain Certified Crop Advisor fertilizer recommendation	2	2	4	3	7	2	20
Tailwater Return System	5	3	4	3	5	2	22
Obtain a PCA pesticide recommendation	8	2	5	11	9	6	41
Sprayer calibration	10	4	5	11	9	7	46
Laser leveling of field	3	6	5	6	6	5	31
Other	2	1			1		4
Total	58	36	39	68	72	39	312

At this point, the Coalition has just received the collated results of the surveys and will need to examine the responses to determine the best format for providing additional information on BMPs on manure management. The lessons learned from this exercise will be translated to other exceedances in the near future.

Table 41. Educational sources for manure BMPs employed in the ESJWQC region.

Crops	UCCE	Commodity group	Agronomist	Commodity publication	Farm Bureau	Ag Alert	Neighbor /Fellow grower	Company Sales Meeting	Other
ALFALFA	9	4	2	2	9	1	3	1	1
ALMONDS	21	13	7	12	17	12	3	1	3
CLOVER									
CORN	12	5	3	3	12	4	4	1	1
COTTON	2	1	1		2				
FLOWERING CROPS		2		2					2
FORAGE	3		1	2	4	1	2		1
FRUIT TREES	6	2	2	2	4	1			1
GRAPES	10	7	7	7	11	10	4	2	1
OATS	5	3	1	1	5	3	1		
PASTURE	3	1	1	1	2	1			1
PISTACHIOS	6	3	3	1	4	3		1	
STRAWBERRIES	1	1	1	1			1	1	
SUGAR BEETS	1	1	1		1		1		
SWEET POTATOES	2	1		1	1				
TOMATOES	2	1	1		2	1		1	
WALNUTS	5	3	2	3	3	4			3
WHEAT	2	1	1	1			2		

Table 42. Reasons for not employing manure BMPs in the ESJWQC region.

Reason for not using listed BMPs	Chowchilla	Crow's Landing	Denair	Madera	Merced	Modesto	Total
I'm not convinced it will work		2					2
Lack of available equipment	1						1
Cost of implementation	1		1	1			3
Lack of knowledge	1		1	1			3
Not applicable for my operation			1	1	2	2	6
Other	1			1			2
Total	4	2	3	4	2	2	17

Actions taken to address water quality impacts identified

Understanding the specific management practices used by growers in any watershed is a goal of the coalition's outreach and education activities. The results of the current year's monitoring activities will guide the targeting of coalition efforts in surveying the management practices used in watersheds, specific TRS', and by individual growers. We will hold meetings at the level of the monitoring watershed to address specific exceedances. At that time, we will be able to compile an inventory of BMPs used in those watersheds for specific exceedances. It must be emphasized that the management practices that growers indicate they use may not have been used in the past year, or may not be used next year depending on the specific weather conditions and pest outbreaks. And, specific management practices may vary across single fields depending on soil conditions, drainage, and nutrient retention capacity (cation holding capacity). Consequently, trying to relate specific management practices to specific exceedances will be difficult. However, there are management practices dealing with pesticide applications that should be implemented regardless of the weather, soils, or drainage.

In November and December 2005, the Coalition organized three annual meetings in each of the major counties covered by the Coalition (Madera, Merced and Stanislaus). In addition to describing sampling results, information was provided on management practices that landowners could use when applying pesticides, including pyrethroids. Just prior to the meetings, Coalition members were mailed an annual report. The reports contain sampling results of sites where there were exceedances of any water quality objective. Also included were GIS maps showing Coalition monitoring sites locations, the Subwatershed farmland upstream of the site and properties adjacent to the waterways.

In spring 2006 prior to the beginning of the irrigation season, the Coalition sponsored a series of workshops (six events) at facilities close to subwatersheds where water quality exceedances or sediment toxicity had been found in 2005 irrigation season sampling. Both Coalition members and non-members were invited to the workshops. Meeting announcements were mailed to an addresses developed through the Coalition membership lists and County tax assessor roles.

Growers were told at the meetings that the region's most common "problem" detected in sampling was the exceedance of state water quality standard for *E. coli*. While the Coalition we have no definitive information on what caused these exceedances, *E. coli* can originate from commercial animal operations (feedlots, dairies or pastures), leaky urban septic systems or wildlife. In 2006, the coalition announced it would be performing special studies to try and determine the sources of the *E. coli*.

To anticipate the potential that high *E. coli* levels are caused by steer or poultry manure applications to irrigated crop land, the Coalition presented growers a compilation of management practices to minimize off site movement of animal manure. Little information on such management practices were available so the Coalition reprinted guidelines developed by the Almond Board of California. Some of the practices include:

- Apply manure when the soils are warm and not saturated;
- Incorporate manure into soil immediately after application to prevent wind drift and runoff in storm water;
- If incorporation isn't possible use adequately composted materials to maximize pathogen elimination.

Attendees were also provided information for decomposing and stabilizing bulk manure before applications.

Also reported to landowners were the results of sediment sampling which showed toxicity at several sites. The sediment testing procedure only identifies toxicity but not what causes the toxicity. However, sediment testing in agricultural drains by University of California scientists has shown pyrethroid insecticides are a cause to toxicity in some streams draining high use agricultural areas.

As a precaution, the Coalition provided landowners with information on management practices to prevent off site movement of pyrethroids. These practices include: minimizing sediment transport from cropland treated with the insecticides (pyrethroids bind to sediment); leaving untreated buffer strips near waterways; and applying polyacrylamide (PAM) to irrigation water to reduce sediment transport. Booklets covering BMPs for pyrethroids and developed by CURES (www.curesworks.org) were handed out to orchard and row crop growers who use the products.

Because of the large number of irrigated acres in the Coalition region, many with no direct connecting for drainage to reach waters of the state, the Coalition took a targeted approach to organize the BMP workshops. Only growers with property adjacent to or near waterways were exceedances were detected in sampling were invited to the workshops, including both Coalition members and non-members. Invitee names were obtained by overlaying public landowner records with Geographic Information System (GIS) maps. The Coalition maintains that landowners nearest the waterways have the best chance of impacting water quality through changes in farming practices should water drain from their lands.

To better understand water quality problems identified through Coalition sampling, in particular widespread detections and exceedances of standards for Electrical Conductivity (EC) and *E. coli*, we will undertake several special studies in coming months.

EC Special Study

Elevated EC may be due to anthropogenic factors, as well as natural soil geological conditions. The Coalition monitoring program manager recently found information through the Department of Water Resources on the EC in shallow ground water for the area immediately adjacent to the San Joaquin River, although for the west side of the river. EC for the shallow ground water is as high as 4000 µS/cm and we anticipate that the EC for ground water on the east side of the San Joaquin River near and surrounding our sampling site is equally as high. Irrigation with shallow ground water, a common practice in the area, results in high EC in the return flows that may drain from certain fields into waterways.

The Coalition is currently completing the design of a project to determine the source of high EC in two drains where Coalition sampling shows persistently high EC. Irrigation water can originate from surface storage facilities or ground water. Both of these have distinct oxygen and deuterium isotopic signatures. Water entering the drains can originate from: seepage into the drains from shallow ground water; direct discharge from surface irrigation return flows or rainfall events; and discharge from field drains. These sources have distinct isotopic signatures depending on the origin of the water for irrigation. Additionally, since the source of the ions in the various source waters is different, we can use the combination of specific ions and the isotopic signatures of the water to determine the relative source contribution to the water in the drains. With an understanding of the source of the ions, we can effectively develop a management approach to present to the growers in the two watersheds.

Results of this study are expected in August 2006 and that information will be provided to landowners at the Coalition Annual Meetings, County Agricultural Commissioner continuing education meetings for Stanislaus and Merced Counties (were EC problems are most prevalent) and written communications to landowners (direct mail and newsletters.) Evaluating the effectiveness of the management practices requires at least a full irrigation season and storm season, and an evaluation will be completed after data from the monitoring is compiled and evaluated.

E. Coli Special Study
In cooperation with other Central Valley Coalitions, water samples from sites with historical high levels of *E. coli* will be analyzed using DNA techniques to identify if a single or multiple sources are causing the high levels of bacteria. Planning was also initiated in April 2006 to organize a meeting of Coalition managers, livestock industry representatives, University Cooperative Extension, Natural Resource Conservation Service and the produce industry. The goal of this meeting is to share understanding of E coli sources and begin the process of compiling information on Best Management Practices to implement when applying animal manure to irrigated crop land. Information useful to landowners would be compiled for distribution during the winter 2006-2007 when grower meeting are widely organized and attended.

The Coalition will also continue the practice initiated in spring 2006 of asking meeting attendees to fill out surveys to gauge their level of implementation of BMPs. The surveys also allow better understanding of farm practices so the Coalition can develop baseline information.

The Coalitions plans to continue communicating to its members about water monitoring results and potential practices to protect surface water quality.

Comments on the meetings are provided below:

<u>Meeting 1:</u>

On Thursday March 30, 2006 the very first meeting of a series of 5 was held in Merced. This meeting was held at the Merced County Farm Bureau office. Speakers at the meeting were Parry Klassen, David Robinson the County Ag Commissioner, Executive Director for Merced County Farm Bureau Diana Westmoreland Pedrozzo. There was a total of 12 coalition members who attended the meeting. The group of coalition members that attended was very involved with the meeting asking numerous questions in regards to the *E. coli* runoff found. The total number of acres covered by the attendees at the meeting was approximately 8079 acres.

<u>Meeting 2</u>:

On Monday April 3, 2006 the second meeting was held in Chowchilla at Farnesi's Steakhouse Restaurant. This meeting was presented by Parry Klassen, County Ag Commissioner Bob Rolan, and the Executive Director for the Madera County Farm Bureau Julia Berry. There was also a total of 12 coalition members who attended the meeting. The group of coalition members were very attentive towards the subject at hand, runoff. There concern in regards to the toxicity runoff was very meaningful in the way of contamination from up the river urban areas. The total number of acres covered by the attendees at the meeting was approximately 35948 acres.

<u>Meeting 3:</u>

On Tuesday April 4, 2006 the third meeting was held in Modesto at the Stanislaus County Farm Bureau. This meeting was presented by Parry Klassen, Executive Director of Stanislaus County Farm Bureau Wayne Zipser. A total of 12 coalition members attended the meeting. The total number of acres covered by the attendees at the meeting was approximately 6096 acres. The meeting received great feedback from growers and growing concerns of the future issues that may develop from the runoff, if not solved.

<u>Meeting 4:</u>

On Thursday April 6, 2006 the fourth meeting was held in Madera at the Madera County Farm Bureau. This meeting was presented by Parry Klassen, County Ag Commissioner Bob Rolan, and the Executive Director for the Madera County Farm Bureau Julia Berry. A total of 18 coalition members attended the meeting. The total number of acres covered by the attendees at the meeting was approximately 10901. The Madera growers were extremely involved with the meeting and shared their own concerns of toxicity runoff.

<u>Meeting 5:</u>

On Tuesday April 11, 2006 the fifth meeting was held in Denair at Monte Vista Farming Company. This newly built company made a warm and inviting atmosphere to our growers. The meeting was once again presented by Parry Klassen and the Executive Directors for the Stanislaus County Farm Bureau Wayne Zipser. A total of 7n coalition members attended the meeting. Although the meeting size was low compared to our average the larger and more influential farmers were present. The total number of acres covered by the attendees at the meeting was approximately 15828. This group was very knowledgeable of the growing concerns and situations about current runoff. Several growers helped determine proper testing sites for the procedures to be done.

<u>Meeting 6:</u>

No comments recorded.

<u>Meeting Summary:</u>

The overall summary of the meetings held for the toxicity runoff into rivers and streams was positive. The feedback that we received from growers and the concern allowed the coalition to recognize the grower's knowledge of this issue. As a coalition we were able to address the topics at hand and in an environment where growers felt comfortable to ask questions. Despite the issue at hand the meetings may have seemed relatively small, but the growers that did attend will be able to share their knowledge and BMP's with neighboring growers in their own communities. The outreach to growers is a continuing program that will only progress as time and better stewardship practices are implemented.

Table 43. Summary of meetings.

Date	Time	Location
Thursday, March 30	1:30–3 pm	Merced County Farm Bureau office, 646 S. Hwy. 59, Merced
Monday April 3	1:30–3 pm	Farnesi's Steakhouse Restaurant, 230 E. Robertson Blvd, Chowchilla
Tuesday April 4	1:30–3 pm	Stanislaus County Farm Bureau 1201 L Street, Modesto
Thursday April 6	1:30–3 pm	Madera County Agricultural Commissioner's office Madera
Tuesday April 11	1:30–3 pm	Monte Vista Farming Company 5251 Montpelier Road Denair, CA
Wednesday April 12	1:30-3 pm	Oakdale Irrigation District board room, Oakdale
Thursday April 13	1:30-3:30pm	Crows Landing Grange Hall 9713 Crows Landing Road Crows Landing, CA

Exceedance, Communication, and Evaluation Reports

Exceedance Reports 2006

From: Michael L. Johnson
Date: *03/02/06 15:08:32*
To: 'Dana Thomsen'
Cc: 'Parry Klassen'; 'Melissa Turner'; 'Tom Kimball'; 'Michael Johnson'

Dana,

We sampled the ESJWQC region on February 28, and March 1, 2006. During the sampling on March 1, the Prairie Flower Drain @ Crows Landing Road site experienced an EC exceedance (EC = 2419 µs/cm) and Hilmar Drain @ Central Ave site experienced an EC exceedance (EC = 1058) and a pH exceedance (pH = 9.55). The combination of high EC and high pH at the Hilmar Drain site suggests that there could be a high $CaCO_3$ load in the water. No other parameters measured in the field experienced exceedances.

No follow-up monitoring will be conducted. Repeated sampling of these two sites suggests that the EC exceedances are an ongoing problem. The results of last year's monitoring submitted in the semi-annual monitoring report (January 3, 2006) clearly document the extent of the EC exceedances. Given that these sites experience exceedances monthly, repeated sampling at this time will not provide the Coalition with any additional information. The exceedances are clearly persistent.

The Coalition will design a study to determine the source of the EC/TDS exceedances at these two sites. The study design will be provided to the Regional Board by April 1, 2006. Briefly, we will be examining EC and TDS in the source water and the irrigation return water during the irrigation season. We will also be testing for the specific ions in the water at these times. We will expand the testing to include the dormant season rainfall events as EC exceedances during this period are occurring. Determining the specific ions responsible for the EC will allow us to test the hypothesis that high $CaCO_3$ buffering is responsible for both pH and EC exceedances. Details will be included in the study design.

If you have any questions, let me know.

Mike Johnson

From: mbjohnson@ucdavis.edu
Date: *03/10/06 01:30:25*
To: dkulesza@waterboards.ca.gov
Cc: 'Melissa Turner'; mbjohnson@ucdavis.edu; 'Tom Kimball'
Subject: exceedance report

Dana,

We are submitting an Exceedance Report for water column toxicity test results from samples collected Tuesday, February 28, and Wednesday March 1, 2006. Water collected during that monitoring event resulted in the following. All results are compared to the controls.

Site	Test Organism	% Growth/% Survival
Highline Canal @ Highway 99	*Selenastrum*	8
Duck Slough @ Gurr Rd	*Ceriodaphnia*	35

For all *Selenastrum* tests, the Coefficient of Variation for the control replicates did not meet the EPA guidelines for acceptance (20%). All tests are being repeated. Retesting is being performed on the Highline Canal site and we will inform you of those results when they become available. However, it is clear that the Highline Canal sample is statistically significantly different from the controls and we are treating the results reported above as an exceedance. Because of the retesting, we are not initiating a Phase I TIE until the tests meet the acceptance criterion. In addition, the control *Ceriodaphnia* test for the Bear Creek @ Kibby Rd site failed the EPA criteria for acceptable survival. This site is being retested with a new set of control replicates. When the results of those tests are available, we will send them to you. A field duplicate sample for the Cottonwood Creek @ Road 20 site experienced 60% survival, but the original sample experienced a survival of 95%, the same as the control sample. We are not treating the result as an exceedance and will not be resampling the site.

Follow-up monitoring for persistence will be conducted at both locations with statistically significant results. Results were received at the end of the business day on March 8, 2006. Unfortunately, I was out of the office due to a medical procedure and did not receive the results until March 9, 2006.

Because the results for the Duck Slough site reach the trigger for a Toxicity Identification Evaluation, a targeted Phase I TIEs is being conducted on that sample. When the results of those tests are available, we will send them to you.

If you have any questions, let me know.

Mike Johnson

From: Michael Johnson
Date: *03/23/06 15:09:16*
To: 'Dana Kulesza'
Cc: parryk@comcast.net; 'Melissa A. Turner \(E-mail\)'; 'Tom Kimball'; 'Francisca Johnson'; mbjohnson@ucdavis.edu
Subject: revised exceedance report for chlorpyrifos

Dana,

As required in the Monitoring and Reporting Program (Order No. R5-2005-0833) for Coalition Groups, an Exceedance Report is being submitted to address the following issues a) the exceedances, b) the follow-up monitoring, and c) any analysis or other actions the Coalition Group may take to address the exceedance.

a. On March 1, 2006 sampling was conducted in the ESJWQC region for the first storm event of the winter. Water was collected for chemical analysis and organic compounds were extracted on March 2, 2006 and the analyses were conducted on March 17, 2006. Exceedances of receiving water limitations were experienced at two sites on March 1. At Highline Canal @ Highway 99, chlorpyrifos was detected in the water at a concentration of 0.021µg/L and at Highline Canal @ Lombardy Road the concentration was 0.027 µg/L. All data quality objectives were met for the sampling and we will include all Level IV data with the semi-annual monitoring report due in June. If you wish to see the raw data prior to the submission of the report, we currently have that data available as pdfs from the laboratory.
b. We are not conducting specific follow-up sampling on these exceedances. We did collect water for the second storm event of the year on March 15 and 16, 2006 (incorrectly reported as March 14 and 15, 2006 in the earlier email) at those sites. These second samples would serve as follow-up sampling to the first event. The sampling is the standard storm event sampling that the Coalition performs. Water was submitted to the lab for analysis, which is currently being performed. Results are not yet available for those samples and we will provide those results in the Communication Report.
c. Finally, we are requesting the Pesticide Use Reports from the County Agricultural Commissioners to determine if applications were made that could account for the exceedances. The delivery of the reports from the CAC offices may take up to 6 months, and we will report on those analyses after we receive the reports. We will be submitting a Communication Report on this Exceedance by May 25, 2006 that will address a. The follow-up monitoring and analyses that were conducted; b. What actions were taken to identify the source of the problem; c. Complete analytical laboratory results; d. A time schedule to identify and implement the Management Practice Effectiveness plan (described on page 3 of the MRP for Coalition Groups); and e. A time schedule to submit an Evaluation Report.

Mike Johnson

From: Michael Johnson
Date: *03/17/06 13:36:53*
To: 'Dana Kulesza'
Cc: parryk@comcast.net; 'Melissa Turner'; 'Tom Kimball'; johnsonfrancisca@sbcglobal.net; mbjohnson@ucdavis.edu
Subject: exceedance report for ESJ coalition sampling

Dana,
On March 16, 2006 sampling was completed in the ESJWQC region on the second storm event of the winter. Exceedances of receiving water limitations were experienced at two sites on March 16. At Prairie Flower Drain @ Crows Landing Road, pH recorded in the field was 8.77, and EC was 2728 µS/cm. At Hilmar Drain @ Central Ave the EC was 1215 µS/cm.

We are not conducting follow-up sampling on these exceedances. As was the case for the EC and pH exceedances from the first event, EC at these two sites is perennially a problem and we do not anticipate that persistence sampling is going to provide additional information. The exceedances are clearly persistent. As we have indicated previously, the coalition is designing a study that may potentially determine the source of the conductivity. We will have that design to you by April 1, 2006. The proposed study will be able to determine if the pH and EC exceedances are linked by specific ions.
Mike Johnson
Technical Program Manager

Sent: Wednesday, March 22, 2006 3:47 PM

From: Michael Johnson [mbjohnson@ucdavis.edu]
Sent: Wednesday, March 22, 2006 3:47 PM
To: 'Dana Kulesza'
Cc: parryk@comcast.net; 'Melissa A. Turner (E-mail)'; 'Tom Kimball'; 'Francisca Johnson'
Subject: exceedance report

Dana,

On March 1, 2006 sampling was conducted in the ESJWQC region on the first storm event of the winter. Water was collected for chemical analysis and organic compounds were extracted on March 2, 2006 and the analyses were conducted on March 17, 2006. Exceedances of receiving water limitations were experienced at two sites on March 1. At Highline Canal @ Highway 99, chlorpyrifos was detected in the water at a concentration of 0.021µg/L and at Highline Canal @ Lombardy Road the concentration was 0.027 µg/L. All data quality objectives were met for the sampling and we will include all Level IV data with the semi-annual monitoring report due in June. If you wish to see the raw data prior to the submission of the report, we currently have that data available as pdfs from the laboratory.

We are not conducting follow-up sampling on these exceedances. We did collect water for the second storm event of the year on March 14 and 15, 2006 at those sites which would serve as follow-up sampling. However, those samples were not from the same storm event.

