

**December, 2005**

**2005-2006**

**Sacramento Stormwater**

**NPDES Monitoring**

**Urban Tributary & Additional Pesticide  
Sampling & Analysis Plan**

County of Sacramento  
City of Sacramento  
City of Citrus Heights  
City of Elk Grove  
City of Folsom  
City of Galt  
City of Rancho Cordova

**SACRAMENTO**

**STORMWATER**

**QUALITY**

**PARTNERSHIP**

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## OVERVIEW

The Sacramento Stormwater 2005/06 National Pollutant Discharge Elimination System (NPDES) Monitoring Program is comprised of several parts as required in the NPDES Monitoring and Reporting Program (MRP). Urban Tributary Monitoring (UTM), Additional Pesticide Monitoring, rainwater monitoring, Bioassessment monitoring, and river monitoring (Ambient Monitoring Program [AMP] performed by the Coordinated Monitoring Program [CMP] on the American and Sacramento rivers) will all be performed in 2005/06. This Sampling and Analysis Plan (SAP) describes the UTM and Additional Pesticide Monitoring components. The Sacramento Stormwater Quality Partnership (Permittees) has also added a metals persistence study as part of the UTM to characterize temporal variations in urban tributary metals concentrations.

The Urban Tributary Monitoring Program fulfills requirements of the Sacramento Stormwater NPDES Permit. During the 2005/06 wet season, grab samples will be collected from three creeks in Sacramento County (Arcade Creek, Willow Creek, and Morrison Creek) during three wet weather events and one dry weather event between August 1, 2005 and June 1, 2006. The first wet weather event of the monitoring season will include the complete list of NPDES Monitoring and Reporting Program (MRP) "Table 1 and Table 2" constituents. All other events have a more limited set of constituents. The UTM program includes the Metals Persistence Program (MPP). The MPP requires additional sampling for metals at the Arcade, Willow and Morrison Creek sites. The additional sampling is detailed below.

The Additional Pesticide Monitoring Program (PMP) fulfills requirements of the Sacramento Stormwater NPDES Permit. The program will monitor for diazinon and chlorpyrifos in at least Elder Creek, Elk Grove Creek, Natomas East Main Drain, Arcade Creek, Willow Creek, Morrison Creek, Chicken Ranch Slough, Strong Ranch Slough, American River at Business 80, American River at Discovery Park, Sacramento River at Veteran's Bridge, and the Sacramento River at Freeport. This monitoring will occur during one wet weather event during the dormant spray application season (January through February, 2006), one wet weather event following the dormant spray season, and once during the dry season.

The additional pesticide monitoring permit requirement also includes monitoring of OP pesticides in rainwater at two locations for up to five events when the efforts can be coordinated with other regional monitoring. In 2005/06 the other regional monitoring includes activities performed by the Central Valley Regional Water Quality Control Board (RWQCB) in Lincoln, CA and Stockton, CA. The two sites selected by the Permittees include an urban location, Sump 104, and a site outside of the urban area in the Prairie City Off-Highway Vehicle Park. The RWQCB has confirmed that they will not perform rainfall monitoring in 2005/06. Any monitoring performed by the Permittees will be completed according to a separately prepared SAP (Phone communication with Petra Lee, RWQCB, November 2005).

The Metals Persistence Program (MPP) is not required by the NPDES Permit MRP, but is intended to characterize temporal variations in metals concentrations, specifically arsenic, cadmium, copper, lead, nickel, and zinc, during and after storm runoff events at the urban tributary locations. Field crews will collect grab samples for metals and field measurements (pH, DO, EC, and temperature) during the event, between 0-24 hours after the influence of a storm runoff event, between 24-48 hours after the influence of a storm event, and 48-72 hours after the influence of a storm event.

The Urban Tributary and Additional Pesticide Monitoring shall be coordinated to the extent possible with each other and, when feasible, with the AMP, and other monitoring programs as requested by the Permittees such as the Sacramento River Watershed Program. The AMP staff performs all river sampling. The AMP contact (Michael Cook) is included in the storm tracking and mobilization notification procedures discussed later in this SAP.

## Sampling Sites

Sampling sites for the UTM and Additional Pesticide Monitoring are detailed below.

### **Urban