Mike Johnson
Technical Program Manager

Sent: Thursday, March 23, 2006 11:25 AM

From: Michael Johnson [mbjohnson@ucdavis.edu]
Sent: Thursday, March 23, 2006 11:25 AM
To: 'Dana Kulesza'
Cc: parryk@comcast.net; 'Melissa A. Turner (E-mail)'; 'Tom Kimball'; 'Francisca Johnson'; mbjohnson@ucdavis.edu
Subject: Exceedance report for toxicity

Attachments: ESJWQC Storm 2 Toxicity Exceedances.doc

Dana,

As required in the Monitoring and Reporting Program (Order No. R5-2005-0833) for Coalition Groups, an Exceedance Report is being submitted to address the following issues a) the exceedances, b) the follow-up monitoring, and c) any analysis or other actions the Coalition Group may take to address the exceedance.

a. Attached is a table that outlines the exceedances experienced during toxicity testing conducted on samples collected March 15 and March 16, 2006 as part of the sampling of our second rainfall event of the winter.
b. Re-sampling at all sites is being conducted on Friday, March 24, 2006 and toxicity tests on those samples should be initiated on March 25, 2006. In addition, as indicated in the table, TIEs are being performed on all samples where the difference between the control and treatment exceeded 50% (survival or growth). For those sites where we are performing TIEs, we will retain the C8 column with the organic compounds. If after the water chemistry analysis that we currently perform for Coalition monitoring we cannot account for the toxicity, and it appears that organic compounds are the cause of the toxicity, we will send the columns to be eluted and tested for other chemicals that could be used in those watersheds.
c. Finally, we are requesting the Pesticide Use Reports from the County Agricultural Commissioners to determine if applications were made that could account for the toxicity. The delivery of the reports from the CAC offices may take up to 6 months, and we will report on those analyses after we receive the reports. We will be submitting a Communication Report on this Exceedance by May 25, 2006 that will address a. The follow-up monitoring and analyses that were conducted; b. What actions were taken to identify the source of the problem; c. Complete analytical laboratory results; d. A time schedule to identify and implement the Management Practice Effectiveness plan (described on page 3 of the MRP for Coalition Groups); and e. A time schedule to submit an Evaluation Report.

Mike Johnson

ESJWQC Storm 2 (3/15/06-3/16/06) Toxicity Testing Summary					
Sample ID	**Species**	**% Survival**	**Cell Growth**	**Toxicity (Y/N)**	**Notes**
Control	*Selenastrum capricornutum*		1.440	N/A	Control CV = 13.6% & met acceptability criteria of ≤20%
Highline Canal @ Lombardy Rd	*Selenastrum capricornutum*		0.434	**Y**	70% reduction relative to Control. TIE in progress.
Control	*Ceriodaphnia dubia*	95		N/A	
Duck Slough @ Gurr Rd	*Ceriodaphnia dubia*	40		**Y**	58% reduction relative to Control. TIE in progress.
Control	*Ceriodaphnia dubia*	100		N/A	
Merced River @ Santa Fe	*Ceriodaphnia dubia*	35		**Y**	65% reduction relative to Control. TIE in progress.
Prairie Flower Drain @ Crows Landing Rd	*Ceriodaphnia dubia*	75		**Y**	25% reduction relative to Control.
Hilmar Drain @ Central Ave	*Ceriodaphnia dubia*	5		**Y**	95% reduction relative to Control. TIE in progress.
Highline Canal @ Hwy 99	*Ceriodaphnia dubia*	0		**Y**	100% reduction relative to Control. TIE and dilution series in progress.

Sent: *Thursday, March 23, 2006 3:09 PM*

From: Michael Johnson [mbjohnson@ucdavis.edu]
Sent: Thursday, March 23, 2006 3:09 PM
To: 'Dana Kulesza'
Cc: parryk@comcast.net; 'Melissa A. Turner (E-mail)'; 'Tom Kimball'; 'Francisca Johnson'; mbjohnson@ucdavis.edu
Subject: revised exceedance report for chlorpyrifos

Dana,

As required in the Monitoring and Reporting Program (Order No. R5-2005-0833) for Coalition Groups, an Exceedance Report is being submitted to address the following issues a) the exceedances, b) the follow-up monitoring, and c) any analysis or other actions the Coalition Group may take to address the exceedance.

d. On March 1, 2006 sampling was conducted in the ESJWQC region for the first storm event of the winter. Water was collected for chemical analysis and organic compounds were extracted on March 2, 2006 and the analyses were conducted on March 17, 2006. Exceedances of receiving water limitations were experienced at two sites on March 1. At Highline Canal @ Highway 99, chlorpyrifos was detected in the water at a concentration of 0.021µg/L and at Highline Canal @ Lombardy Road the concentration was 0.027 µg/L. All data quality objectives were met for the sampling and we will include all Level IV data with the semi-annual monitoring report due in June. If you wish to see the raw data prior to the submission of the report, we currently have that data available as pdfs from the laboratory.
e. We are not conducting specific follow-up sampling on these exceedances. We did collect water for the second storm event of the year on March 15 and 16, 2006 (incorrectly reported as March 14 and 15, 2006 in the earlier email) at those sites. These second samples would serve as follow-up sampling to the first event. The sampling is the standard storm event sampling that the Coalition performs. Water was submitted to the lab for analysis, which is currently being performed. Results are not yet available for those samples and we will provide those results in the Communication Report.
f. Finally, we are requesting the Pesticide Use Reports from the County Agricultural Commissioners to determine if applications were made that could account for the exceedances. The delivery of the reports from the CAC offices may take up to 6 months, and we will report on those analyses after we receive the reports. We will be submitting a Communication Report on this Exceedance by May 25, 2006 that will address a. The follow-up monitoring and analyses that were conducted; b. What actions were taken to identify the source of the problem; c. Complete analytical laboratory results; d. A time schedule to identify and implement the Management Practice Effectiveness plan (described on page 3 of the MRP for Coalition Groups); and e. A time schedule to submit an Evaluation Report.

Mike Johnson

Sent: *Friday, March 24, 2006 11:23 AM*

From: Michael Johnson [mbjohnson@ucdavis.edu]
Sent: Friday, March 24, 2006 11:23 AM
To: 'Dana Kulesza'
Cc: parryk@comcast.net; 'Melissa Turner'; 'Tom Kimball'; 'Francisca Johnson'; mbjohnson@ucdavis.edu
Subject: exceedance report

Attachments: ESJWQC Storm 1 E coli Exceedances.doc

Dana,

As required in the Monitoring and Reporting Program (Order No. R5-2005-0833) for Coalition Groups, an Exceedance Report is being submitted to address the following issues a) the exceedances, b) the follow-up monitoring, and c) any analysis or other actions the Coalition Group may take to address the exceedance.

g. On February 28, and March 1, 2006 sampling was conducted in the ESJWQC region for the first storm event of the winter. Water was collected for analysis of *E. coli* and physical parameters. Exceedances of receiving water limitations for E. coli were experienced at six sites and at two sites for TDS. The sites and the E. coli levels and TDS concentrations are provided in the attached table. Briefly, exceedances of E. coli were found at Cottonwood Creek @ Road 20, Ash Slough @ Avenue 21, Merced River @ Santa Fe, Prairie Flower Drain @ Crows Landing Road, Jones Drain @ Oakdale Road, and Dry Creek @ Wellsford Road. TDS exceedances were found at Prairie Flower Drain @ Crows Landing Road, and Hilmar Drain @ Central Avenue. All data quality objectives were met for the sampling and we will include all Level IV data with the semi-annual monitoring report due in June. If you wish to see the raw data prior to the submission of the report, we will be receiving those data as pdfs from the laboratory in the near future.

h. Follow-up sampling will not be conducted immediately, but the coalition will follow up on this problem by performing the special study to identify potential sources of the *E. coli* and TDS (see part c below). Because the *E. coli* and TDS exceedances are a continual occurrence, immediate follow-up sampling with or without an exceedance, will not provide any additional information that will allow the Coalition to address the management of these water quality problem.

i. The TDS exceedances are a continuing issue at both the Prairie Flower Drain and Hilmar Drain. The *E. coli* exceedances likewise continue to occur throughout the Coalition region. The Coalition is currently designing a study to determine the source of the TDS. We are designing a study to determine the source of the *E. coli*. The study designs for both studies will be submitted to the Regional Board for review no later than March 31, 2006, and April 1, 2006 (*E. coli* and TDS respectively). We will be submitting a Communication Report on this Exceedance by May 25, 2006 that will address a. The follow-up monitoring and analyses that were conducted; b. What actions were taken to identify the source of the problem; c. Complete analytical laboratory results; d. A time schedule to identify and implement the Management Practice Effectiveness plan (described on page 3 of the MRP for Coalition Groups); and e. A time schedule to submit an Evaluation Report.

Mike Johnson

ESJWQC E. coli Exceedances- Storm 1 (2006)

Site	Date	*E. coli*	TDS
Cottonwood Creek @ Road 20	2/28/2006	300	
Ash Slough @ Avenue 21	2/28/2006	500	
Merced River @ Santa Fe	3/1/2006	>1600	
Prairie Flower Drain @ Crows Landing Rd	3/1/2006	900	1600
Hilmar Drain @ Central Ave	3/1/2006		670
Jones Drain @ Oakdale Rd	3/1/2006	900	
Dry Creek @ Wellsford Rd	3/1/2006	300	

Sent: *Wednesday, March 29, 2006 9:28 AM*

From: Michael Johnson [mbjohnson@ucdavis.edu]
Sent: Wednesday, March 29, 2006 9:28 AM
To: 'Dana Kulesza'
Cc: parryk@comcast.net; 'Melissa Turner'; 'Tom Kimball'; 'Francisca Johnson'; mbjohnson@ucdavis.edu
Subject: Exceedance report

Dana,

As required in the Monitoring and Reporting Program (Order No. R5-2005-0833) for Coalition Groups, an Exceedance Report is being submitted to address the following issues a) the exceedances, b) the follow-up monitoring, and c) any analysis or other actions the Coalition Group may take to address the exceedance.

j. On March 24, 2006 follow-up sampling was conducted in the ESJWQC region for Ceriodaphnia toxicity at the Hilmar Drain and Prairie Flower Drain sites. During that sampling, field parameters were measured. Exceedances of receiving water limitations for EC were experienced at both sites. The EC at the Hilmar Drain site was 1400 µS/cm, and the EC at the Prairie Flower Drain site was 2782 µS/cm.
k. Follow-up sampling for the EC exceedances will not be conducted. EC exceedances are a continual occurrence, and both sites experienced exceedances during the original sampling. We will address the EC issue by conducting a study of the sources of the EC and TDS.
l. The EC exceedances are a continuing issue at both the Prairie Flower Drain and Hilmar Drain. The Coalition is currently designing a study to determine the source of the EC/TDS and will submit that design by April 1, 2006. We will be submitting a Communication Report on this Exceedance that will address a. The follow-up monitoring and analyses that were conducted; b. What actions were taken to identify the source of the problem; c. Complete analytical laboratory results; d. A time schedule to identify and implement the Management Practice Effectiveness plan (described on page 3 of the MRP for Coalition Groups); and e. A time schedule to submit an Evaluation Report.

Mike Johnson

Sent: *Friday, April 07, 2006 9:12 AM*

From: Michael Johnson [mbjohnson@ucdavis.edu]
Sent: Friday, April 07, 2006 9:12 AM
To: 'Dana Kulesza'
Cc: 'Parry Klassen'; 'Melissa Turner'; 'Francisca Johnson'; mbjohnson@ucdavis.edu
Subject: revised exceedance report

Dana,

Sorry for the confusion, it's a chlorpyrifos exceedance. The revised Exceedance Report is below.

Mike

Dana,

As required in the Monitoring and Reporting Program (Order No. R5-2005-0833) for Coalition Groups, an Exceedance Report is being submitted to address the following issues a) the exceedances, b) the follow-up monitoring, and c) any analysis or other actions the Coalition Group may take to address the exceedance.

a. The Coalition just received the water chemistry data for the samples collected on March 15, 2006. Samples were collected on March 15, 2006, samples were extracted on March 21, 2006, and analyses were performed on March 31, 2006. Water collected at Ash Slough @ Ave 21 contained chlorpyrifos at a concentration of 0.029 µg/L. All data quality objectives for the analyses were met. We currently have Level IV data for the event and can provide those to you at any time. We will include the Level IV data with the semi-annual report.

b. Follow-up sampling for the chlorpyrifos exceedance will not be conducted. Instead, the Coalition will attempt to determine the potential sources by the use of the Pesticide Use Reports.

c. The Coalition is requesting the Pesticide Use Reports from the Madera County Agricultural Commissioner. These reports may take several weeks to months to arrive. We will use these reports to identify locations where chlorpyrifos was applied in the period preceding the sampling. Additionally, we will determine the method of application to determine if past applications that may have resulted in exceedances are due to one particular technique. These analyses will be provided in the semi-annual report due June 30, 2006 if the PURs arrive in time. We will be submitting a Communication Report on these exceedances that will address a. The follow-up monitoring and analyses that were conducted; b. What actions were taken to identify the source of the problem; c. Complete analytical laboratory results; d. A time schedule to identify and implement the Management Practice Effectiveness plan (described on page 3 of the MRP for Coalition Groups); and e. A time schedule to submit an Evaluation Report.

Mike Johnson

Sent: *Thursday, April 20, 2006 8:54 AM*

From: Michael Johnson [mbjohnson@ucdavis.edu]
Sent: Thursday, April 20, 2006 8:54 AM
To: 'Dana Kulesza'
Cc: 'Parry Klassen'; 'Melissa Turner'; 'Francisca Johnson'; mbjohnson@ucdavis.edu
Subject: exceedance report

Attachments: ESJWQC E coli TDS Exceedances Storm2 06.doc
Dana,
As required in the Monitoring and Reporting Program (Order No. R5-2005-0833) for Coalition Groups, an Exceedance Report is being submitted to address the following issues a) the exceedances, b) the follow-up monitoring, and c) any analysis or other actions the Coalition Group may take to address the exceedance.

m. On March 15 and 16, 2006 sampling was conducted in the ESJWQC region for the second storm event of the winter. Water was collected for analysis of *E. coli* and physical parameters. Exceedances of receiving water limitations for *E. coli* were experienced at eight sites and at two sites for TDS. The sites, *E. coli* levels and TDS concentrations are provided in the attached table. Briefly, exceedances of *E. coli* were found at Bear Creek @ Kibby Road, Cottonwood Creek @ Road 20, Prairie Flower Drain @ Crows Landing Road, Duck Slough @ Gurr Road, Duck Slough @ Pioneer Road, Highline Canal @ Highway 99, Highline Canal @ Lombardy Road, and Dry Creek @ Wellsford Road. TDS exceedances were found at Prairie Flower Drain @ Crows Landing Road and Hilmar Drain @ Central Avenue. We received a preliminary excel file for the exceedances from the laboratory on April 6, 2006, but have still not received a finalized report. There were some questions about quality control samples which led us to question whether we had met all data quality objectives. Response from the laboratory has been delayed due to personnel being on vacation last week. The laboratory QA/QC officer returned to work this last Monday (4/17/2006) but has not yet responded to our questions. We are reporting the preliminary data since we are uncertain when we will receive a finalized response from the lab. We will submit an addendum later if necessary.
n. Follow-up sampling was not conducted, but the coalition will follow up on this problem by performing the special study to identify potential sources of the *E. coli* and TDS (see part c below). Because the *E. coli* and TDS exceedances are a continual occurrence (TDS exceedances at both sites are the same as the exceedances during the first storm event), immediate follow-up sampling, with or without an exceedance, will not provide any additional information that will allow the Coalition to address the management of these water quality problem.
o. The TDS exceedances are a continuing issue at both the Prairie Flower Drain and Hilmar Drain. The *E. coli* exceedances likewise continue to occur throughout the Coalition region. The Coalition is currently designing a study to determine the source of the TDS and a separate study to determine the source of the *E. coli*. We anticipated submitting these designs by March 31, 2006, but finding a laboratory that can handle the sample volume we will generate for coliform analysis has proved challenging. We will be submitting a Communication Report on this Exceedance by June 22, 2006 that will address a. The follow-up monitoring and analyses that were conducted; although no follow-up monitoring will be conducted we will include our rationale for not doing this; b. What actions were taken to identify the source of the problem; c. Complete analytical laboratory results; d. A time schedule to identify and implement the Management Practice Effectiveness plan (described on page 3 of the MRP for Coalition Groups); and e. A time schedule to submit an Evaluation Report.

Mike Johnson

ESJWQC *E.coli* and TDS exceedances sampled during Storm 2, March 15-16, 2006.

Site Name	Season	Sample Date	*E. coli*	TDS
Bear Creek @ Kibby Rd	Storm2	3/15/2006	1600	
Cottonwood Creek @ Road 20	Storm2	3/15/2006	>1600	
Duck Slough @ Gurr Rd	Storm2	3/15/2006	300	
Duck Slough @ Pioneer Rd	Storm2	3/15/2006	900	
Dry Creek @ Wellsford Rd	Storm2	3/16/2006	1600	
Highline Canal @ Hwy 99	Storm2	3/16/2006	300	
Highline Canal @ Lombardy Rd	Storm2	3/16/2006	900	
Hilmar Drain @ Central Ave	Storm2	3/16/2006		710
Prairie Flower Drain @ Crows Landing Rd	Storm2	3/16/2006	300	1600

From: Michael Johnson
Date: *06/16/06 15:07:18*
To: 'Dana Kulesza'
Cc: 'Parry Klassen'; 'Melissa Turner'; 'Francisca Johnson'; kristacallinan@gmail.com; mbjohnson@ucdavis.edu
Subject: exceedance report

Dana,
As required in the Monitoring and Reporting Program (Order No. R5-2005-0833) for Coalition Groups, an Exceedance Report is being submitted to address the following issues a) the exceedances, b) the follow-up monitoring, and c) any analysis or other actions the Coalition Group may take to address the exceedance.

a. On March 10, 2006 re-sampling was conducted in the ESJWQC region to determine the persistence of toxicity at three sites experiencing toxicity during the first winter sampling event on February 28, and March 1, 2006. During testing of the water collected for persistence, toxicity was experienced at Duck Slough @ Gurr Road. However, we were never notified by the laboratory that the samples were toxic, and we assumed that no toxicity was present. During a review of the data reports from the laboratory on June 15, 2006, we discovered that the re-sample was toxic to both Ceriodaphnia and Pimephales. Consequently, we are reporting exceedances for Ceriodaphnia and Pimephales toxicity for the Duck Slough @ Gurr Road site for samples collected on March 10, 2006. We will include the raw data with the submission of the Semi-Annual Monitoring Report.
b. Follow-up sampling was not conducted.
c. We are requesting Pesticide Use Reports for the watershed in which the exceedances were found. We will be submitting a Communication Report on this Exceedance by June 30, 2006 that will address a. The follow-up monitoring and analyses that were conducted; b. What actions were taken to identify the source of the problem; c. Complete analytical laboratory results; d. A time schedule to identify and implement the Management Practice Effectiveness plan (described on page 3 of the MRP for Coalition Groups); and e. A time schedule to submit an Evaluation Report.

Mike Johnson

Communicatin Reports 2005

East San Joaquin Water Quality Coalition
1201 L Street
Modesto, CA 95354
www.esjcoalition.org

December 6, 2005

William Croyle
Dana Thomsen
Central Valley Regional Water Quality Control Board
11020 Sun Center Drive #200
Rancho Cordova, CA 95670-6114

Dear Bill and Dana:

On October 3, 2005, we filed an Exceedance Report for pH for the sites listed below.

Site	Exceedance	Date of sampling
Dry Creek @ Wellsford Rd	pH	3/22/05
Dry Creek @ Wellsford Rd	pH	5/11/05
Dry Creek @ Wellsford Rd	pH	8/17/05
Dry Creek @ Road 18	pH	8/16/05
Highline Canal @ Lombardy Ave	pH	3/21/05
Highline Canal @ Lombardy Ave	pH	8/17/05
Jones Drain @ Oakdale Rd	pH	3/22/05
Merced River @ Santa Fe Dr	pH	8/17/05

At this time we are submitting the Communication Report for the pH exceedances.

1. Follow-up monitoring and analyses conducted.

No follow-up sampling was conducted.

2. Actions taken to identify the source of the exceedance.

pH is not a constituent for which a source can be identified. There are two potential causes of pH outside the range (6.5 – 8.5) specified in the Basin Plan. First, substances with very low or very high pH could have been added to the water or been the result of a spill. However, given the normal buffering capacity of the stream systems in the Valley, the pH of the contaminant would have to be relatively high or low and would probably have resulted in noticeable fish kills and the death of other biota in the streams. No such kills were observed and consequently, it is unlikely that the pH exceedances were the result of spills or deliberate dumping into the water bodies.

The second cause of exceedances of pH is the diel shift in pH that occurs as a result of photosynthetic activity by algae in the water column, benthic algae, and rooted aquatic macrophytes, or could be the result of CO_2 released during the decay of organic matter in the water body. It is well established that diel shifts in photosynthetic rates can change pH as much as 0.5 pH units. And, it is unclear if the shifts in photosynthetic rate are a function of excessive nutrients and eutrophication. However, dissolved oxygen measurements taken at the time that pH was taken did not indicate supersaturation of the water which would be indicative of extremely high rates of photosynthesis.

3. Complete analytical results

Analytical results are appended electronically to the transmittal message.

4. Time schedule to identify and implement the Management Practice Effectiveness evaluation.

At this time, it is not possible to implement management practices to address pH. When the Coalition initiates monitoring for nutrients, we may be able to obtain sufficient information to address pH. However, even understanding the level of nutrients in the water will most probably be insufficient to understand the pH dynamics of the water column.

Let us know if further explanation or documentation is necessary.

Parry Klassen
559-325-9855

Wayne Zipser
209-522-7278

East San Joaquin Water Quality Coalition
1201 L Street
Modesto, CA 95354
www.esjcoalition.org

December 21, 2005

William Croyle
Dana Thomsen
Central Valley Regional Water Quality Control Board
11020 Sun Center Drive #200
Rancho Cordova, CA 95670-6114

Dear Bill and Dana:

On October 31, 2005, we received an email from Dana indicating that we did not include the date for submission of an Evaluation Report in the Communication Report we submitted for *E. coli* exceedances. We have had considerable discussion about the need to submit an Exceedance Report or a Communication Report on *E. coli* given the lack of standards in the Basin Plan for this constituent. In fact, we submitted a second communication report that indicated that we planned to do nothing about the *E. coli* exceedances. During our conference call discussion on December, 16, 2005, you indicated that because *E. coli* was a subset of fecal coliforms, it would be covered by the fecal coliform standards in the Basin Plan. Although we believe that this deserves further discussion, perhaps by the Technical Issues Committee, we are providing a date for submission of the Implementation Plan for the *E. coli* detections during the 2005 dormant and irrigation seasons.

Again, because *E. coli* is a generic measure of coliforms and is not specific to any individual species, we would need to perform a source identification study to determine the relative contribution of all potential contributing species. We are unable to target specific sources and provide management practices until we properly identify the source(s). We anticipate being able to identify and quantify the percentage contribution of humans, cows, birds, companion animals, and horses. However, to do so will require that we collect samples at several times during the summer and perform the tests. The samples are then taken to the lab, the DNA is extracted and the source identification tests performed. These tests will not be completed until the end of the summer of 2006 after which we will contact the potential sources (if from agricultural activities covered by the coalition) and proceed with the BMP outreach. We would continue to test in the irrigation season of 2007 to determine that management has or has not been effective in reducing the *E. coli* loads. Consequently, we expect to submit an Implementation Report in December of 2007 after receiving all of the data and the results of the analyses.

We realize that this submission date is quite far into the future but *E. coli* is unique among the constituents for which we sample in that it is possible that the contamination may be entirely from nonagricultural activities/sources. It will take us a full summer to determine the source(s) and adequately address the problem.

Let us know if further explanation or documentation is necessary.

Parry Klassen
559-325-9855

Wayne Zipser
209-522-7278

East San Joaquin Water Quality Coalition

1201 L Street
Modesto, CA 95354
www.esjcoalition.org

December 21, 2005

William Croyle
Dana Thomsen
Central Valley Regional Water Quality Control Board
11020 Sun Center Drive #200
Rancho Cordova, CA 95670-6114

Dear Bill and Dana:

We are submitting the formal communication report for the *E. coli* exceedances reported in an Exceedance Report dated October 18, 2005. The sites listed in that Exceedance Report are:

Site	Exceedance	Date of sampling
Ash Slough @ Ave 21	E. coli	7-12-05
Duck Slough @ Gurr Road	E. coli	7-12-05
Jones Drain @ Oakdale Road	E. coli	7-12-05
Prairie Flower Drain @ Crows Landing Road	E. coli	7-12-05
Hilmar Drain @ Central Ave	E. coli	7-13-05
Dry Creek @ Wellsford Road	E. coli	7-13-05
Cottonwood Creek @ Road 20	E. coli	8-16-05
Duck Slough @ Gurr Road	E. coli	8-16-05
Hilmar Drain @ Central Ave	E. coli	8-16-05
Hilmar Drain @ Central Ave - FD	E. coli	8-16-05
Dry Creek @ Wellsford Road	E. coli	8-17-05
Prairie Flower Drain @ Crows Landing Road	E. coli	8-17-05
Dry Creek @ Road 18	E. coli	9-20-05
Dry Creek @ Wellsford Road	E. coli	9-21-05
Prairie Flower Drain @ Crows Landing Road	E. coli	9-21-05
Prairie Flower Drain @ Crows Landing Road - FD	E. coli	9-21-05
Hilmar Drain @ Central Ave	E. coli	9-21-05
Jones Drain @ Oakdale Road	E. coli	9-21-05

1. Follow-up monitoring and analyses conducted.
No immediate follow-up sampling was conducted. However, as we collected samples during the irrigation season, it is apparent that for these 7 sites, *E. coli* exceedances are a continuing

problem. Earlier, we performed a correlation analysis to determine if the signal (MPN/100 mL) was related to the number of acres of irrigated pasture, the number of parcels of irrigated pasture, the number of acres of dairies, the number of dairies, of the combined number of acres or parcels of both dairies and irrigated pasture in the watersheds. To reiterate those results, the analysis indicates that there is no correlation between the number of parcels or the acres of irrigated pasture and average *E. coli* signal (r = 0.15 for both), and there is no significant correlation between the number of dairies and the *E. coli* signal (r = 0.26), or the acreage of dairies and *E. coli* (r = 0.18). There was no correlation between the combined acreage (r = 0.17) or combined number of parcels (r = 0.22) and *E. coli*. [Statistical significance at $\alpha = 0.05$ level for all tests of the null hypothesis $r = 0$ against the alternative hypothesis $r \neq 0$ is 0.361.] Our conclusions from that analysis were (and remain) that either: 1) the coliform bacteria is not primarily from dairies or cattle grazing but from other sources such as wildlife, leaking septic systems or sanitary sewer lines, or 2) the coliform bacteria is from grazing or dairy operations but the contribution to the total load is not evenly distributed across the watershed. I.e., a few locations (dairies or pastures) provide the bulk of the load to the water body. To effectively target management options, additional follow-up analyses are being proposed (see #2 below).

2. Actions taken to identify the source of the exceedance.

After identification of all exceedances, all irrigated pasture in each of the watersheds was identified. In addition, all of the dairies within those watersheds were also located. Irrigated pastures were identified by APN and owner and we are currently contacting those landowners to develop information on grazing practices and water management.

In addition, *E. coli* is a general indicator of bacterial contamination and it is not clear what sources contribute to the coliform load. Consequently, we are designing a follow-up study to sample watersheds during non-monitoring events and perform analyses to identify the source of the bacteria. Using these samples, we can extract the DNA from the bacteria in the water, use real-time PCR to amplify the DNA signal and then use electrophoretic techniques (DGGE) and sequence analysis to match the bacterial DNA sequences with bacterial sequences from known sources, e.g., humans, cows, sheep, dogs, birds, etc. Once we understand the relative contribution of these sources, we can use the information gathered on grazing practices and water management to develop an appropriate management strategy.

We will design an appropriate study and provide the experimental design and analytical techniques to the Regional Board for comment and input. We anticipate that the study will commence during the next irrigation season and will consist of three sampling events from early, mid, and late in the season.

3. Complete analytical results

Analytical results are appended electronically to the transmittal message. These results include all data reports provided to the coalition by the analytical laboratory. QC data are included in the data reports.

4. Time schedule to identify and implement the Management Practice Effectiveness evaluation.

The time schedule is:

Action	Anticipated Completion Date
Contact Growers in Watersheds	February 2006
Design Bacterial ID Study	March 2006
Perform Management Practices Survey	June 2006
Perform Bacterial ID Study	Irrigation Season 2006
Implement Outreach/BMP Education	September 2006
Evaluation Report	December 2007

We realize that the submission date for the Evaluation Report is quite far into the future but *E. coli* is unique among the constituents for which we sample in that it is possible that the contamination may be entirely from nonagricultural activities/sources. It will take us a full summer to determine the source(s) and adequately address the problem.

Let us know if further explanation or documentation is necessary.

Parry Klassen
559-325-9855

Wayne Zipser
209-522-7278

East San Joaquin Water Quality Coalition
1201 L Street
Modesto, CA 95354
www.esjcoalition.org

December 22, 2005

William Croyle
Dana Thomsen
Central Valley Regional Water Quality Control Board
11020 Sun Center Drive #200
Rancho Cordova, CA 95670-6114

Dear Bill and Dana:

We are submitting the formal communication report for the sediment toxicity exceedances reported in an Exceedance Report dated October 18, 2005. The sites listed in that Exceedance Report are:

Site	Exceedance	Date of sampling
Duck Slough @ Gurr Road	Sediment toxicity	9/16/05
Hilmar Drain @ Central Ave	Sediment toxicity	9/16/05
Prairie Flower Drain @ Crows Landing Road	Sediment toxicity	9/16/05
Highline Canal @ Highway 99	Sediment toxicity	9/16/05

1. Follow-up monitoring and analyses conducted.
No immediate follow-up sampling was conducted. No chemical analyses were conducted and it is not known if the cause of the toxicity was from an organic or inorganic compound. Sediment toxicity has been detected in these watersheds during the previous sampling event in July and May indicating that there is a pattern of sediment toxicity.

2. Actions taken to identify the source of the exceedance.
We will treat sediment toxicity in the same manner as water column toxicity. We have requested the Pesticide Use Reports for the watersheds and will search for chemicals that were applied that could bind to sediment and be carried to the water bodies. Once we have established the potential sources in the watershed, we will contact growers and initiate outreach.

It will not be possible to establish exact sources for sediment because it is not clear when the sediment was deposited at the sites. The previous toxicity at all four locations in the July and/or May 2005 sediment samples suggests that the toxicity experienced in September 2005 could be a result of either recent applications of chemicals that have been transported to the water bodies bound to sediment, or the result of slow breakdown of the chemicals applied much earlier in the growing season. Given that very little is known about the half-life of most chemicals in sediment, the sediment containing the toxic substances could have been deposited up to several months prior to sampling.

To demonstrate the process of using pesticide use reports to identify sources, we are attaching below the results of our search for potential sources for the July exceedances in the Duck Slough @ Gurr Road, and Prairie Flower Drain @ Crows Landing Road watersheds, and the Hilmar Drain @ Central Ave watershed for the May sediment exceedance. K_{oc} values were obtained from a number of sources.

Duck Slough

In the Duck Slough watershed (Figure 1) there were over one hundred chemical applications in the two weeks prior to sampling (Table 1). The pesticide applications included a large number of herbicides that are not expected to cause toxicity and the following chemicals with K_{oc} values below 1500-1800 which, based on CDPR criteria, are not expected to partition to sediment (K_{oc} values in parentheses): methamidaphos (5), sethoxydim (100), imidcloprid (440), myclobutinil (500), oxamyl (6), acetamiprid (130-260), propanil (150), methomyl (72), dimethoate (20), and flumioxazin (105).

There were a series of applications of products with the capacity to bind to soil and be transported to surface waters where they could accumulate in the sediments. These include propargite (4000 - 8000), oxyfluorfen (100,000), indoxacarb (2200-8200), avermectin (6000), dimethylpolysiloxane (1840), mancozeb (2000), spiromesifen (50,000-100,000), pyriproxyfen (14,000), methoprene (23,000), abamectin (4000), and a series of pyrethroids with a known affinity to bind to sediment.

Methoxyfenozide was also used commonly in the watershed and although it may partition to sediment, it is considered a relatively nontoxic compound (insect growth regulator) that is recommended for use in integrated pest management programs (http://www.cdpr.ca.gov/docs/publicreports/5698.pdf).

Applications of the compounds with a high affinity for binding took place in 21 of the 56 TRS' in the two weeks prior to sampling (Table 2). We will contact the growers who applied the chemicals marked with blue highlighting to initiate outreach with discussions of BMPs appropriate to the parcels involved.

Prairie Flower Drain

The Prairie Flower Drain @ Crows Landing Road watershed (Figure 2a) experienced a sediment toxicity exceedance in July. Review of the pesticide use reports for the two weeks prior to the sampling event indicates that there was one chemical applied in the watershed. The chemical was propargite, applied July 6, which does have the potential for partitioning to sediment and is considered sufficiently toxic to result in sediment toxicity. The conclusions from this analysis are either: 1) the single application was responsible for the exceedance, 2) applications prior to the 2-week window were responsible for the exceedance, 3) there is (are) unreported application(s) in the watershed, or 4) the source of the toxicity is not related to agriculture. No toxicity was reported from the site in May indicating that the application and exceedance was generated in the approximately 6 weeks between the May sampling and the beginning of the two-week window at the end of June.

To narrow the potential conclusions and identify the source, we recently obtained from the Turlock Irrigation District a more complete local map of the drainage in the watershed. It is apparent that the Ables Drain (see Figure 2b) does drain from the region south of the Prairie Flower Drain. The single TRS is highlighted in the figure and is located to the south of Ables Drain and south of Hilmar Road. Although the map suggests that the application was located too far south to reach Ables Drain, the field(s) to which the chemical was applied may stretch to the north far enough to drain to Ables and eventually into Prairie Flower Drain. Alternatively, the mapping accuracy of the layers used for the analysis could be low and the product was applied to the north of Hilmar Road. There are several pumps (green dots in Figure 2b) that could move water and sediment and from fields to the south of the drain. We will perform a site visit to determine if the pumps are moving water and sediment from the TRS to which the product was applied into Ables Drain and eventually Prairie Flower Drain.

The second potential explanation is that there were additional applications prior to the 2-week window that could account for the toxicity. We collected the pesticide use information for the 6-month period prior to the sampling and those results are provided in Table 3. Only two other chemicals, both herbicides, were applied indicating that prior reported applications were not the cause of the toxicity. Although unreported applications may have occurred (conclusion #3), it is not possible for the coalition to determine if this is the cause of the sediment toxicity. Finally, there is no urban development in the watershed indicating that the final potential conclusion is incorrect.

The ESJWQC will pursue this exceedance by performing a site visit to determine the potential for drainage from the TRS to which the product was applied. If the visit indicates that it is possible for water and sediment to reach Ables Drain and Prairie Flower Drain, the grower will be contacted and outreach initiated. If the visit indicates that the water and sediment cannot move to the drains, all growers in the watershed will be identified and contacted. Outreach on BMP implementation will be initiated.

Hilmar Drain

During the month of May prior to the sampling event, 5 chemicals were applied in the watershed (Table 4). One chemical, mineral oil, is a carrier with no known sediment toxicity. Two of the chemicals applied, abamectin and lambda cyhalothrin, have K_{oc} values sufficiently elevated to indicate binding potential to soil and organic material that can be moved to the water body. A third chemical, azoxystrobin has a K_{oc} value of just less than 1600, which is generally classified as having the potential for significant partitioning to sediment. The final product, carbaryl, has a low K_{oc} value of 300 indicating little potential for partitioning to sediment.

All three chemicals with the potential for sediment toxicity were applied in the same TRS, 6S10E20. We will contact the grower(s) in this section and initiate outreach on BMP implementation.

These three case studies indicate that we are able to identify sources using the Pesticide Use Reports and when we receive the information from the County Agricultural Commissioners for the most recent sediment toxicity exceedances, we will be able to perform a similar analysis. It is generally true that given the delay in filing the Pesticide Use Reports until the 10th day of the month following application, the time required for the Agricultural Commissioner's office to process the information and make it available to us, and the time required for us to process the data, plot the information in the GIS and do the analysis, it is extremely unlikely that we will be able to provide any significant level of analysis within the 45 days between the filing of the Exceedance Report and the Communication Report. We have not received the PUR data from the Agricultural Commissioner's offices until 60 days after sampling at the minimum, and it takes us 30 days after receipt of the data to provide the level of analysis illustrated here for the July data. As a result, the Communication reports cannot adequately address source identification within a 45 day period.

3. Complete analytical results

Complete analytical results are attached electronically to this communication report.

4. Time schedule to identify and implement the Management Practice Effectiveness evaluation.

The time schedule is:

Action	Anticipated Date
Obtain Pesticide Use Reports	February 28, 2006
Identify potential sources	February 28, 2006
Perform Management Practices Survey	March 30, 2006
Implement outreach/BMP education	March 30, 2006
Submit Evaluation Report	December 1, 2006

Let us know if further explanation or documentation is necessary.

Parry Klassen
559-325-9855

Wayne Zipser
209-522-7278

Figure 1. Duck Slough pesticide applications. Applications are for the two weeks prior to the July sampling event.

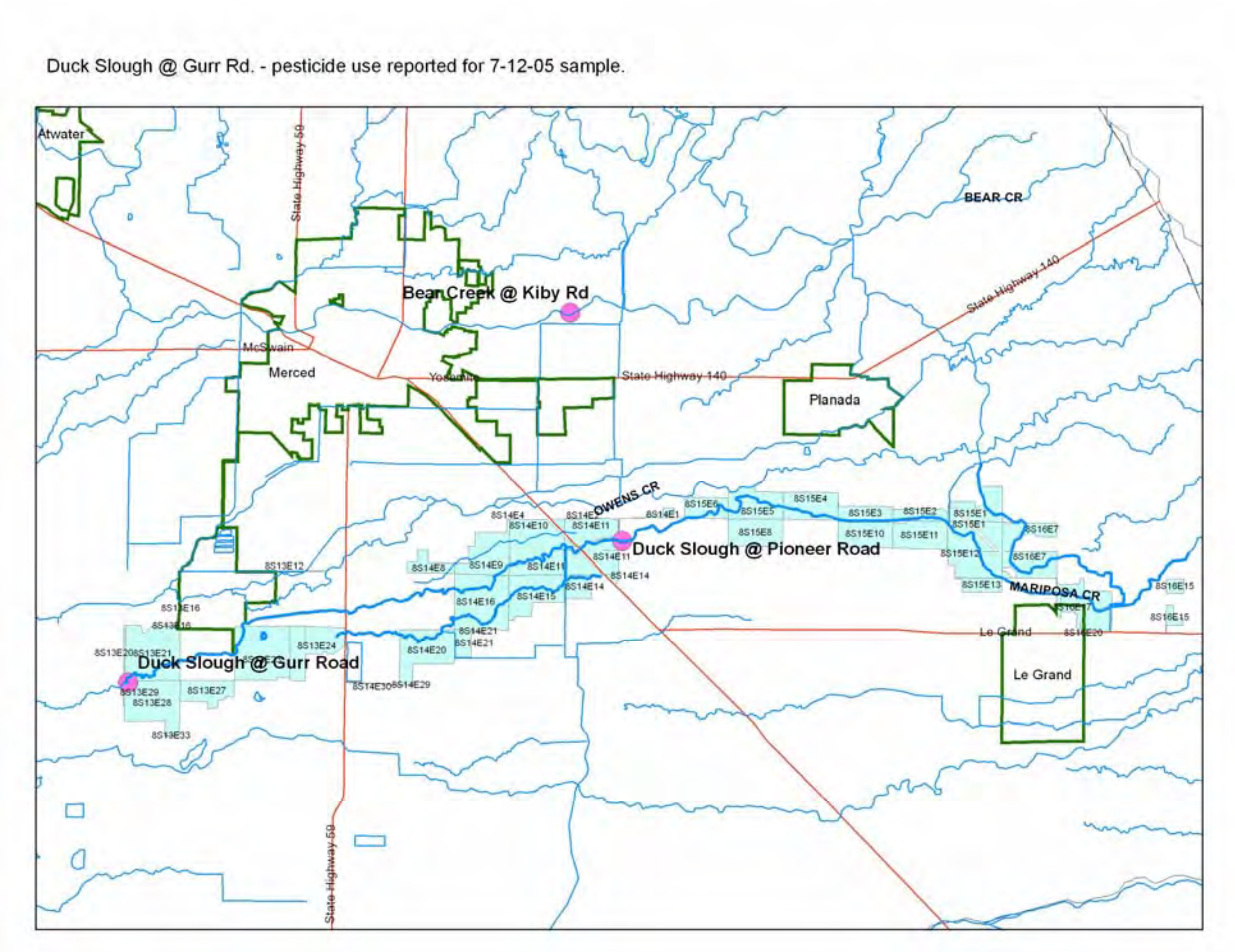


Figure 2a. Prairie Flower Drain pesticide applications. Original map of watershed drainage. The highlighted area is the location of the single pesticide application.

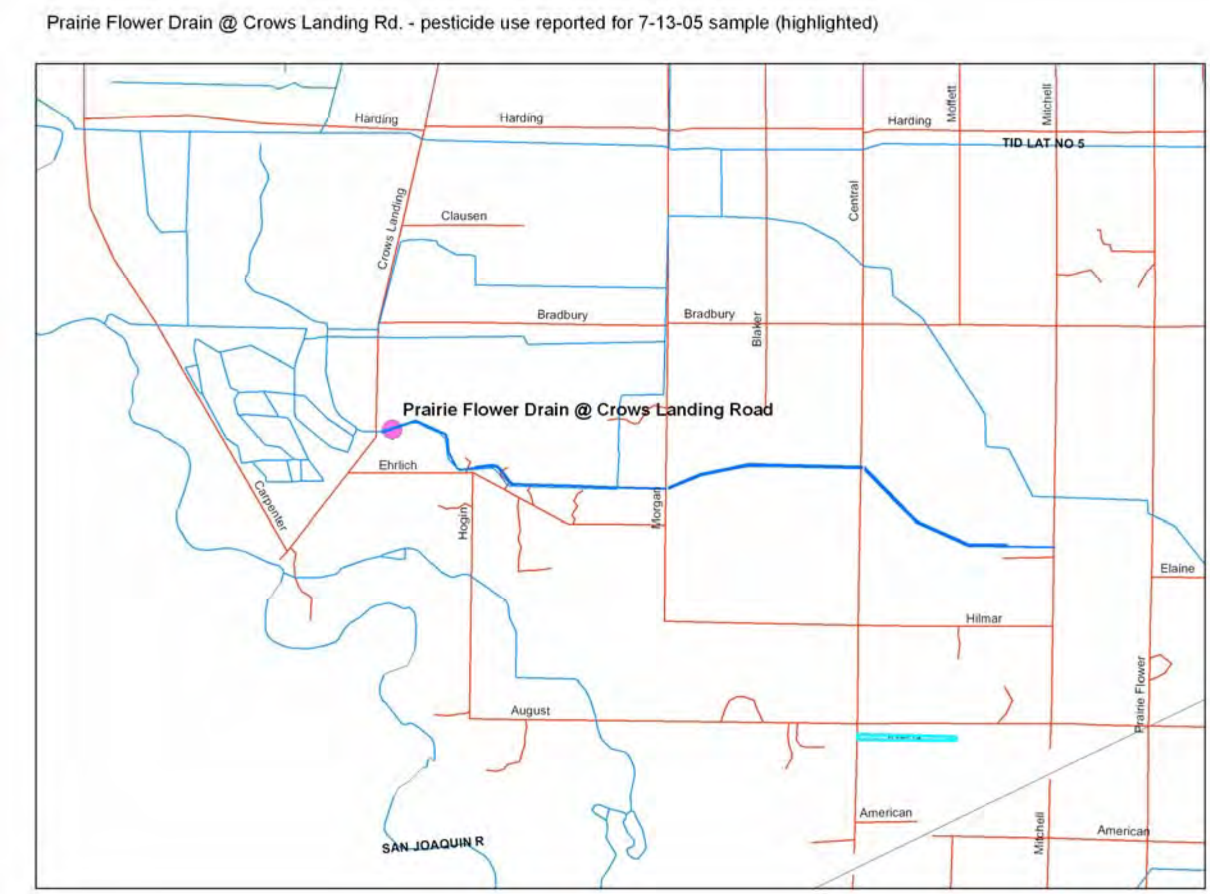


Figure 2b. Prairie Flower Drain pesticide applications. Watershed drainage and pump locations provided by the Turlock Irrigation District. The highlighted area is the location of the single pesticide application.

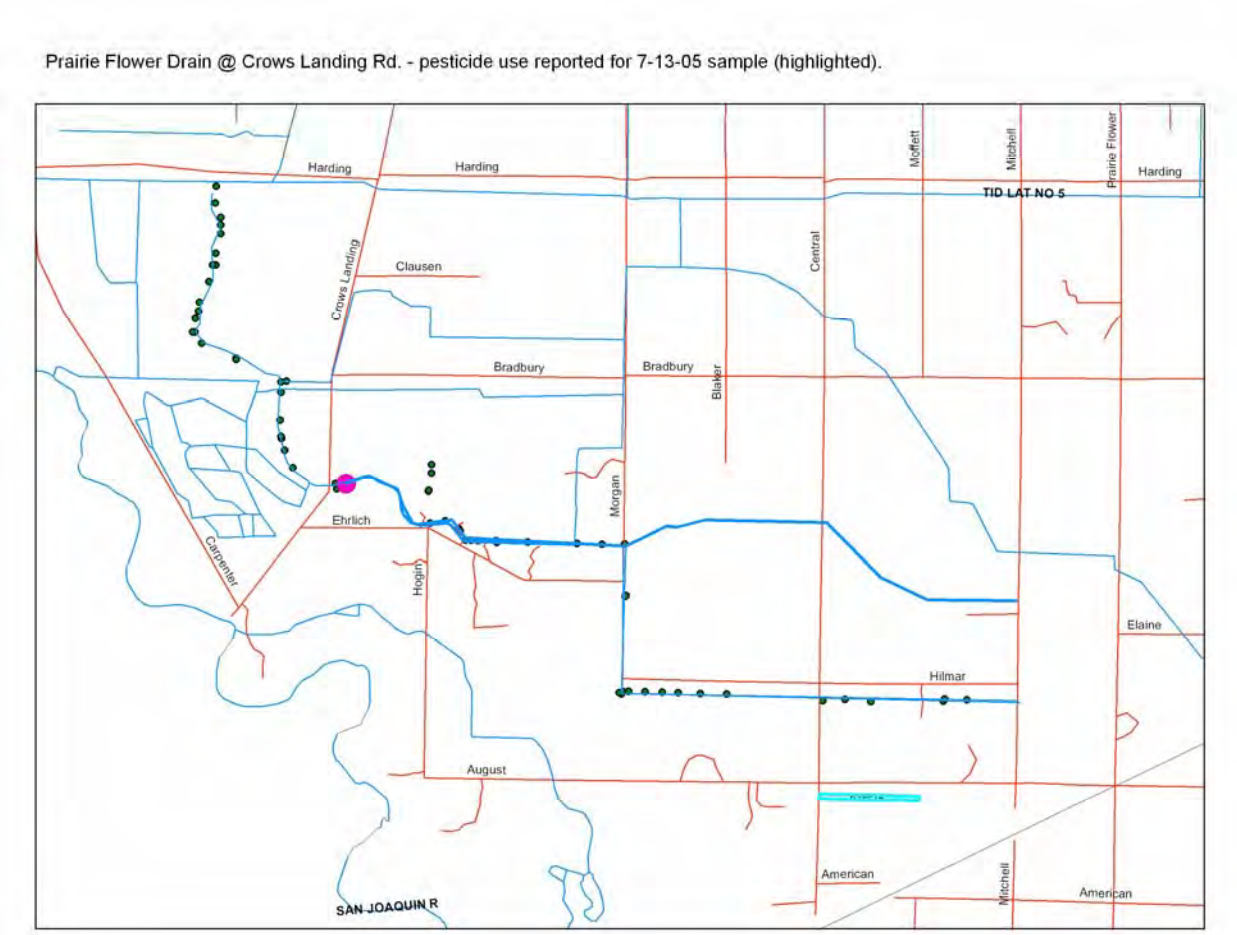


Figure 3. Hilmar Drain pesticide applications in May 2005 prior to the May 2005 sediment sampling event.

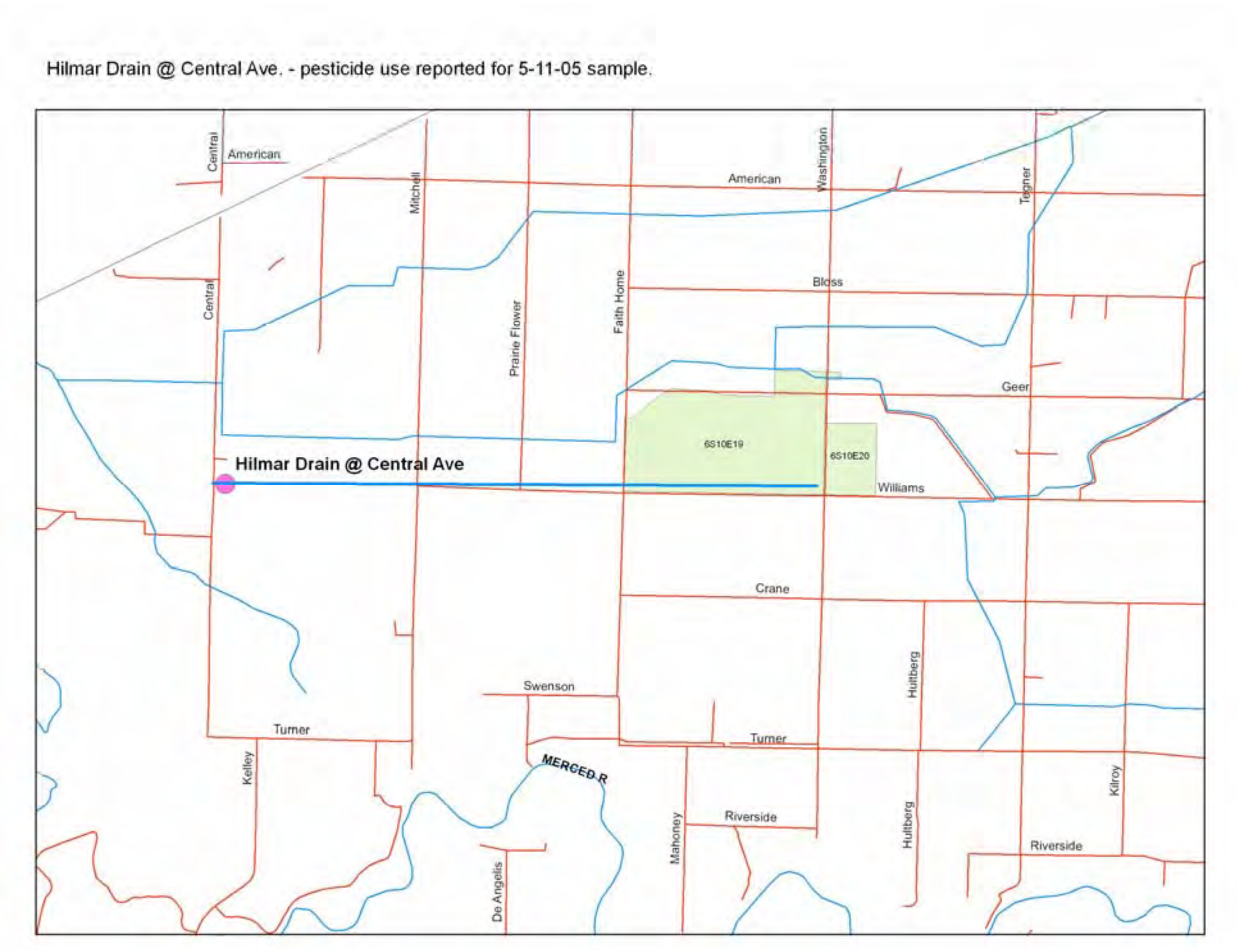


Table 1. Pesticide applications in the Duck Slough watershed during the 2 weeks prior to sampling. Shaded rows indicate applications with a high potential to contribute to sediment toxicity.

application date	treated acres	PUR Product name	Chemical name	amount	unit	TRS
6/29/05	16	INDUCE	METHOXYFENOZIDE	0.15	GA	8S14E2
6/29/05	16.5	INDUCE	METHOXYFENOZIDE	0.3075	GA	8S14E2
6/29/05	13	TRILIN HERBICIDE	TRIFLURALIN	1.625	GA	8S14E2
6/29/05	16	INTREPID 2F	METHOXYFENOZIDE	1.25	GA	8S14E2
6/29/05	16.5	INTREPID 2F	METHOXYFENOZIDE	1.28	GA	8S14E2
6/29/05	90	DU PONT ASANA XL INSECTICIDE	ESFENVALERATE	2.1	GA	8S13E11
6/29/05	55	DU PONT ASANA XL INSECTICIDE	ESFENVALERATE	3.3	GA	8S13E11
6/29/05	35	MONITOR 4 LIQUID INSECTICIDE	METHAMIDOPHOS	0.69	GA	8S13E11
6/29/05	55	MONITOR 4 LIQUID INSECTICIDE	METHAMIDOPHOS	10.52	GA	8S13E11
6/29/05	117	ZEPHYR 0.15EC	ABAMECTIN	2.285156	GA	8S13E12
6/29/05	117	LEVERAGE 2.7 SUSPENSION EMULSION INSECTI	CYFLUTHRIN	2.742188	GA	8S13E12
6/29/05	117	LEVERAGE 2.7 SUSPENSION EMULSION INSECTI	IMIDACLOPRID	2.742188	GA	8S13E12
6/29/05	117	MEPEX	MEPIQUAT CHLORIDE	12.79688	GA	8S13E12
6/29/05	5	DU PONT ASANA XL INSECTICIDE	ESFENVALERATE	0.3125	GA	8S15E10
6/29/05	5	DU PONT AVAUNT INSECTICIDE	INDOXACARB	0.9375	LB	8S15E10
6/29/05	20	RALLY 40W AGRICULTURAL FUNGICIDE IN WATE	MYCLOBUTANIL	6.25	LB	8S15E10
6/29/05	50	DU PONT AVAUNT INSECTICIDE	INDOXACARB	9.333	LBS	8S15E10
6/29/05	42.2	RIVERDALE WEEDESTROY AM-40 AMINE SALT	2,4-D, DIMETHYLAMINE SALT	7.91	GA	8S13E21

6/30/05	64	CROP OIL CONCENTRATE	MINERAL OIL	16	GA	8S14E8
6/30/05	64	CROP OIL CONCENTRATE	PETROLEUM DISTILLATES	16	GA	8S14E8
6/30/05	64	CROP OIL CONCENTRATE	PETROLEUM OIL, PARAFFIN BASED	16	GA	8S14E8
6/30/05	64	POAST	SETHOXYDIM	14.96	GA	8S14E8
6/30/05	97	PIX ULTRA PLANT REGULATOR	MEPIQUAT CHLORIDE	9.09375	GA	8S13E16
6/30/05	96.2	TRILIN	TRIFLURALIN	18.0375	GA	8S13E20
6/30/05	78.7	DU PONT LANNATE INSECTICIDE	METHOMYL	19.67	LBS	8S13E20
6/30/05	58.4	DU PONT LANNATE INSECTICIDE	METHOMYL	14.6	LBS	8S13E20
6/30/05	34.5	AMMO 2.5 EC	CYPERMETHRIN	0.27	GA	8S13E24
6/30/05	34.5	MEPEX	MEPIQUAT CHLORIDE	2.16	GA	8S13E24
6/30/05	12.4	TENKOZ TRIFLURALIN 4 EMULSIFIABLE CONCEN	TRIFLURALIN	1.55	GA	8S16E20
6/30/05	37	AMMO 2.5 EC	CYPERMETHRIN	0.29	GA	8S13E27
6/30/05	80	AMMO 2.5 EC	CYPERMETHRIN	0.63	GA	8S13E27
6/30/05	33.4	AMMO 2.5 EC	CYPERMETHRIN	0.26	GA	8S13E27
6/30/05	37	MEPEX	MEPIQUAT CHLORIDE	2.31	GA	8S13E27
6/30/05	80	MEPEX	MEPIQUAT CHLORIDE	5	GA	8S13E27
6/30/05	33.4	MEPEX	MEPIQUAT CHLORIDE	2.09	GA	8S13E27
6/30/05	52.6	DU PONT LANNATE INSECTICIDE	METHOMYL	13.15	LBS	8S13E28
7/1/05	64.3	DU PONT AVAUNT INSECTICIDE	INDOXACARB	12.09625	LB	8S15E6
7/1/05	122	DU PONT AVAUNT INSECTICIDE	INDOXACARB	26.6875	LB	8S15E2
7/1/05	30	DANITOL 2.4 EC SPRAY	FENPROPATHRIN	2.5	GA	8S14E10
7/1/05	30	DIMETHOATE 267	DIMETHOATE	5.63	GA	8S14E10
7/1/05	30	PENNCOZEB 75DF DRY	MANCOZEB	60	LBS	8S14E10

		FLOWABLE FUNGICIDE				
7/1/05	2	CHATEAU HERBICIDE SW	FLUMIOXAZIN	0.25625	LB	8S15E1 1
7/1/05	2	GLYFOS HERBICIDE	GLYPHOSATE	0.4	GA	8S15E1 1
7/1/05	2	GLYFOS HERBICIDE	GLYPHOSATE, ISOPROPYLAMINE SALT	0.4	GA	8S15E1 1
7/1/05	60	BUCCANEER GLYPHOSATE HERBICIDE	GLYPHOSATE	8	GA	8S15E1 2
7/1/05	60	GOAL 2XL	OXYFLUORFEN	2.5	GA	8S15E1 2
7/1/05	555	CLINCH ANT BAIT	AVERMECTIN	555	LBS	8S16E7
7/1/05	90	CLINCH ANT BAIT	AVERMECTIN	90	LBS	8S16E7
7/1/05	3	CHATEAU HERBICIDE SW	FLUMIOXAZIN	0.38125	LB	8S15E1 3
7/1/05	3	GLYFOS HERBICIDE	GLYPHOSATE	0.6	GA	8S15E1 3
7/1/05	3	GLYFOS HERBICIDE	GLYPHOSATE, ISOPROPYLAMINE SALT	0.6	GA	8S15E1 3
7/1/05	74	OBERON 2SC INSECTICIDE/ MITICIDE	SPIROMESIFEN	4.793	GA	8S14E2 1
7/1/05	74	R-11 SPREADER-ACTIVATOR	DIMETHYLPOLYSILO XANE	1.199	GA	8S14E2 1
7/1/05	25	DU PONT VYDATE L INSECTICIDE/ NEMATICIDE	OXAMYL	10	GA	8S16E2 0
7/2/05	75	DU PONT LANNATE SP INSECTICIDE	METHOMYL	56.25	LBS	8S15E1 1
7/2/05	17	ESTEEM ANT BAIT	PYRIPROXYFEN	34	LBS	8S15E1 3
7/2/05	15	TENKOZ TRIFLURALIN 4 EMULSIFIABLE CONCEN	TRIFLURALIN	1.875	GA	8S16E2 0
7/4/05	209	CLINCH ANT BAIT	AVERMECTIN	209	LBS	8S15E1
7/4/05	34	DANITOL 2.4 EC SPRAY	FENPROPATHRIN	2.83	GA	8S14E1 5
7/4/05	7	DANITOL 2.4 EC SPRAY	FENPROPATHRIN	0.58	GA	8S14E1 5
7/4/05	34	DIMETHOATE 267	DIMETHOATE	6.38	GA	8S14E1 5
7/4/05	7	DIMETHOATE 267	DIMETHOATE	1.31	GA	8S14E1 5

7/4/05	34	PENNCOZEB 75DF DRY FLOWABLE FUNGICIDE	MANCOZEB	68	LBS	8S14E15
7/4/05	7	PENNCOZEB 75DF DRY FLOWABLE FUNGICIDE	MANCOZEB	14	LBS	8S14E15
7/4/05	149	RHOMENE MCPA AMINE HERBICIDE	MCPA, DIMETHYLAMINE SALT	18.63	GA	8S13E21
7/4/05	149	WEEDAR 64 BROADLEAF HERBICIDE	2,4-D, DIMETHYLAMINE SALT	18.63	GA	8S13E21
7/5/05	52	PROCLAIM INSECTICIDE	EMAMECTIN BENZOATE	13.398	LBS	8S14E1
7/5/05	83	ROUNDUP ULTRAMAX HERBICIDE	GLYPHOSATE, ISOPROPYLAMINE SALT	17.43	GA	8S15E5
7/5/05	3	CHATEAU HERBICIDE SW	FLUMIOXAZIN	0.5625	LB	8S15E13
7/5/05	3	GLYFOS HERBICIDE	GLYPHOSATE	0.8	GA	8S15E13
7/5/05	3	GLYFOS HERBICIDE	GLYPHOSATE, ISOPROPYLAMINE SALT	0.8	GA	8S15E13
7/5/05	10	GLYFOS HERBICIDE	GLYPHOSATE	3.3	GA	8S16E18
7/5/05	10	GLYFOS HERBICIDE	GLYPHOSATE, ISOPROPYLAMINE SALT	3.3	GA	8S16E18
7/6/05	43	QUEST	AMMONIUM SULFATE	1	GA	8S14E1
7/6/05	43	QUEST	CITRIC ACID	1	GA	8S14E1
7/6/05	43	ROUNDUP ULTRAMAX HERBICIDE	GLYPHOSATE, ISOPROPYLAMINE SALT	16.1	GA	8S14E1
7/6/05	67	ROUNDUP WEATHERMAX HERBICIDE	GLYPHOSATE, POTASSIUM SALT	12.5	GA	8S15E6
7/6/05	30	NUFARM CREDIT SYSTEMIC HERBICIDE	GLYPHOSATE, ISOPROPYLAMINE SALT	4	GA	8S14E11
7/6/05	62	DU PONT LANNATE INSECTICIDE	METHOMYL	46.5	LBS	8S14E8
7/6/05	64	DU PONT LANNATE INSECTICIDE	METHOMYL	48	LBS	8S14E8
7/6/05	5	DU PONT ASANA XL INSECTICIDE	ESFENVALERATE	0.4	GA	8S15E11
7/6/05	5	DU PONT VENDEX 50WP	FENBUTATIN-OXIDE	5	LBS	8S15E11

		MITICIDE				
7/6/05	44	DU PONT LANNATE INSECTICIDE	METHOMYL	33	LBS	8S14E16
7/6/05	16	EXTINGUISH PROFESSIONAL FIRE ANT BAIT	METHOPRENE	12	LBS	8S16E17
7/6/05	87.3	ASSAIL BRAND 70WP INSECTICIDE	ACETAMIPRID	0.525156	GA	8S13E28
7/7/05	75	ROUNDUP ULTRAMAX HERBICIDE	GLYPHOSATE, ISOPROPYLAMINE SALT	15.75	GA	8S15E5
7/7/05	15	DU PONT AVAUNT INSECTICIDE	INDOXACARB	3.28125	LB	8S15E8
7/7/05	37	ESTEEM ANT BAIT	PYRIPROXYFEN	74	LBS	8S15E10
7/7/05	2	CHATEAU HERBICIDE SW	FLUMIOXAZIN	0.375	LB	8S15E12
7/7/05	2	GLYFOS HERBICIDE	GLYPHOSATE	0.5	GA	8S15E12
7/7/05	2	GLYFOS HERBICIDE	GLYPHOSATE, ISOPROPYLAMINE SALT	0.5	GA	8S15E12
7/7/05	4	CHATEAU HERBICIDE SW	FLUMIOXAZIN	0.25	LB	8S15E13
7/7/05	4	GLYFOS HERBICIDE	GLYPHOSATE	1	GA	8S15E13
7/7/05	4	GLYFOS HERBICIDE	GLYPHOSATE, ISOPROPYLAMINE SALT	1	GA	8S15E13
7/7/05	73	DU PONT LANNATE SP INSECTICIDE	METHOMYL	56	LBS	8S15E13
7/7/05	37	ESTEEM ANT BAIT	PYRIPROXYFEN	74	LBS	8S15E13
7/7/05	70.1	DU PONT LANNATE INSECTICIDE	METHOMYL	17.52	LBS	8S13E20
7/7/05	18	LEVERAGE 2.7 SUSPENSION EMULSION INSECTI	CYFLUTHRIN	0.429	GA	8S14E21
7/7/05	18	LEVERAGE 2.7 SUSPENSION EMULSION INSECTI	IMIDACLOPRID	0.429	GA	8S14E21
7/7/05	18	MEPEX	MEPIQUAT CHLORIDE	0.675	GA	8S14E21
7/7/05	18	ZEAL MITICIDE	ETOXAZOLE	1.125	LBS	8S14E21
7/7/05	12.4	SUPER WHAM!	PROPANIL	18.6	GA	8S13E2

		CA				9
7/7/05	28.1	SUPER WHAM! CA	PROPANIL	42.15	GA	8S13E2 9
7/7/05	18.1	SUPER WHAM! CA	PROPANIL	27.15	GA	8S13E2 9
7/7/05	33	SUPER WHAM! CA	PROPANIL	49.5	GA	8S13E2 9
7/7/05	44.8	SUPER WHAM! CA	PROPANIL	67.2	GA	8S13E2 9
7/7/05	43.8	SUPER WHAM! CA	PROPANIL	65.7	GA	8S13E2 9
7/7/05	33.1	SUPER WHAM! CA	PROPANIL	49.65	GA	8S13E2 9
7/7/05	77	DU PONT LANNATE INSECTICIDE	METHOMYL	19.25	LBS	8S13E2 8
7/7/05	40	BRITZ COTTON DEFOLIANT CONCENTRAT E	SODIUM CHLORATE	0.25	GA	8S14E3 0
7/7/05	51	BRITZ COTTON DEFOLIANT CONCENTRAT E	SODIUM CHLORATE	0.32	GA	8S14E3 0
7/7/05	40	BRITZ O/S BLEND	PETROLEUM HYDROCARBONS	10	GA	8S14E3 0
7/7/05	40	POAST	SETHOXYDIM	8	GA	8S14E3 0
7/7/05	40	DU PONT LANNATE SP INSECTICIDE	METHOMYL	13.2	LBS	8S14E3 0
7/7/05	51	DU PONT LANNATE SP INSECTICIDE	METHOMYL	16.83	LBS	8S14E3 0
7/7/05	96	DU PONT LANNATE SP INSECTICIDE	METHOMYL	24.96	LBS	8S14E2 9
7/8/05	17	DU PONT STEWARD INSECTICIDE	INDOXACARB	0.93	GA	8S14E1
7/8/05	19	BRITZ O/S BLEND	PETROLEUM HYDROCARBONS	2.375	GA	8S14E4
7/8/05	19	PRISM HERBICIDE	CLETHODIM	7.71875	GA	8S14E4
7/8/05	7	PERM-UP 3.2 EC INSECTICIDE	PERMETHRIN	0.164063	GA	8S15E3
7/8/05	147	TOUCHDOWN TOTAL	GLYPHOSATE	29.4	GA	8S15E3
7/8/05	79	DU PONT STEWARD INSECTICIDE	INDOXACARB	4.32	GA	8S14E1 1
7/8/05	38	BRITZ O/S BLEND	PETROLEUM HYDROCARBONS	2.375	GA	8S14E9

7/8/05	38	PRISM 2 EC HERBICIDE	CLETHODIM	7.71875	GA	8S14E9
7/8/05	6	PERM-UP 3.2 EC INSECTICIDE	PERMETHRIN	0.140625	GA	8S15E10
7/8/05	46	INTREPID 2F	METHOXYFENOZIDE	0.5	GA	8S15E10
7/8/05	30	INTREPID 2F	METHOXYFENOZIDE	3.28125	GA	8S15E10
7/8/05	109	COMITE	PROPARGITE	27.25	GA	8S14E14
7/8/05	12	GLYFOS HERBICIDE	GLYPHOSATE	3	GA	8S15E13
7/8/05	12	GLYFOS HERBICIDE	GLYPHOSATE, ISOPROPYLAMINE SALT	3	GA	8S15E13
7/8/05	12	GOAL 1.6E HERBICIDE	OXYFLUORFEN	0.3	GA	8S15E13
7/8/05	35	ESTEEM ANT BAIT	PYRIPROXYFEN	70	LBS	8S15E13
7/8/05	90	DANITOL 2.4 EC SPRAY	FENPROPATHRIN	7.03	GA	8S14E20
7/8/05	70	DANITOL 2.4 EC SPRAY	FENPROPATHRIN	5.47	GA	8S14E20
7/8/05	90	DREXEL DIMETHOATE 2.67	DIMETHOATE	14.06	GA	8S14E20
7/8/05	70	DREXEL DIMETHOATE 2.67	DIMETHOATE	10.94	GA	8S14E20
7/8/05	90	INTREPID 2F	METHOXYFENOZIDE	5.63	GA	8S14E20
7/8/05	70	INTREPID 2F	METHOXYFENOZIDE	4.38	GA	8S14E20
7/8/05	68	DU PONT LANNATE INSECTICIDE	METHOMYL	20.4	LBS	8S14E21
7/8/05	27.5	DU PONT LANNATE INSECTICIDE	METHOMYL	7.97	LBS	8S13E27
7/8/05	63	DU PONT LANNATE INSECTICIDE	METHOMYL	16.38	LBS	8S14E29
7/8/05	51.9	DU PONT LANNATE INSECTICIDE	METHOMYL	13.49	LBS	8S14E29
7/8/05	20	BANVEL	DICAMBA, DIMETHYLAMINE SALT	1.25	GA	8S13E33
7/8/05	20	OBERON 2SC INSECTICIDE/ MITICIDE	SPIROMESIFEN	1.25	GA	8S13E33
7/9/05	25	ROUNDUP ULTRAMAX HERBICIDE	GLYPHOSATE, ISOPROPYLAMINE SALT	5.25	GA	8S14E1
7/9/05	58	DU PONT	INDOXACARB	12.69	LBS	8S15E4

		AVAUNT INSECTICIDE				
7/9/05	8	CHATEAU HERBICIDE SW	FLUMIOXAZIN	1.5	LB	8S15E11
7/9/05	8	GLYFOS HERBICIDE	GLYPHOSATE	2	GA	8S15E11
7/9/05	8	GLYFOS HERBICIDE	GLYPHOSATE, ISOPROPYLAMINE SALT	2	GA	8S15E11
7/9/05	46	DU PONT LANNATE SP INSECTICIDE	METHOMYL	34.5	LBS	8S14E16
7/9/05	48	DU PONT LANNATE SP INSECTICIDE	METHOMYL	36	LBS	8S14E16
7/9/05	90	DU PONT LANNATE INSECTICIDE	METHOMYL	22.5	LBS	8S14E20
7/9/05	56	LEVERAGE 2.7 SUSPENSION EMULSION INSECTI	CYFLUTHRIN	1.334	GA	8S14E21
7/9/05	56	LEVERAGE 2.7 SUSPENSION EMULSION INSECTI	IMIDACLOPRID	1.334	GA	8S14E21
7/9/05	56	MEPEX	MEPIQUAT CHLORIDE	7.109	GA	8S14E21
7/9/05	56	ZEPHYR 0.15EC	AVERMECTIN	1.295	GA	8S14E21
7/10/05	23	PROCLAIM INSECTICIDE	EMAMECTIN BENZOATE	5.93	LBS	8S15E6
7/11/05	65	DU PONT LANNATE SP INSECTICIDE	METHOMYL	48.75	LBS	8S15E4
7/11/05	89	INTREPID 2F	METHOXYFENOZIDE	9.734375	GA	8S15E3
7/11/05	46	DU PONT LANNATE SP INSECTICIDE	METHOMYL	34.5	LBS	8S15E2
7/11/05	40	DU PONT LANNATE SP INSECTICIDE	METHOMYL	30	LBS	8S15E2
7/11/05	20	SUCCESS	SPINOSAD	0.9375	GA	8S15E10
7/11/05	66	CROP OIL CONCENTRATE	MINERAL OIL	16.5	GA	8S14E16
7/11/05	66	CROP OIL CONCENTRATE	PETROLEUM DISTILLATES	16.5	GA	8S14E16
7/11/05	66	CROP OIL CONCENTRATE	PETROLEUM OIL, PARAFFIN BASED	16.5	GA	8S14E16
7/11/05	66	POAST	SETHOXYDIM	16.5	GA	8S14E16

7/11/05	7	GLY STAR PLUS	GLYPHOSATE, ISOPROPYLAMINE SALT	2.2	GA	8S15E13
7/11/05	7	SURFLAN A.S.	ORYZALIN	2.6	GA	8S15E13
7/11/05	54	DU PONT LANNATE INSECTICIDE	METHOMYL	14.04	LBS	8S13E23
7/11/05	31	DU PONT AVAUNT INSECTICIDE	INDOXACARB	6.78	LBS	8S16E20
7/11/05	46	SUPER WHAM! CA	PROPANIL	69	GA	8S13E29
7/11/05	47	SUPER WHAM! CA	PROPANIL	70.5	GA	8S13E29
7/11/05	83.6	SUPER WHAM! CA	PROPANIL	125.4	GA	8S13E29
7/12/05	52.5	ROUNDUP ULTRAMAX HERBICIDE	GLYPHOSATE, ISOPROPYLAMINE SALT	11.03	GA	8S14E1
7/12/05	40	DU PONT LANNATE SP INSECTICIDE	METHOMYL	30	LBS	8S14E2
7/12/05	50	TRIPLELINE FOAM-AWAY	DIMETHYLPOLYSILOXANE	1.5625	GA	8S15E3
7/12/05	50	INTREPID 2F	METHOXYFENOZIDE	5.46875	GA	8S15E3
7/12/05	27	DIPEL ES	BACILLUS THURINGIENSIS (BERLINER), SUBSP. KURSTAKI, SEROTYPE 3A,3B	5.75	GA	8S15E8
7/12/05	6	CHATEAU HERBICIDE SW	FLUMIOXAZIN	1.125	LB	8S15E11
7/12/05	6	GLYFOS HERBICIDE	GLYPHOSATE	1.5	GA	8S15E11
7/12/05	6	GLYFOS HERBICIDE	GLYPHOSATE, ISOPROPYLAMINE SALT	1.5	GA	8S15E11
7/12/05	25	COMITE	PROPARGITE	6.25	GA	8S14E14
7/12/05	63	COMITE	PROPARGITE	15.75	GA	8S14E14
7/12/05	34.5	ASSAIL BRAND 70WP INSECTICIDE	ACETAMIPRID	0.215625	GA	8S13E24
7/12/05	34.5	R-11 SPREADER-ACTIVATOR	DIMETHYLPOLYSILOXANE	0.75	GA	8S13E24
7/12/05	34.5	ZEPHYR 0.15 EC	AVERMECTIN	0.81	GA	8S13E24
7/12/05	75.5	DU PONT LANNATE INSECTICIDE	METHOMYL	19.63	LBS	8S14E21
7/12/05	33.4	ASSAIL BRAND 70WP	ACETAMIPRID	0.20875	GA	8S13E27

		INSECTICIDE				
7/12/05	37	ASSAIL BRAND 70WP INSECTICIDE	ACETAMIPRID	0.23125	GA	8S13E27
7/12/05	80	ASSAIL BRAND 70WP INSECTICIDE	ACETAMIPRID	0.5	GA	8S13E27
7/12/05	37	R-11 SPREADER-ACTIVATOR	DIMETHYLPOLYSILOXANE	0.8	GA	8S13E27
7/12/05	80	R-11 SPREADER-ACTIVATOR	DIMETHYLPOLYSILOXANE	1.73	GA	8S13E27
7/12/05	33.4	R-11 SPREADER-ACTIVATOR	DIMETHYLPOLYSILOXANE	0.72	GA	8S13E27
7/12/05	37	ZEPHYR 0.15 EC	AVERMECTIN	0.87	GA	8S13E27
7/12/05	80	ZEPHYR 0.15 EC	AVERMECTIN	1.88	GA	8S13E27
7/12/05	33.4	ZEPHYR 0.15 EC	AVERMECTIN	0.78	GA	8S13E27

Table 2. TRS locations with applications of chemicals with potential to cause sediment toxicity.

TRS
8S13E12
8S13E24
8S13E27
8S13E33
8S14E 1
8S14E 10
8S14E 11
8S14E 15
8S14E 20
8S14E 21
8S15E 2
8S15E 3
8S15E 4
8S15E 6
8S15E 10
8S15E 11
8S15E 12
8S15E 13
8S16E 7
8S16E 17
8S16E 20

Table 3. Applications of chemicals in the Prairie Flower Drain @ Crows Landing Road watershed. Applications during the months from February through July are included.

application date	treated acres	Chemical name	amount	unit	TRS
2/13/05	60	DIGLYCOLAMINE SALT OF 3,6-DICHLORO-O-ANISIC ACID	1.87	GA	6S9E14
7/6/05	60	PROPARGITE	15	GA	6S9E14
2/13/05	60	2,4-D, DIMETHYLAMINE SALT	5.6	GA	6S9E14

Table 4. Applications of chemicals in the Hilmar Drain @ Central Ave watershed. Applications are for the month of May 2005 prior to the sediment toxicity exceedance during the May sampling event.

chemical name	Total product used	Unit	Total treated acres	TRS
ABAMECTIN	1.2	GA	15.0	6S10E20
AZOXYSTROBIN	1.5	GA	15.0	6S10E20
MINERAL OIL	15.0	GA	15.0	6S10E20
LAMBDA-CYHALOTHRIN	42.0	OZ	15.0	6S10E20
CARBARYL	208.0	LBS	104.0	6S10E19

East San Joaquin Water Quality Coalition
1201 L Street
Modesto, CA 95354
www.esjcoalition.org

December 22, 2005

William Croyle
Dana Thomsen
Central Valley Regional Water Quality Control Board
11020 Sun Center Drive #200
Rancho Cordova, CA 95670-6114

Dear Bill and Dana:

On October 18, 2005, we filed an Exceedance Report for TDS for the sites listed below. We are now submitting the Communication Report for those exceedances.

Site	Exceedance	Date of sampling
Hilmar Drain @ Central Ave	TDS	7/13/05
Hilmar Drain @ Central Ave	TDS	8/16/05
Hilmar Drain @ Central Ave	TDS	9/21/05
Prairie Flower Drain @ Crows Landing Rd	TDS	7/13/05
Prairie Flower Drain @ Crows Landing Rd	TDS	8/16/05
Prairie Flower Drain @ Crows Landing Rd	TDS	9/21/05

1. Follow-up monitoring and analyses conducted.

No follow-up sampling was conducted. Both sites were the location of TDS exceedances at every sampling event during the 2005 irrigation season indicating that TDS is a continual problem in the watersheds. The location of these watersheds places them into a region that traditionally suffers from problems with high salt content and consequently high EC and TDS.

2. Actions taken to identify the source of the exceedance.

There are two potential sources of dissolved solids. Irrigation water placed onto salty soils can leach salts down into the shallow ground water where it can enter field drains and be moved to larger water bodies, or simply move through the unsaturated zone to the stream. Additionally, irrigation water can be obtained from a source that is naturally high in salts even before application to the field. Consequently, although TDS is a nonpoint source input to most water bodies, it is possible that there are inputs from field drains. We have recently obtained a map from the Turlock Irrigation District that indicates smaller drains and locations of pumps. At this point, we do not know if the pumps are located on field drains and are pumping water to the Ables Drain (Figure 1), but we will assume that these are drain pumps and are moving water from field drains to the main drains in the watershed. However, it is clear that not all parcels and fields in the watershed are located next to field drain pumps, suggesting that shallow ground water recharge may be a factor in moving salts to the main drains. To determine the relative contribution of salt from these two potential sources, the ESJWQC will do the following:

- Survey the watersheds upstream of the sampling sites on the two main drains to determine the location of as many field drains as possible
- Sample the water used for irrigation as it is applied to the fields to determine the TDS and EC content
- Sample the water in the field drains just prior to the pumping into the drains to determine the TDS and EC content
- Perform a mass balance of water and dissolved solids to determine the relative contribution of surface and drain water/salts and shallow ground water/salts to the loads in the two drains.

We will conduct the study twice during the irrigation season to determine if there are differences across the irrigation season. We will develop an experimental design and a Quality Assurance Project Plan that will be submitted to the Regional Board prior to initiating field measurements.

3. Complete analytical results

Analytical results for the Hilmar Drain and Prairie Flower Drain exceedances are appended electronically to the transmittal message.

4. Time schedule to identify and implement the Management Practice Effectiveness evaluation.

Action	Anticipated Completion Date
Develop experimental design and QAPP	April 1, 2006
Conduct field measurements of TDS and EC for the study of relative contributions	August 30, 2006
Submission of report to the Regional Board	December 1, 2006
Implement Outreach/BMP Education	December 1, 2006
Submit Evaluation Report	December 1, 2006

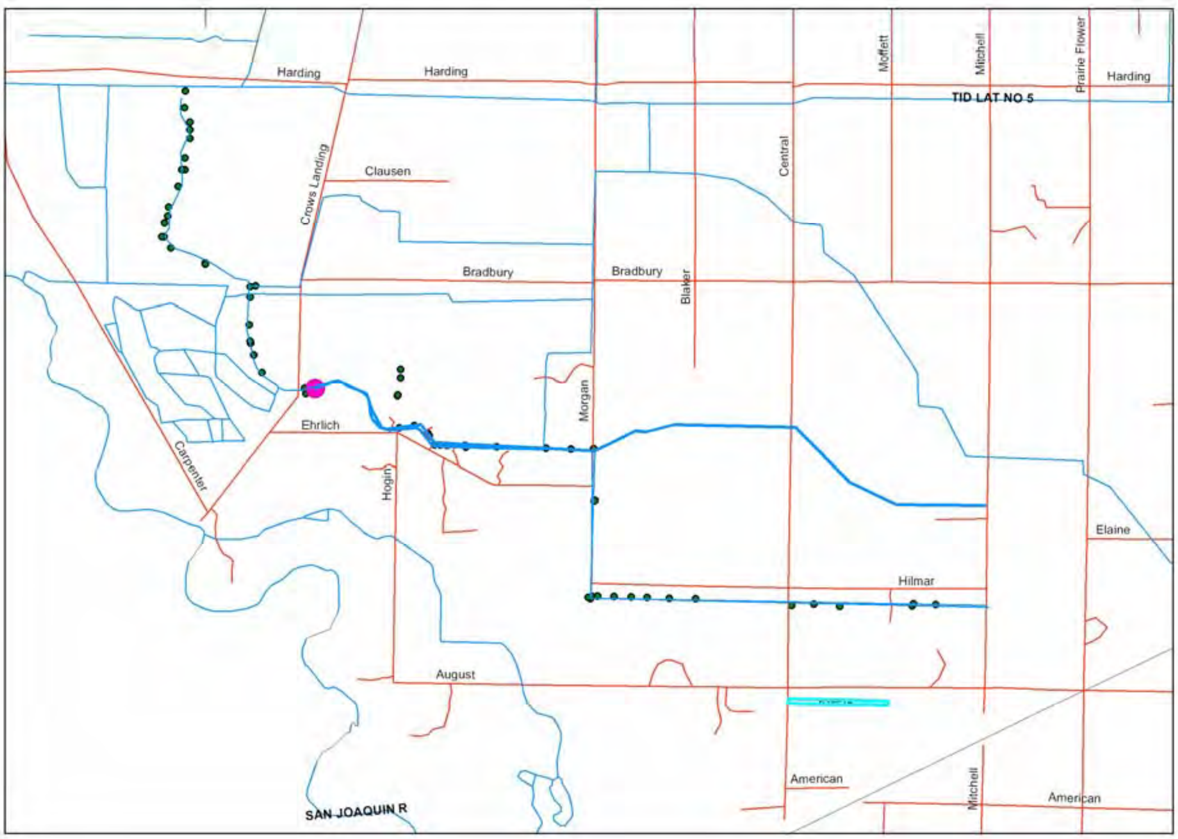
Let us know if further explanation or documentation is necessary.

Parry Klassen
559-325-9855

Wayne Zipser
209-522-7278

Figure 1. Prairie Flower Drain with Ables Drain as the tributary to the south and east. Ables Drain runs parallel to Hilmar Ave and then north along Morgan Rd to where it empties into Prairie Flower Drain. The small green dots are the locations of the pumps on the drains. Watershed drainage and pump locations were provided by the Turlock Irrigation District.

Prairie Flower Drain @ Crows Landing Rd. - pesticide use reported for 7-13-05 sample (highlighted).



Communicatin Reports 2006

East San Joaquin Water Quality Coalition
1201 L Street
Modesto, CA 95354
www.esjcoalition.org

April 27, 2006

William Croyle
Dana Kulesza
Central Valley Regional Water Quality Control Board
11020 Sun Center Drive #200
Rancho Cordova, CA 95670-6114

Dear Bill and Dana:

We are submitting the formal Communication Report for exceedances of the Electrical Conductivity and pH receiving water limitations for the sites in the table below. Sampling occurred on March 1, 2006, and the Exceedance Report was filed on March 2, 2006. No other parameters measured in the field experienced exceedances.

Table 1. EC for the two storm events. Only those sites that experienced exceedances during one or both storm events are included in the table.

Site	EC (March 1)	EC (March 16)
Prairie Flower Drain @ Crows Landing Road	**2419**	**2728**
Hilmar Drain @ Central Ave	**1058**	**1215**
	pH (March 1)	**pH (March 16)**
Prairie Flower Drain @ Crows Landing Road		**8.77**
Hilmar Drain @ Central Ave	**9.55**	

1. Follow-up monitoring and analyses conducted.
No follow-up monitoring was performed. We anticipated that a second storm event would be sampled within a short time, and we were able to collect a second set of EC readings under similar conditions within about 2 weeks (March 16, 2006). Those values are also presented in Table 1 and were reported as exceedances on March 17, 2006. As has been true since the beginning of the monitoring program, EC exceedances are common at these two sites. Further sampling would only confirm that the exceedances are persistent and clearly a result of local conditions. The exceedance of pH was not persistent in the Hilmar Drain watershed.

2. Actions taken to identify the source of the exceedance.

EC

Elevated conductivity may be due to anthropogenic factors, as well as natural soil geological conditions. The Coalition is currently finishing the design of a project to determine the source of EC in the two drains. Irrigation water can originate from surface storage facilities or ground water. Both of these have distinct oxygen and deuterium isotopic signatures. Water entering the drains comes from seepage into the drains from shallow ground water, direct discharge from surface irrigation return flows or rainfall events, and discharge from field drains. These also have distinct isotopic signatures depending on the origin of the water for irrigation. Additionally, since the source of the ions in the different source waters is different, we can use the combination of specific ions and the isotopic signatures of the water to determine the relative source contribution to the water in the drains. With an understanding of the source of the ions, we can effectively develop a management approach to present to the growers in the two watersheds.

pH

There are two potential causes of pH outside the range (6.5 – 8.5) specified in the Basin Plan. First, substances with very low or very high pH could have been added to the water or been the result of a spill. However, given the normal buffering capacity of the stream systems in the Valley, the pH of the contaminant would have to be relatively high or low and would probably have resulted in noticeable fish kills and the death of other biota in the streams. No such kills were observed and consequently, it is unlikely that the pH exceedances were the result of spills or deliberate dumping into the water bodies.

Control of pH in surface waters is a function of the balance between the buffering capacity of the water and the relative amount of photosynthesis. Unless waters are extremely oligotrophic, pH usually varies diurnally. During daylight hours, when photosynthesis is occurring, carbon dioxide is fixed as plant material reducing the CO_2 concentration of the water and causing a dissociation of the carbonic acid present in the water and the pH rises. At night, respiration is the driving force, resulting in a decrease in dissolved oxygen, an increase in CO_2 and a decline in pH. In a diurnal cycle, the lowest pH is expected at dawn because CO_2 produced by decomposition and aerobic respiration would have accumulated since the previous dusk. Conversely highest pH is expected during the daylight hours, because pH rises at the rate at which carbon dioxide is fixed by plants. Both pH and dissolved oxygen may also be affected by anthropogenic sources (e.g., elevated nutrients resulting in increased algae populations can result in elevated pH readings).

As a result, identifying a source of a pH exceedance is particularly difficult. In fact, it is unclear how identifying a source of a pH exceedance could be accomplished. Most likely, the exceedance is a function of both instream and landscape processes that interact in a dynamic manner to control pH. These processes are expected to change over time making tracking sources for past events nearly impossible. For example, benthic algae are primarily responsible for the photosynthesis that occurs in small surface water bodies. The amount of benthic algae, particularly but limited to filamentous algae, that can build up at a site is a function of the substrate and the flow. As an alga grows, it becomes heavy and is capable of being captured by the current in the stream. When the flow generates sufficient shear stress on the alga, it is sheared off and moves downstream being broken up as it moves. This process of growth and shearing may occur several times over the summer depending on the nutrient inputs and the flow. If flows vary as a result of irrigation return flows or runoff events, the cycle may be very rapid. If the flows are reduced, sufficient shear stress may not be developed and the alga will remain in place for a longer period of time. As flows change and the wetted surface area of the stream changes, the locations of alga growth can change as well. Finally, since pH is a function of diurnal changes in photosynthesis, the exceedance may be solely a result of the timing of the measurement. Discussions about averaging time for the measurements is appropriate here, and those discussions will hopefully be conducted in the Technical Issues Committee.

3. Complete analytical results

Complete analytical results for field data are in the form of field sheets. The field sheets for the monitoring event are provided by Pacific EcoRisk as part of their report on the event. That report is attached to this communication report as a separate attachment.

4. Time schedule to identify and implement the Management Practice Effectiveness evaluation.

pH

At this time, it is not possible to implement management practices to address pH. When the Coalition initiates monitoring for nutrients, we may be able to obtain sufficient information to address pH. However, even understanding the level of nutrients in the water will most probably be insufficient to understand the site-specific pH dynamics of the water column.

EC

The schedule for completion of the activities associated with EC ion source determination, data evaluation, development of a management practices plan, implementation of the plan, and evaluation of the effectiveness of the plan is provided below. Evaluating the effectiveness of the management practices requires a full irrigation season and a storm season, and the evaluation will be completed after data from the monitoring is evaluated.

Action	Anticipated Completion Date
Design TDS Study	May 31, 2006
Perform Management Practices Survey	June 30, 2006
Perform TDS Study	August 31, 2006
Contact Growers in Watersheds	February 28, 2007
Implement Outreach/BMP Education	June 30, 2007

Evaluation of BMP Effectiveness	June 30, 2008

Let us know if further explanation or documentation is necessary.

Parry Klassen
559-325-9855

Wayne Zipser
209-522-7278

East San Joaquin Water Quality Coalition
1201 L Street
Modesto, CA 95354
www.esjcoalition.org

May 15, 2006

William Croyle
Dana Kulesza
Central Valley Regional Water Quality Control Board
11020 Sun Center Drive #200
Rancho Cordova, CA 95670-6114

Dear Bill and Dana:

We are submitting the formal communication report for the toxicity exceedances reported on March 10, 2006 (see Table 1 below). Sampling occurred at these sites on February 28, and March 1, 2006 during the first storm event sampled during the 2005-06 winter sampling period. During the reporting of the exceedances at Duck Slough @ Gurr Road and Highline Canal @ Highway 99, there were several *Selenastrum* tests that did not meet the EPA guidance for test acceptance by having a greater than 20% CV for control replicates. We indicated at that time we were retesting all of those samples with new controls to achieve the test acceptability criterion. During that retesting, it was determined that the sample collected at Ash Slough @ Ave 21 was also toxic.

Table 1. Toxicity results for samples collected during the first storm event. The percentages in the third column are the percent compared to the laboratory control.

Site	Test Organism	% Growth/% Survival
Ash Slough @ Ave 21	*Selenastrum*	67%
Duck Slough @ Gurr Rd	*Ceriodaphnia*	35%
Highline Canal @ Highway 99	*Selenastrum*	0.1%

1. Follow-up monitoring and analyses conducted.

The Duck Slough and the Highline Canal sites were re-sampled on March 10, 2006. Those results are presented in Table 2. Toxicity in the Ash Slough sample did not surface until a second retest of the samples was completed. The first test failed to achieve the repeatability criterion of 20% in the control replicates. At that time, we were gearing up to sample the second storm event (sampled on March 15, 2006) and the resample from the first test became the sampling event for the second storm event.

The toxicity at Duck Slough @ Gurr Road was persistent with a resample survival of 35%, the same as during the original sample. However, it is not clear that the source of the toxicity was the same on February 28 and March 10. The toxicity (reduced growth) experienced at the Highline Canal @ Highway 99 site was not persistent as the growth of the resample was greater than the growth of the laboratory control.

Table 2. Results of the toxicity testing on samples collected on March 10, 2006.

Site	Test Organism	% Growth/% Survival
Duck Slough @ Gurr Rd	*Ceriodaphnia*	35%
Highline Canal @ Highway 99	*Selenastrum*	112%

A targeted TIE was performed on the Duck Slough sample due to a survival reduction of over 50% compared to the control. Results for the Duck Slough TIE are presented below in Table 3. No blank interference was present in any of the TIE treatments. The toxicity observed during the original testing of this sample was not persistent in the 100% Baseline sample. Therefore, as the toxicity was not persistent in the TIE, the TIE is inconclusive as to the cause of toxicity in sample collected on February 28, 2006. Water chemistry data found non-detects for diazinon, chlorpyrifos, cyfluthrin, lambda-cyhalothrin, esfenvalerate, and bifenthrin.

Table 3. Results of the TIE for the Duck Slough @ Gurr Road sample.

Sample/ Treatment ID	Test Start Date	Treatment	Species	% Survival	Toxic (Y/N)
R3-CD-LWControl-01	3/5/06	Lab water control	*C. dubia*	90	N/A
R3-CD-TIE-Blank-01	3/5/06	Centrifugation blank	*C. dubia*	100	N
R3-CD-TIE-Blank-02	3/5/06	Centrifugation +C8SPE blank	*C. dubia*	90	N
R3-CD-TIE-Blank-03	3/5/06	PBO blank	*C. dubia*	95	N
R3-535XDSAGR-GR	3/5/06	100% Baseline sample	*C. dubia*	85	N
R3-535XDSAGR-GR	3/5/06	100% Centrifuged sample	*C. dubia*	100	N
R3-535XDSAGR-GR	3/5/06	100% Centrifuged sample+C8SPE	*C. dubia*	100	N
R3-535XDSAGR-GR	3/5/06	100% Sample + PBO	*C. dubia*	100	N

Even though algal growth of the Highline Canal @ Highway 99 sample exhibited growth at less than 1% of the control, a TIE was not performed due to a miscommunication between the Coalition and the analytical laboratory. Because the reduced growth of the Ash Slough site did not reach the trigger for the TIE, no TIE was performed.

2. Actions taken to identify the source of the exceedance.

Immediate follow-up measures were either not taken or were inconclusive as to the potential source of the toxicity. Chemical analysis indicates that the toxicity to *Ceriodaphnia* was not a function of any of the analytes for which the Coalition samples. We have requested the Pesticide Use Reports from those watersheds and we will evaluate those for any applications of substances within the two weeks prior to sampling which could result in toxicity or reduced growth. We do not expect to receive those reports in time for the analysis to be completed by the June 30, 2006 Semi-Annual Report submission.

3. Complete analytical results

Complete analytical results are attached electronically to this communication report in the form of the laboratory report in pdf format. We are submitting the full report because the results need to be maintained in the context of the report. We realize that the full report is quite large. If after reviewing the report, a subsection or summary is requested, we will provide whatever is requested.

4. Time schedule to identify and implement the Management Practice Effectiveness evaluation.

The time schedule is:

Action	Anticipated Completion Date
Receive and evaluate PUR	September 30, 2006
Contact Growers in Watersheds	September 30, 2006
Perform Management Practices Survey	December 31, 2006
Implement Outreach/BMP Education	December 31, 2006
Evaluation Report	June 30, 2007

Let us know if further explanation or documentation is necessary.

Parry Klassen
559-325-9855

Wayne Zipser
209-522-7278

2. Actions taken to identify the source of the exceedance.

The remaining three exceedances could be due to herbicides (Terminous Tract) or pesticides (Mokelumne River, Potato Slough). We have requested the pesticide use reports for the period immediately preceding the sampling event and will use those to evaluate the potential applications in the areas near those sites. None of the chemicals for which the coalition analyzes were detected in any of the samples from any of the sites above. Examination of past pesticide use reports indicate that numerous other chemicals are applied in these watersheds and we will determine if the applications were made prior to sampling during this winter.

East San Joaquin Water Quality Coalition

1201 L Street
Modesto, CA 95354
www.esjcoalition.org

May 21, 2006

William Croyle
Dana Kulesza
Central Valley Regional Water Quality Control Board
11020 Sun Center Drive #200
Rancho Cordova, CA 95670-6114

Dear Bill and Dana:

We are submitting the formal Communication Report for exceedances of the Electrical Conductivity and pH receiving water limitations for the sites in Table 1 below. Sampling occurred on March 16, 2006, and the Exceedance Report was filed on March 17, 2006. No other parameters measured in the field experienced exceedances. According to our records, the Communication Report was due May 20, which is a Saturday. We are submitting on May 22, the first business day past May 20.

Table 1. EC and pH for the two storm events. Only the two sites that experienced exceedances during one or both storm events are included in the table.

Site	EC (March 1)	EC (March 16)
Prairie Flower Drain @ Crows Landing Road	**2419**	**2728**
Hilmar Drain @ Central Ave	**1058**	**1215**
	pH (March 1)	**pH (March 16)**
Prairie Flower Drain @ Crows Landing Road	8.45	**8.77**

1. Follow-up monitoring and analyses conducted.

No follow-up monitoring was performed. As has been true since the beginning of the monitoring program, EC exceedances are common at these two sites. The EC for the first storm event are provided in Table 1 as evidence of the ongoing problem. Further sampling would only confirm that the exceedances are persistent and clearly a result of local conditions.

2. Actions taken to identify the source of the exceedance.

EC

Elevated conductivity may be due to anthropogenic factors, as well as natural soil geological conditions. We recently found information through the Department of Water Resources on the EC in shallow ground water for the area immediately adjacent to the San Joaquin River, although the maps are for the west side of the river. EC for the shallow ground water is as high as 4000 µS/cm and we anticipate that the EC for ground water on the east side of the San Joaquin River is equally as high. Irrigation with shallow ground water would certainly result in high EC in the return flows. The Coalition is currently finishing the design of a project to determine the source of EC in the two drains. Irrigation water can originate from surface storage facilities or ground water. Both of these have distinct oxygen and deuterium isotopic signatures. Water entering the drains comes from seepage into the drains from shallow ground water, direct discharge from surface irrigation return flows or rainfall events, and discharge from field drains. These also have distinct isotopic signatures depending on the origin of the water for irrigation. Additionally, since the source of the ions in the different source waters is different, we can use the combination of specific ions and the isotopic signatures of the water to determine the relative source contribution to the water in the drains. With an understanding of the source of the ions, we can effectively develop a management approach to present to the growers in the two watersheds.

pH

There are two potential causes of pH outside the range (6.5 – 8.5) specified in the Basin Plan. First, substances with very low or very high pH could have been added to the water or been the result of a spill. However, given the normal buffering capacity of the stream systems in the Valley, the pH of the contaminant would have to be relatively high or low and would probably have resulted in noticeable fish kills and the death of other biota in the streams. No such kills were observed and consequently, it is unlikely that the pH exceedances were the result of spills or deliberate dumping into the water bodies.

Control of pH in surface waters is a function of the balance between the buffering capacity of the water and the relative amount of photosynthesis. Unless waters are extremely oligotrophic, pH usually varies diurnally. During daylight hours, when photosynthesis is occurring, carbon dioxide is fixed as plant material reducing the CO_2 concentration of the water and causing a dissociation of the carbonic acid present in the water and the pH rises. At night, respiration is the driving force, resulting in a decrease in dissolved oxygen, an increase in CO_2 and a decline in pH. In a diurnal cycle, the lowest pH is expected at dawn because CO_2 produced by decomposition and aerobic respiration would have accumulated since the previous dusk. Conversely highest pH is expected during the daylight hours, because pH rises at the rate at which carbon dioxide is fixed by plants. Both pH and dissolved oxygen may also be affected by anthropogenic sources (e.g., elevated nutrients resulting in increased algae populations can result in elevated pH readings).

As a result, identifying a source of a pH exceedance is particularly difficult. In fact, it is unclear how identifying a source of a pH exceedance could be accomplished. Most likely, the exceedance is a function of both instream and landscape processes that interact in a dynamic manner to control pH. These processes are expected to change over time making tracking sources for past events nearly impossible. For example, benthic algae are primarily responsible for the photosynthesis that occurs in small surface water bodies. The amount of benthic algae that can build up at a site is a function of the substrate and the flow. As an alga grows, it becomes heavy and is capable of being captured by the current in the stream. When the flow generates sufficient shear stress on the alga, it is sheared off and moves downstream being broken up as it moves. This process of growth and shearing may occur several times over the summer depending on the nutrient inputs and the flow. If flows vary as a result of irrigation return flows or runoff events, the cycle may be very rapid. If the flows are reduced, sufficient shear stress may not be developed and the alga will remain in place for a longer period of time. As flows change and the wetted surface area of the stream changes, the locations of alga growth can change as well. Finally, since pH is a function of diurnal changes in photosynthesis, the exceedance may be solely a result of the timing of the measurement. Discussions about averaging time for the measurement of pH are appropriate here, and those discussions will hopefully be conducted in the Technical Issues Committee.

3. Complete analytical results

Complete analytical results for field data are in the form of field sheets. The field sheets for the monitoring event are provided by Pacific EcoRisk as part of their report on the event. That report is attached to this communication report as a separate attachment.

4. Time schedule to identify and implement the Management Practice Effectiveness evaluation.

pH

At this time, it is not possible to implement management practices to address pH. When the Coalition initiates monitoring for nutrients, we may be able to obtain sufficient information to address pH. However, even understanding the level of nutrients in the water will most probably be insufficient to understand the site-specific pH dynamics of the water column.

EC

The schedule for completion of the activities associated with EC ion source determination, data evaluation, development of a management practices plan, implementation of the plan, and evaluation of the effectiveness of the plan is provided below. Evaluating the effectiveness of the management practices requires a full irrigation season and a storm season, and the evaluation will be completed after data from the monitoring is evaluated.

Action	**Anticipated Completion Date**
Design TDS Study	May 31, 2006
Perform TDS Study	August 31, 2006
Contact Growers in Watersheds	February 28, 2007
Perform Management Practices Survey	April 30, 2007
Implement Outreach/BMP Education	June 30, 2007
Evaluation of BMP Effectiveness	June 30, 2008

Let us know if further explanation or documentation is necessary.

Parry Klassen
559-325-9855

Wayne Zipser
209-522-7278

East San Joaquin Water Quality Coalition
1201 L Street
Modesto, CA 95354
www.esjcoalition.org

May 25, 2006

William Croyle
Dana Kulesza
Irrigated Lands Conditional Waiver Program
Central Valley Regional Water Quality Control Board
11020 Sun Center Drive, #200
Rancho Cordova, CA 95670-6114

Dear Bill and Dana:

We are submitting the formal communication report for the *E. coli* and TDS exceedances reported on March 23, 2006 (see Table 1 below). Sampling occurred at these sites on February 28 and March 1, 2006 during the first storm event sampled during the 2005-06 winter sampling.

Table 1. *E. coli* results for samples collected during the first storm event.

Site	Season	Sampling Date	*E. coli*
Cottonwood Creek @ Road 20	Storm1	2/28/2006	300
Ash Slough @ Avenue 21	Storm1	2/28/2006	500
Merced River @ Santa Fe	Storm1	3/1/2006	>1600
Prairie Flower Drain @ Crows Landing Rd	Storm1	3/1/2006	900
Jones Drain @ Oakdale Rd	Storm1	3/1/2006	900
Dry Ceek @ Wellsford Rd	Storm1	3/1/2006	300

Table 2. TDS exceedances for samples collected during the first storm event.

Site	Season	Sampling Date	TDS
Prairie Flower Drain @ Crows Landing Rd	Storm1	3/1/2006	1600
Hilmar Drain @ Central Ave	Storm1	3/1/2006	670

1. Follow-up monitoring and analyses conducted.

No follow-up sampling was performed. The results were received on March 22, 2006 three weeks past the original sample date. If additional samples were collected and *E. coli* detected, the source of the exceedance would not necessarily be the same as for the original sample. However, as has been true throughout the monitoring program, *E. coli* continues to be a consistent exceedance. The same is true for TDS. Exceedances are reported every monitoring event from one or both sites.

2. Actions taken to identify the source of the exceedance.
E. coli is a general indicator of bacterial contamination and it is not clear what sources contribute to the coliform load. Consequently, we have designed a follow-up study to sample watersheds during non-monitoring events and perform analyses to identify the source of the bacteria. Using these samples, we can extract the DNA from the bacteria in the water, use real-time PCR to amplify the DNA signal and then use primers specific to various species to match the bacterial DNA sequences with bacterial sequences from known sources, e.g., humans, cows, sheep, dogs, birds, etc. Once we understand the relative contribution of these sources, we can use the information gathered on grazing practices and water management to develop an appropriate management strategy.

We have designed a study to determine the potential source(s) of the bacteria. A short explanation of the utility of using Real-Time Polymerase Chain Reaction techniques to identify source(s) of bacteria, the study monitoring plan, and the QAPP are attached to this report as separate documents. This study will include all watersheds for which *E. coli* exceedances have been found to date. The field work will be performed during July 2006, and the laboratory work to identify the DNA will be performed during the months of July and August. We expect to have the results of the analysis completed by the end of August.

We are in the final stages of completing the study design for the TDS study to be conducted this summer. As soon as that design is finalized, we will submit the study plan to the Regional Board for review.

3. Complete analytical results
Analytical results are appended electronically to the transmittal message. These results include all data reports provided to the coalition by the analytical laboratory. QC data are included in the data reports.

4. Time schedule to identify and implement the Management Practice Effectiveness evaluation.
The time schedule is:

Action	Anticipated Completion Date
Perform Bacterial ID Study	August 31, 2006
Perform TDS Source Study	August 31, 2006
Contact Growers in Watersheds	December 31, 2006
Perform Management Practices Survey	December 31, 2006
Implement Outreach/BMP Education	December 31, 2006
Evaluation Report	December 1, 2007

We realize that the submission date for the Evaluation Report is quite far into the future but *E. coli* is unique among the constituents for which we sample in that it is possible that the contamination may be entirely from nonagricultural activities/sources. It will take us a full summer to determine the source(s) and adequately address the problem.

Let us know if further explanation or documentation is necessary.

Parry Klassen
559-325-9855

Wayne Zipser
209-522-7278

USE OF REAL-TIME POLYMERASE CHAIN REACTION TO DETECT THE SOURCE OF FECAL BACTERIA IN SURFACE WATERS

Background – Why use genetics to identify sources of bacterial contamination in surface waters?

Recent monitoring of surface waters in the Central Valley of California indicates that fecal coliform bacteria are commonly detected in exceedance of water quality objectives. A summary of data from monitoring in Contra Costa, San Joaquin, Stanislaus, Merced and Madera Counties found that almost half of the samples tested were in exceedance of the objective. Although *E. coli* is not pathogenic, it is a fecal bacterium that is presumed to co-occur with pathogenic bacteria and consequently is used as an indicator of potential adverse health effects.

E. coli is found in the intestinal tracts of numerous mammals, birds, and reptiles. Finding *E. coli* in surface waters simply indicates that fecal material is/was present and does not provide sufficient information to determine the source(s). In the Central Valley, numerous sources are possible including human feces from poorly treated sewage or leaky septic systems, cow feces from animal confinement operations, irrigated pasture, chicken feces from animal confinement operations or manure applications, fecal material from companion animals such as dogs and cats, and numerous avian and mammalian wildlife species (Field et al. 2003).

The current method used to measure *E. coli* (SM 9221B) does not distinguish between the potential sources. Because of the necessity to assess the potential adverse health effects, several techniques have been developed to distinguish sources. Field et al. (2003) provide a good review of these techniques. They also reviewed the method they pioneered, the use of Real Time-Polymerase Chain Reaction (RT-PCR) as a fast and reliable technique for distinguishing the DNA from humans and ruminants (Bernhard and Field 2000a, 2000b). They selected Bacteriodes as the genus of bacteria to identify because it is anaerobic and comprises up to 1/3 of the bacteria found in the intestinal fauna. As anaerobic bacteria, it is unlikely to propagate naturally outside of the intestinal tract of its host, and once it reaches surface waters, it can survive for up to 14 days depending on conditions in the water (Field et al. 2003).

Are current techniques applicable to ruminants found in the Central Valley?

Research by Bernhard and Field (2000a and 200b) found that ruminant primers developed to detect the bacteria Bacteriodes from the intestinal system of cows also amplified DNA from a large number of additional ruminant species (elk, deer, goats, and sheep), indicating that the bacteria co-evolved with the entire group of ruminants and has been common in these animals for millions of years. The conclusion is that the technique and the primers developed to detect ruminant DNA will be sufficient to detect cow DNA from any geographic location (Field et al. 2003).

Can laboratory techniques be applied to ambient samples collected from the Central Valley?

Bernhard and Field (2000a) found that RT-PCR is more sensitive when identifying fecal contamination than standard coliform tests currently used for monitoring. Bernhard et al. (2003) performed a study in Tillamook Bay, Oregon, and found human and ruminant DNA from samples collected in both fresh and salt water. Other studies performed by other laboratories have also found that the technique and primers are sufficient to detect human and ruminant DNA from environmental samples. PCR methods have been applied to aquatic systems in Oregon (Bernhard and Field 200a, Bernhard et al. 2003). The RT-PCR techniques are now sufficiently reliable that the US EPA has incorporated the technique into two epidemiological studies (see review in Noble and Weisberg 2005)

What other species can be identified in addition to humans and cows?

Since the early publications of Field et al. (e.g. 2000a, 2003b, 2003), progress has been made in several laboratories in the development of primers for other species. It is now possible to identify several additional species by their DNA including dog, elk, pig and horse. Additionally, primer development is a straightforward process and if the identification of new species (e.g. turkey) is necessary, it is possible with a fecal sample from the species to develop the tools necessary to identify DNA from that species in an environmental sample. Additionally, primers have been developed for specific pathogens allowing direct detection of pathogenic bacteria from any sample (Blackwood et al. 2004).

RT-PCR is proposed as the technique to be used to identify sources of fecal contamination in Central Valley streams and drains. The technique is fast, reliable, and the preliminary research has been performed to guarantee that, with proper quality assurance procedures, numerous sources can be identified.

Literature Cited

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MONITORING PLAN

East San Joaquin Water Quality Coalition
Bacterial Source Identification Study

Prepared By
Michael L. Johnson

20. April 2006

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Tables

Introduction

This study is the result of repeated exceedances of *E. coli* receiving water limitations during the East San Joaquin Water Quality Coalition (ESJWQC) monitoring as part of their activities under the Conditional Waiver of Waste Discharge Requirements for Discharges from Irrigated Lands Resolution No. R5-2003-0105 (Order), Monitoring and Reporting Program Order No. R5-2005-0833. The ESJWQC has agreed to conduct a Bacterial Source Identification Study to identify the species responsible for the exceedances and to guide the implementation of management measures to eliminate the exceedances as a result of monitoring exceedances.

Objective

The primary objective of this study will be to determine the species responsible for the fecal contamination which can be accurately measured in environmental samples using available technologies. Samples will be taken at multiple locations within each watershed in which exceedances of *E. coli* (>200 MPN/100ml) have been detected and for which access is available.

This study will monitor 27 sites and quantify the amount of species-specific *Bacteroidales* from various sources such as human, cows and chickens. We will also quantify the amount of coliform bacteria (total coliform, fecal coliform and *E. coli*). The outcome of this study will be part of a species/source identification assessment to identify broad regions within watersheds that may deliver bacteria to surface waters.

Study Area and Sampling Locations

Table 1. Twenty-seven sampling sites in the ESJWQC region to be monitored for the presence of coliform and *Bacteroidales*

Station Name	Station Code	Target Lat	Target Long
Dry Creek @ Wellsford Road	535XDCAWR	37.66017	-120.87432
Dry Creek @ Waterford	TBA	37.65876	-120.77887
Prairie Flower Drain @ Crows Landing Road	535XPFDCL	37.4422	-121.00236
Prairie Flower Drain @ Morgan Rd	TBA	37.437875	-120.97566
Hilmar Drain @ Central Ave	535XHDACA	37.39058	-120.9582
Highline Canal @ Lombardy Rd	535XHCALR	37.4556	-120.72071
Highline Canal @ East Ave (J17)	TBA	37.49236	-120.75158
Highline Canal along Santa Fe	TBA	37.48483	-120.75292
Jones Drain @ Oakdale Road	535XJDAOR	37.44951	-120.60069
Bear Creek @ Kibby Rd	535XBCAKR	37.3128	-120.41378
Bear Creek along S. Bear Cr. Drive	TBA	37.31465	-120.34274
Duck Slough @ Gurr Rd	535XDSAGR	37.21423	-120.55958
Duck Slough @ Pioneer Road	535XDSAPR	37.2524	-120.39633
Duck Slough @ Burchell Ave	TBA	37.25694	-120.28882
Deadman Creek (Dutchman) @ Gurr Rd	535XDCAGR	37.19356	-120.56124

Dutchman Creek along Sandy Mush Rd	TBA	37.18554	-120.40965
Dutchman Creek @ Minturn	TBA	37.19306	-120.27098
Ash Slough @ Ave 21	545XASAAT	37.05448	-120.41575
Ash Slough @ Ave 23 1/2	TBA	37.09061	-120.35353
Ash Slough @ Vista Ave	TBA	37.12111	-120.31097
Dry Creek at Road 18	545XDCARE	36.9818	-120.22056
Dry Creek @ Rd 22	TBA	37.00574	-120.14706
Dry Creek @ Ave 18 1/2	TBA	37.01829	-120.11185
Dry Creek @ Ave 21	TBA	37.05436	-120.06896
Cottonwood Creek @ Road 20	545XCCART	36.8686	-120.1818
Cottonwood Creek @ Hwy 145	TBA	36.90020	-120.05545
Cottonwood Creek @ Ave 15	TBA	36.96661	-119.96600

TBA – To Be Assigned

Personnel Resources

Sample collection will be performed by the Aquatic Ecosystems Analysis Laboratory (AEAL) of University of California, Davis. Sample analysis for coliform will be performed by California Laboratory Services (CLS) and the analysis for *Bacteriodales* will be performed by the School of Veterinary Medicine Immunogenetics Laboratory, University of California, Davis. The primary project personnel include a project and grant manager of the ESJWQC; a contractor project manager, contractor project supervisor and quality assurance officer from the AEAL; laboratory quality assurance officers from CLS and the School of Veterinary Medicine Immunogenetics Laboratory.

Project and Grant Manager role:

Parry Klassen of the ESJWQC is the Contract and Grant Manager of the Bacterial Source Identification Study. Parry Klassen is responsible for ensuring completion of work by AEAL and for reviewing and approving payment for work performed by the grantee in accordance with the terms of the grant agreement.

AEAL Quality Assurance Officer role:

Melissa Turner is the AEAL Quality Assurance Officer. Melissa Turner's role is to establish the quality assurance (QA) and quality control (QC) procedures found in the project QAPP as part of the sampling and field analysis. Melissa Turner will also work with liable laboratory personnel by communicating all QA and QC requirements contained in the project QAPP and resolving any issues in regards to meeting these requirements.

Contractor Project Manager role:

Michael Johnson is the AEAL Project Manager. He will be responsible for all aspects of the project including the organization of field staff, scheduling of sampling days and interactions with the UCD laboratories and the Grant Manager.

Contractor Project Supervisor role:

Ling-ru Chu is the Project Supervisor. The Project Supervisor will assist the Project Manager by hiring, training and supervising all monitoring staff and contributing to the monitoring program report.

Laboratory Quality Assurance Officers role:

Ray Oslowski is the Quality Assurance Officer for the coliform analyses. Lizabeth Bowen will review the DNA data and will be responsible for the quality control for the Bacteroidales *analyses. Mentioned personal will maintain all records associated with the receipt and analyses of their samples and will verify that the measurement process is "in control" (i.e., all specified data quality objectives were met or acceptable deviations explained) for each batch of samples before proceeding with analysis of a subsequent batch.*

Monitoring Plan

This project will monitor pH, temperature, electrical conductivity, dissolved oxygen and the presence of Bacteroidales *and coliform in selected waterways in the ESJWQC region. During sampling, water will be collected for analysis of* Bacteroidales *and coliforms, pH, temperature, electrical conductivity and dissolved oxygen will be measured in the field. One sampling event will occur during the summer month of July.*

The 27 sites sampled during the summer will include four sites that will be monitored intensively over a three day period to assess short-term variations (base line) in the Bacteroidales *and coliform counts. At these intensively monitored sites, samples for coliform analysis will be collected once per day and samples for* Bacteroidales *analysis will be collected three times each day. The locations were selected by AEAL staff and approved by The Central Valley Regional Water Quality Control Board staff.*

Samples will be collected at each site as a surface grab sample from the bank or by wading into the stream. Each sample will be collected in pre-labeled and clean sample containers supplied by the laboratories. Samples will be placed on wet ice immediately and stored at 4^{o}C until delivered to the different laboratories. A Chain of Custody (COC) form will be completed and submitted for each sample.

Sample Collection Procedures

Standard Operating Procedures for the collection of surface water samples for the ESJWQC Bacterial Source Identification Study can be found in Appendix 2 of the QAPP.

Field Sheet

One field sheet will be completed at each monitoring site. Environmental and QC sample times will be recorded on the field sheet. Also recorded are the type(s) of QC collected (if any), the date, water quality parameters (temp, EC, pH, DO), weather conditions, stream conditions, approximate location in the stream at which the sample was collected and any pertinent observations (inputs, dead fish, etc).

Sample Quality Control and Analysis

Field Quality Control Samples

During each monitoring event, additional samples will be collected for quality assurance and quality control (QA/QC) purposes. The field QA/QC samples will include field duplicate and field blank samples.

Sample duplicates are used to evaluate sample variability and field blanks to evaluate possible contamination during sample collection and handling.

The frequency that duplicates and field blanks are collected will be based on the total number of environmental samples collected during this monitoring project. The number of field QA/QC samples will amount to approximately 5% field duplicates and 5% field blanks for *Bacteroidales* and for each coliform analysis relative to the total number of environmental samples collected.

A summary of the total number of environmental samples and required quality control samples is included in Table 2.

Table 2. Summary of the total number of environmental samples plus required quality control samples for coliform and *Bacteroidales* samples

***Coliform* samples**		**# of environmental samples**	**# of Field Blanks**	**# of Field Duplicates**
27 sites sampled in July		27		
4 sites x 1 sampling event x 2 additional days for base line		8		
		35		
	10% (5%each) for QC's	**3.5**	**2**	**2**
Bacteroidales				
27 sites sampled in July		27		
4 sites x 3 sampling events x 2 additional days for base line		24		
		51		
	10% (5%each) for QC's	**5.1**	**3**	**2**

Laboratory Quality Control Samples

Laboratory quality control samples will be prepared at the laboratories. The type, frequency, and requirements of laboratory quality control samples are outlined in the project QAPP.

Sample Documentation and Transfer to the Analytical Laboratory

A chain of custody (COC) form will be completed for every sample. All samples for *Bacteroidales* will be transported to the School of Veterinary Medicine Immunogenetics Laboratory, University of California, and Davis. The coliform samples will be delivered to CLS.

When delivering the samples, the original signed COC form is submitted to the lab technician. A copy for AEAL records is obtained prior to leaving the lab. The copy includes both the signature of the individual who relinquished the samples and the signature of the lab technician that accepted the samples.

bacterial analysis and reporting

Coliform is analyzed by CLS using the Standard Method 9221. The minimum detection limit (MDL) and reporting limit (RL) of this method are 2 MPN/100ml.

The Immunogenetics Laboratory is examining species-specific markers using the protocol listed in Appendix 3 of the QAPP. The MDL of the analytical method is 10 gene copies/TaqMan. The RL will be determined after the completion of each sample run.

The analysis lab reports pertaining to this study will be sent to the AEAL Project Manager. The Project Manager will prepare technical memoranda after each sampling event once all analysis lab reports have been received and evaluated, and a final report will be submitted by the December 31, 2006.

Data management

The AEAL contractor project manager will be responsible for data management, data analysis and report preparation. The data includes bacterial analysis results received from laboratories and all relevant field data and information collected by AEAL staff.

Tasks and Timelines

A summary of the tasks to be completed and the estimated dates of completion are listed in Table 3.

Table 3. Tasks and Timelines

Activity	***Date (MM/YYYY)***		***Deliverable***	***Deliverable Due Date***
	Anticipated Date of Initiation	***Anticipated Date of Completion***		
Sample Event #1 collection	*07/2006*	*07/2006*	*Sample collection*	*NA*
Technical Memorandum	*NA*	*NA*	*Summary of event results*	*After sample analyses are complete*

Activity	*Date (MM/YYYY)*		*Deliverable*	*Deliverable Due Date*
	Anticipated Date of Initiation	***Anticipated Date of Completion***		
Final report	*NA*	*NA*	*Final report*	*12/2006*

East San Joaquin Water Quality Coalition
1201 L Street
Modesto, CA 95354
www.esjcoalition.org

May 25, 2006

William Croyle
Dana Kulesza
Central Valley Regional Water Quality Control Board
11020 Sun Center Drive #200
Rancho Cordova, CA 95670-6114

Dear Bill and Dana:

We are submitting the formal communication report for the toxicity exceedances reported on March 24, 2006 (see Table 1 below). Sampling occurred at these sites on March 15 and 16, 2006 during the second storm event sampled during the 2005-06 storm sampling period.

Table 1. Toxicity results for samples collected during the second storm event. The values in the fourth column are the percent survival compared to the laboratory control. The value in the last column is the number of cells (cells/mL x 10^6) in the ambient sample compared to a control growth of 1.44 cells/mL x 10^6.

Site	Season	Sampling Date	*Ceriodaphnia*	*Selenastrum*
Prairie Flower Drain @ Crows Landing Rd	Storm2	3/16/2006	75	
Hilmar Drain @ Central Ave	Storm2	3/16/2006	5	
Highline Canal @ Lombardy Rd*	Storm2	3/16/2006		0.434
Duck Slough @ Gurr Rd*	Storm2	3/15/2006	40	
Merced River @ Santa Fe*	Storm2	3/16/2006	35	
Highline Canal @ Hwy 99*	Storm2	3/16/2006	0	

*TIE performed due to survival/growth less than 50% of control.

1. Follow-up monitoring and analyses conducted.
All sites were re-sampled on March 24, 2006. Those results are presented in Table 2. None of the toxicity was persistent at any site.

Table 2. Results of the toxicity testing on samples collected on March 24, 2006. Results from the Highline Canal @ Lombardy Ave site are the number of cells/mL x 10^6 and the percentage of the control.

Site	Test Organism	% Growth/% Survival
Prairie Flower Drain @ Crows Landing Rd	*Ceriodaphnia*	95%
Hilmar Drain @ Central Ave	*Ceriodaphnia*	95%
Highline Canal @ Lombardy Ave	*Selenastrum*	2.16 / 145%
Duck Slough @ Gurr Rd	*Ceriodaphnia*	100%
Merced River @ Santa Fe	*Ceriodaphnia*	95%
Highline Canal @ Highway 99	*Ceriodaphnia*	100%

Prairie Flower Drain @ Crows Landing Ave
The survival in the sample was statistically significantly different from the control, but not low enough to trigger a TIE. No further testing on the sample was performed. Toxicity was not persistent in 3/24/06 sample.

Hilmar Drain @ Central Ave
The Hilmar Drain @ Central Ave site exhibited significant toxicity to *Ceriodaphnia*, but the water during the original test had a pH of 9.46. After pH adjustment, the survival of *Ceriodaphnia* was not significantly different from the control indicating that the cause of the low survival was high pH. Consequently, no TIE was performed on the sample. Toxicity was not persistent in 3/24/06 sample.

Highline Canal @ Lombardy Ave
There was a mean cell density of 1,970,000 cells/mL in the laboratory control (Table 3). There was a statistically significant reduction in algal growth in the baseline sample (original ambient sample) indicating the original toxicity was persistent. The C18SPE treatment and the Chelex column both successfully removed the toxicity. In combination, these results suggest the presence of an organic compound that has some cationic properties (e.g. a surfactant, an acidic organic compound). Alternatively, there are two types of contaminants, one organic and one cationic that are additive in their toxicity such that the toxicity is removed when either of the compounds is removed. We have requested that the laboratory retain the C18SPE column and if the column is available, we will have the elutrate from that column analyzed for organic compounds.

Table 3. Results of the targeted TIE for the Highline Canal @ Lombardy Ave sample collected on 3/16/06.

TIE Treatment	Mean Algal Cell Density (cells/mL x 10^6)
Lab Control	1.970
C_{18}SPE Blank	1.630
Chelex Blank	2.170
Baseline (untreated 100% ambient sample)	**0.407***
C_{18}SPE-treated sample	3.800
Chelex-treated sample	2.730

* Statistically significantly different from the control. This result indicates the toxicity was persistent in the original sample.

Duck Slough @ Gurr Road
No significant reductions in survival were seen in the baseline (original ambient sample) sample indicating that the toxicity was not persistent in the water. The absence of toxicity in the baseline treatment precludes the ability of the TIE to identify the cause of the toxicity (Table 4). Toxicity was not persistent in follow up sampling (Table 2).

Table 4. TIE results for the sample from Duck Slough @ Gurr Road collected on 3/15/06.

TIE Treatment	Mean % Survival
Lab Control	100
Centrifugation blank	100
Centrifugation + C_{18}SPE Blank	90
PBO blank	95
Baseline (untreated 100% ambient sample)	100
Centrifuged sample	90
Centrifuged + C_{18}SPE-treated sample	95
PBO-treated sample	100

Merced River @ Santa Fe
No significant reductions in survival were seen in the baseline (original ambient sample) sample indicating that the toxicity was not persistent in the water. The absence of toxicity in the baseline treatment precludes the ability of the TIE to identify the cause of the toxicity. Toxicity was not persistent in follow-up sampling (Table 2).

Table 5. TIE results for the sample from Merced River @ Santa Fe collected on 3/16/06.

TIE Treatment	Mean % Survival
Lab Control	100
Centrifugation blank	100
Centrifugation + C_{18}SPE Blank	90
PBO blank	95
Baseline (untreated 100% ambient sample)	100
Centrifuged sample	100
Centrifuged + C_{18}SPE-treated sample	100
PBO-treated sample	85

Highline Canal @ Highway 99
There were no significant reductions in survival in any of the dilution treatments indicating that the toxicity observed in the original sample was not persistent (Table 6). These results indicate that there was < 1.0 TUa where TUa = $100/EC_{50}$.

No significant reductions in survival were seen in the baseline (original ambient sample) sample indicating that the toxicity was not persistent in the water. The absence of toxicity in the baseline treatment precludes the ability of the TIE to identify the cause of the toxicity (Table 7).

Table 6. Results of the dilution series test on the sample from Highline Canal @ Highway 99 collected on 3/16/06.

TIE Treatment	Mean % Survival
Lab Control	90
6.25%	75
12.5%	100
25%	100
50%	100
100%	95

Table 7. TIE results for the sample from Highline Canal @ Highway 99 collected on 3/16/06.

TIE Treatment	Mean % Survival
Lab Control	100
Centrifugation blank	100
Centrifugation + C_{18}SPE Blank	90
PBO blank	95
Baseline (untreated 100% ambient sample)	100
Centrifuged sample	100
Centrifuged + C_{18}SPE-treated sample	100
PBO-treated sample	100

2. Actions taken to identify the source of the exceedance.
Immediate follow-up measures were inconclusive as to the potential source of the toxicity in all but two instances. Chemical analysis indicates that the toxicity to *Ceriodaphnia* was not a function of any of the analytes for which the Coalition samples. If the column is still available, we will test for additional chemicals from Table 1 of the August 15, 2005 MRP (Order No. R5-2005-0833). We have requested the Pesticide Use Reports from those watersheds and we will evaluate those for any applications of substances within the two weeks prior to sampling which could result in toxicity or reduced growth. We do not expect to receive those reports in time for the analysis to be completed by the June 30, 2006 Semi-Annual Report submission. The additional chemical analysis in conjunction with the Pesticide Use Reports will give us a greater probability of identifying the source.

3. Complete analytical results
Complete analytical results are attached electronically to this communication report in the form of the laboratory report in pdf format. We are submitting the full report because the results need to be maintained in the context of the report. We realize that the full report is quite large. If after reviewing the report, a subsection or summary is requested, we will provide whatever is requested.

4. Time schedule to identify and implement the Management Practice Effectiveness evaluation.
The time schedule is:

Action	Anticipated Completion Date
Receive and evaluate PUR	September 30, 2006
Contact Growers in Watersheds	March 30, 2007
Perform Management Practices Survey	March 30, 2007
Implement Outreach/BMP Education	March 30, 2007
Evaluation Report	June 30, 2008

Let us know if further explanation or documentation is necessary.

Parry Klassen
559-325-9855

Wayne Zipser
209-522-7278

East San Joaquin Water Quality Coalition

1201 L Street
Modesto, CA 95354
www.esjcoalition.org

May 25, 2006

William Croyle
Dana Kulesza
Central Valley Regional Water Quality Control Board
11020 Sun Center Drive #200
Rancho Cordova, CA 95670-6114

Dear Bill and Dana:

We are submitting the formal communication report for the chlorpyrifos exceedances reported on March 23, 2006 (see Table 1 below). Sampling occurred at these sites on March 1, 2006 during the first storm event sampled during the 2005-06 storm sampling period.

Table 1. Concentration of chlorpyrifos in surface water collected at the two Highline Canal sites during the first storm event sampling.

Site	Storm Event	Sample Date	Concentration in µg/L
Highline Canal @ Lombardy Road	Storm 1	3/1/2006	0.021
Highline Canal @ Highway 99	Storm 1	3/1/2006	0.027

1. Follow-up monitoring and analyses conducted.

No follow-up monitoring was performed. The results were received from the lab three weeks after the storm event, and any additional sampling that would occur that long after the original runoff event would be very unlikely to sample from the same source.

Additionally, although the amount of chlorpyrifos in the water is above the receiving water limitation, no toxicity was experienced in samples collected at the sites on that date.

2. Actions taken to identify the source of the exceedance.

Highline Canal @ Lombardy Ave is the upstream site and Highline Canal @ Highway 99 is the downstream site in this watershed. Consequently, our monitoring design includes upstream sampling at the exact same time as the downstream sample was collected. There was no measurable flow at either site during the first storm event precluding a calculation of chlorpyrifos load. Concentrations do not allow us to assign any portion of the load to upstream or downstream watersheds. However, it is clear that chlorpyrifos is entering the Highline Canal from across the entire watershed.

We have requested the Pesticide Use Reports for the period immediately preceding the monitoring event and will be able to determine where applications of chlorpyrifos were made, the amounts, and the method of application. We will use these reports to identify potential sources.

3. Complete analytical results

Complete analytical data are appended to this report as separate attachments. These are the pdf files received from the analytical laboratory and include all data from the event.

4. Time schedule to identify and implement the Management Practice Effectiveness evaluation.

The time schedule is:

Action	Anticipated Completion Date
Contact Growers in Watersheds	December 31, 2006
Perform Management Practices Survey	December 31, 2006
Implement Outreach/BMP Education	December 31, 2006
Evaluation Report	June 30, 2007

We realize that the submission date for the Evaluation Report is quite far into the future. Obtaining the Pesticide Use Reports can take 3-6 months. Once we obtain the reports, we can identify potential sources, contact growers and hold meetings. It will take us through next dormant season to determine if the implementation of management practices is sufficient to eliminate the problem.

Let us know if further explanation or documentation is necessary.

Parry Klassen
559-325-9855

Wayne Zipser
209-522-7278

East San Joaquin Water Quality Coalition
1201 L Street
Modesto, CA 95354
www.esjcoalition.org

June 1, 2006

William Croyle
Dana Kulesza
Central Valley Regional Water Quality Control Board
11020 Sun Center Drive #200
Rancho Cordova, CA 95670-6114

Dear Bill and Dana:

We are submitting the formal Communication Report for exceedances of the Electrical Conductivity for the sites in Table 1 below. Sampling occurred on March 16, 2006, and an Exceedance Report was filed on March 17, 2006 for the original exceedance. Re-sampling occurred on March 24, 2006 and an exceedance report was filed for the EC exceedances on March 29, 2006. No other parameters measured in the field experienced exceedances.

Table 1. EC and pH for the two storm events. Only the two sites that experienced exceedances during one or both storm events are included in the table.

Site		Date	EC
Prairie Flower Drain @ Crows Landing Rd	Re-sample Storm2	3/24/2006	1400
Hilmar Drain @ Central Ave	Re-sample Storm2	3/24/2006	2782

1. Follow-up monitoring and analyses conducted.
No follow-up monitoring was performed. As has been true since the beginning of the monitoring program, EC exceedances are common at these two sites. EC exceedances were found during the first two storm events and in the re-sampling after storm 2. Further sampling would only confirm that the exceedances are persistent and clearly a result of local conditions.

2. Actions taken to identify the source of the exceedance.
EC
Elevated conductivity may be due to anthropogenic factors, as well as natural soil geological conditions. We recently found information through the Department of Water Resources on the EC in shallow ground water for the area immediately adjacent to the San Joaquin River, although the maps are for the west side of the river. EC for the shallow ground water is as high as 4000 µS/cm and we anticipate that the EC for ground water on the east side of the San Joaquin River is equally as high. Irrigation with shallow ground water would certainly result in high EC in the return flows. The Coalition is currently finishing the design of a project to determine the source of EC in the two drains. Irrigation water can originate from surface storage facilities or ground water. Both of these have distinct oxygen and deuterium isotopic signatures. Water entering the drains comes from seepage into the drains from shallow ground water, direct discharge from surface irrigation return flows or rainfall events, and discharge from field drains. These also have distinct isotopic signatures depending on the origin of the water for irrigation. Additionally, since the source of the ions in the different source waters is different, we can use the combination of specific ions and the isotopic signatures of the water to determine the relative source contribution to the water in the drains. With an understanding of the source of the ions, we can effectively develop a management approach to present to the growers in the two watersheds.

3. Complete analytical results
Complete analytical results for field data are in the form of field sheets. The field sheets for the monitoring event are provided by Pacific EcoRisk as part of their report on the event. That report is attached to this communication report as a separate attachment.

4. Time schedule to identify and implement the Management Practice Effectiveness evaluation.
The schedule for completion of the activities associated with EC ion source determination, data evaluation, development of a management practices plan, implementation of the plan, and evaluation of the effectiveness of the plan is provided below. Evaluating the effectiveness of the management practices requires a full irrigation season and a storm season, and the evaluation will be completed after data from the monitoring is evaluated.

Action	Anticipated Completion Date
Design TDS Study	May 31, 2006
Perform TDS Study	August 31, 2006
Contact Growers in Watersheds	February 28, 2007
Perform Management Practices Survey	April 30, 2007
Implement Outreach/BMP Education	June 30, 2007
Evaluation of BMP Effectiveness	June 30, 2008

Let us know if further explanation or documentation is necessary.

Parry Klassen
559-325-9855

Wayne Zipser
209-522-7278

San Joaquin County Resource Conservation District
3422 W. Hammer Lane, Suite A
Stockton, California 95219
209-472-7127 ext 125

June 2, 2006

William Croyle
Devra Lewis
Central Valley Regional Water Quality Control Board
11020 Sun Center Drive #200
Rancho Cordova, CA 95670-6114

Dear Bill and Devra:

The San Joaquin Count and Delta Water Quality Coalition is submitting the formal Communication Report for exceedances of the TDS receiving water limitation for the sites in Table 1 below. Sampling occurred on February 27, 2006, and the Exceedance Report was filed on February 28, 2006. No other parameters measured in the field experienced exceedances.

Table 1. TDS for the first storm event of the 2006 winter sampling season. Only those sites that experienced exceedances are included in the table.

Site	Season	Sampling Date	TDS
Terminous Tract off Guard Road	Storm1	2/27/2006	670
Terminous Tract off Glassock Road	Storm1	2/27/2006	620
Terminous Tract @ Highway 12	Storm1	2/27/2006	950
Lone Tree Creek @ Bernnan Rd	Storm1	2/27/2006	730
Marsh Creek @ Balfour Ave	Storm1	2/27/2006	700
Marsh Creek @ Concord Ave	Storm1	2/27/2006	520
Kellogg Creek @ Hoffman Lane	Storm1	2/27/2006	990
Kellogg Creek @ Highway 4	Storm1	2/27/2006	890
Grant Line Canal near Calpack Rd	Storm1	2/27/2006	1200

1. Follow-up monitoring and analyses conducted.

No follow-up monitoring was performed. Both EC and TDS in Delta are persistent problems. We anticipate that TDS exceedances will continue as previous sampling indicates that this is a year-around problem.

2. Actions taken to identify the source of the exceedance.
The position of the coalition is that the exceedances in the Delta are a function of the source water quality of the Delta waters (see below). During the winter, there are two sources for water found in the drain and irrigation canals of the Delta Islands. Depending on the elevation of the island surface relative to the waters of the Delta channels, hydrostatic pressure may force water into the Delta islands where it collects in the channels and is eventually pumped back into the Delta channels. Rainfall is the second source of water in the drain and irrigation canals of the Delta Islands. This water would dilute the Delta source water that is pushed into the islands. However, since the source water in the Delta is high in salts, water in the drain and irrigation canals within the Delta Islands will also be high in TDS and EC.

With regard to those areas within the Coalition boundaries which rely on San Joaquin River or Delta water, the salinity issue is being addressed through other processes and is not a consequence of agricultural activities in the area. The SWRCB has already determined that "the actions of the CVP are the principal cause of the salinity concentrations exceeding the objectives at Vernalis" (Revised Water Right Decision 1641 in the matter of Implementation of Water Quality Objectives for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary, Adopted December 29, 1999, Revised March 15, 2000 in accordance with Order WR 2000-02, hereafter referred to as D-1641, see D-1641 @ page 89). The reason for this conclusion is that the operation of the CVP has decreased the flow of the San Joaquin River and, through its delivery of export water to the west side of the San Joaquin Valley, caused high saline waters to drain back into the River. In short, the CVP has caused high concentrations and massive loads of salt in the San Joaquin River.

Because of this, the SWRCB has directed the Central Valley Regional Board to promptly "develop and adopt salinity objectives and a program of implementation for the main stem of the San Joaquin River upstream of Vernalis" (see D-1641 @ page 85). In addition, the San Joaquin River and Southern Delta have been listed as impaired waterways for salinity (EC) under the Clean Water Act and as a result, is the subject of a TMDL to address upstream salinity loads. That TMDL process does not seek to limit loading or concentrations downstream of Vernalis, and gives the applicable parties upstream of Vernalis a number of years to implement the necessary actions.

There is no evidence that local agricultural discharges within the coalition region add any measurable amount of salt to the river system. This fact is especially relevant given that the CVP results in adding up to 1,000,000 tons of salt imported into the basin each year with adding up to (approximately) 800,000 tons entering the San Joaquin River. Given the above, it is clear that the TMDL and upstream objective processes are addressing the salinity problem. At this time the Regional Board does not require any other discharger to decrease its salinity discharges to the 450 TDS (or 0.7 EC) level believed to be necessary to protect agricultural beneficial uses. [0.7 applies from April - August and 1.0 applies from September - March.] For example, the municipal effluent discharges in the area are between 1.0 and 2.0 EC with no NPDES permit requirement to lower them to the

0.7 standard. Therefore, the Coalition does not anticipate taking any actions to lower the salinity of discharges in the area.

We also note that all consumptive use of water concentrates salts. Crops consume water but not salts, resulting in higher concentrations in the discharge water. Upstream actions are geared toward meeting Vernalis and interior Delta objectives for salinity; those actions are directed at protecting Delta agriculture. However, if the incoming water is at the standard, then no further use of the water could be allowed if that use consumed any portion of the water. Thus, the Delta's use of the water would be prohibited because all of the assimilative capacity of the River had been used up. Such a situation would be irrational given the purpose of the water quality standards. The Coalition assumes that the Regional Board's actions will result in salinity levels entering the Delta which will allow local use of the water.

The Coalition is in the process of developing a study to confirm that the water in the Delta irrigation and drain canals is Delta source water and that irrigated agriculture does not degrade the quality of that water with respect to TDS. We are currently determining if mercury is present in the Delta source water at concentrations sufficient to prevent the isotopic analyses that we wish to perform. Once we understand if isotopic analysis is possible, we can finalize the design of the study and submit to the Regional Board for review.

Provided the results of the proposed study indicate that the source of the TDS exceedances are a result of source water in the Delta, the Coalition anticipates taking no action at this time with regard to testing results which indicate TDS levels which are above existing water quality objectives.

3. Complete analytical results

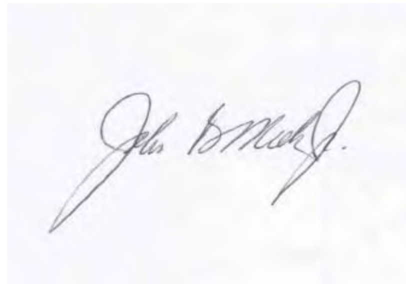
Complete analytical results for field data are in the form of field sheets. The field sheets for the monitoring event have been scanned and currently exist as two Word files. However, the files are too large to attach to an email (49MB and 57 MB). We will burn the files onto a CD and mail them to the Regional Board.

4. Time schedule to identify and implement the Management Practice Effectiveness evaluation.

Pending the results of the proposed study this summer, no management practices effectiveness evaluation is planned. If the results indicate that the EC exceedances are a function of agricultural practices, we will provide an amendment to this Communication Report with a time schedule for implementation of management practices. The time schedule will be based on the current submission, and all contacts with growers and outreach will occur as if the process was initiated at this time.

Let us know if further explanation or documentation is necessary.

Respectfully,



John B. Meek, Jr., Executive Director

East San Joaquin Water Quality Coalition
1201 L Street
Modesto, CA 95354
www.esjcoalition.org

June 16, 2006

William Croyle
Dana Kulesza
Central Valley Regional Water Quality Control Board
11020 Sun Center Drive #200
Rancho Cordova, CA 95670-6114

Dear Bill and Dana:

We are submitting the formal communication report for the chlorpyrifos exceedance at Ash Slough @ Avenue 21 reported on April 6, 2006. Sampling occurred at this site on March 15, 2006 during the second storm event sampled during the 2005-06 winter sampling period. The concentration of chlorpyrifos in the sample was 0.029 µg/L.

1. Follow-up monitoring and analyses conducted.

No follow-up monitoring was performed. The results were received from the lab three weeks after the storm event, and any additional sampling that would occur that long after the original runoff event would be very unlikely to sample from the same source.

Additionally, although the amount of chlorpyrifos in the water is above the receiving water limitation, no toxicity was experienced in sample collected at the site on that date.

2. Actions taken to identify the source of the exceedance.

We have requested the Pesticide Use Reports for the period immediately preceding the monitoring event and will be able to determine where applications of chlorpyrifos were made, the amounts, and the method of application. We will use these reports to identify potential sources.

3. Complete analytical results

Complete analytical results are attached electronically to this communication report in the form of the laboratory report in pdf format. We are submitting the full report because the results need to be maintained in the context of the report. We realize that the full report is quite large. If after reviewing the report, a subsection or summary is requested, we will provide whatever is requested.

4. Time schedule to identify and implement the Management Practice Effectiveness evaluation.

The time schedule is:

Action	Anticipated Completion Date
Receive and evaluate PUR	September 30, 2006
Contact Growers in Watersheds	September 30, 2006
Perform Management Practices Survey	December 31, 2006
Implement Outreach/BMP Education	December 31, 2006
Evaluation Report	June 30, 2007

We realize that the submission date for the Evaluation Report is quite far into the future. Obtaining the Pesticide Use Reports can take 3-6 months. Once we obtain the reports, we can identify potential sources, contact growers and hold meetings. It will take us through next dormant season to determine if the implementation of management practices is sufficient to eliminate the problem.

Let us know if further explanation or documentation is necessary.

Parry Klassen
559-325-9855

Wayne Zipser
209-522-7278

East San Joaquin Water Quality Coalition
1201 L Street
Modesto, CA 95354
www.esjcoalition.org

June 21, 2006

William Croyle
Dana Kulesza
Central Valley Regional Water Quality Control Board
11020 Sun Center Drive #200
Rancho Cordova, CA 95670-6114

Dear Bill and Dana:

We are submitting the formal Communication Report for the TDS and *E. coli* exceedances at the 9 sites reported on April 19, 2006 (see Table 1 below). Sampling occurred at these sites on March 15 and 16, 2006 during the second storm event sampled during the 2005-06 winter dormant season.

Table 1. *E. coli*/TDS results for samples collected during the second storm event.

Site	Season	Sampling Date	*E. coli*	TDS
Prairie Flower Drain @ Crows Landing Rd	Storm2	3/16/2006	300	1600
Hilmar Drain @ Central Ave	Storm2	3/16/2006		710
Highline Canal @ Lombardy Rd	Storm2	3/16/2006	900	
Duck Slough @ Gurr Rd	Storm2	3/15/2006	300	
Highline Canal @ Hwy 99	Storm2	3/16/2006	300	
Duck Slough @ Pioneer Rd	Storm2	3/15/2006	900	
Bear Creek @ Kibby Rd	Storm2	3/15/2006	1600	
Cottonwood Creek @ Road 20	Storm2	3/15/2006	>1600	
Dry Creek @ Wellsford Rd	Storm2	3/16/2006	1600	

1. Follow-up monitoring and analyses conducted.

No follow-up sampling was performed. The results were received on April 18, 2006 over a full month past the original sample date. If additional samples were collected and *E. coli* detected, the source of the exceedance would not necessarily be the same as for the original sample. However, as has been true throughout the monitoring program, *E. coli* continues to be a consistent exceedance. TDS is also a continual exceedance problem at the Prairie Flower Drain and Hilmar Drain sites and we have TDS values above water quality objectives every sample event.

2. Actions taken to identify the source of the exceedance.

E. coli

E. coli is a general indicator of bacterial contamination and it is not clear what sources contribute to the coliform load. Consequently, we have designed a follow-up study to sample watersheds during non-monitoring events and perform analyses to identify the source of the bacteria. Using these samples, we can extract the DNA from the bacteria in the water, use real-time PCR to amplify the DNA signal and then use primers specific to various species to match the bacterial DNA sequences with bacterial sequences from known sources, e.g., humans, cows, sheep, dogs, birds, etc. Once we understand the relative contribution of these sources, we can use the information gathered on grazing practices and water management to develop an appropriate management strategy.

We have designed a study to determine the potential source(s) of the bacteria. The study monitoring plan and the QAPP were provided as an attachment to a Communication Report submitted on May 25, 2006. This is the study originally proposed in the October 25, 2005 Communication Report, and will include all watersheds for which exceedances were found during the 2005 dormant and irrigation seasons. The field work will be performed during July and August 2006, and the laboratory work to identify the DNA will also be performed during the months of July and August. We expect to have the results of the analysis completed by the end of August.

TDS

Originally, we assumed that there are two potential sources of dissolved solids. Irrigation water placed onto salty soils can leach salts down into the shallow ground water where it can enter field drains and be moved to larger water bodies, or simply move through the unsaturated zone to the stream. Additionally, irrigation water can be obtained from a source that is naturally high in salts even before application to the field. Consequently, although TDS is a nonpoint source input to most water bodies, it is possible that there are inputs from field drains. Recent conversations with the Turlock Irrigation District indicate that ground water is very shallow and that many of the field drains function to remove the shallow ground water from the fields and move the water to the Prairie Flower and Hilmar Drains. Also, the main drains have locations in which the bottom is mud and the drains could be gaining water directly from shallow ground water. To determine the relative contribution of salt from these two potential sources, the ESJWQC will perform a study this summer to identify the source of the water in the two main drains and consequently, the source of the salts in those drains.

3. Complete analytical results

Analytical results are appended electronically to the transmittal message. These results include all data reports provided to the Coalition by the analytical laboratory. QC data are included in the data reports.

4. Time schedule to identify and implement the Management Practice Effectiveness evaluation.
E. coli

Action	Anticipated Completion Date
Contact Growers in Watersheds	February 28, 2006
Perform Management Practices Survey	March 30, 2006
Perform Bacterial ID Study	August 31, 2006
Implement Outreach/BMP Education	September 30, 2006
Evaluation Report	December 1, 2007

TDS

Action	Anticipated Completion Date
Design TDS Study	June 30, 2006
Perform Management Practices Survey	June 30, 2006
Perform TDS Study	August 31, 2006
Contact Growers in Watersheds	February 28, 2007
Implement Outreach/BMP Education	June 30, 2007
Evaluation of BMP Effectiveness	June 30, 2008

Let us know if further explanation or documentation is necessary.

Parry Klassen
559-325-9855

Wayne Zipser
209-522-7278

Conclusions and Recommendations

In the December 2005 Semi-Annual Monitoring Report, we indicated that the monitoring program was a success because of the following:

- All planned sample events were captured and samples were collected from all sites that had water
- Completeness for all planned constituents was at or near 100%
- The Laboratory Performance Criteria were met
- All data were placed into a SWAMP comparable database and transferred to the Regional Board

The Coalition continues to be successful in these areas. When possible, all samples were collected and appropriate measurements made. Analyses of the samples were conducted and concentrations were obtained.

In December of 2005, we stated in the Semi-Annual Monitoring Report that the monitoring program will improve in the following areas:

- Chemical testing will meet the Regional Board's Reporting Limit requirements starting in the 2006 dormant season sampling
- Discharge measurements will be collected from all sites at which it is possible to collect measurements
- The coalition will continue to improve communications with the laboratories to obtain information on exceedances in a timely manner
- The coalition will try to obtain the Pesticide Use Reports more quickly so the source identification analyses can be performed

The Coalition was generally successful in all four areas. We were able to reduce the PQLs for all constituents to levels required by the MRP Order No. 2005- xx-0833. Discharge measurements were collected in all instances when it was possible to do so. We implemented several changes in our lines of communications with the laboratories and were able to receive exceedances for all tests except one. Consequently, the Coalition can improve its performance by emphasizing the importance of timely communication with the laboratories. One laboratory contracted with the Coalition did not improve sufficiently during the dormant season sampling, and they have been replaced by a new laboratory. We anticipate much better communication and performance from the new laboratory.

In December 2005, the following technical conclusions were made:

In many watersheds, large amounts of pesticides are applied emphasizing the importance of managing water quality from a watershed perspective, and multiple applications of the same pesticides across a watershed make source identification difficult

Examination of pesticide use reports confirms that there are multiple applications of numerous pesticides in most watersheds in which toxicity is experienced. This emphasizes the importance of a watershed approach to management.

There appears to be a number of unreported applications of pesticides in many of the watersheds
The number of unreported applications appears to be lower during the winter of 2006 relative to the previous year. And, although there may not be any reported agricultural applications, nonagricultural applications are possible in numerous watersheds in the Coalition region. We have been investigating how to obtain information on nonagricultural applications, but the reporting requirements are greatly reduced for urban/suburban applications compared to agricultural reporting requirements. It is unlikely that the Coalition will be able to determine if reported urban inputs are responsible for detections or exceedances.

The most common exceedances were E. coli and exceedances related to salts (EC and TDS)
This remains the most problematic aspect of the monitoring. Both constituents will be the focus of studies this summer.

The EC and TDS in the Hilmar Drain watershed are not well correlated over time suggesting that the source and/or composition of the salts in the drain changes seasonally
EC/TDS studies will be conducted this summer.

In December 2005, the Coalition made the following recommendations:

Focus chemical analyses on the most common pesticides applied in the watersheds
In the 2006 dormant season, the Coalition continued to monitor for the same pesticides as in the summer 2005 irrigation season. The Coalition will increase the number of pesticides for which it monitors in the 2006 irrigation season.

Perform the E. coli source identification study to allow the targeting of management practices
The *E. coli* source identification study has been developed and will be conducted during July and August, 2006. We should be able to identify the source of the DNA to specific taxonomic groups and allow the focus of locating sources within the watersheds.

Develop a methodology to understand the source of the salts in the Hilmar Drain and Prairie Flower Drain watersheds
EC/TDS studies will be conducted this summer to determine the source of the salts in the two drains.

Based on the historical water quality problems, exceedances of water quality objectives during the first two irrigation and dormant seasons, and current and foreseeable land uses in the Coalition area, the priorities for the Coalition are to:

1. Continue monitoring for those parameters for which exceedances have been found,
2. Determine the cause of any toxicity that is present by a combination of Toxicity Identification Evaluations and analysis of water for specific chemical constituents,
3. Perform studies to identify sources of *E. coli*,
4. Identify the sources of TDS in the subwatersheds close to the San Joaquin River,
5. Implement outreach programs aimed at reducing delivery of constituents to the water bodies in the Coalition area.

As required by the MRP, all growers living in subwatersheds that have experienced exceedances will receive a letter from the coalition indicating that there have been exceedances discovered and providing the nature of those exceedances. We have developed a list of names and addresses of the growers from the parcel numbers in the subwatersheds and the pesticide use reports. Meetings will be scheduled and all growers will be encouraged to attend. At the meetings, the ESJWQC will circulate the BMP survey(s) to growers so that we can inventory the management practices used. We are attaching a draft survey below that will be given to orchard growers, and we are in the final stages of developing surveys for additional crops.

Appendix A

4203 West Swift ∇ Fresno, California 93722 ∇ Phone 559-275-2175 ∇ Fax 559-275-4422

December 29, 2005

Pacific EcoRisk
835 Arnold Drive, Suite 104
Martinez, California 94553

Attn: Stephen Clark

Subject: Chlorpyrifos and Diazinon reporting limits

Dear Mr. Clark:

APPL Inc. has lowered our reporting limits from 0.05ug/L to 0.02ug/L for the analytes Diazinon and Chlorpyrifos by the EPA method 8141. This is supported by our current MDLs, which are 0.00353ug/L for Diazinon and 0.00259ug/L for Chlorpyrifos.

If you have any questions or require further information, please contact us at your convenience. Thank you for choosing APPL, Inc.

Sincerely,

Diane Anderson

Diane Anderson, President
APPL, Inc.

Low Level OP PQL letter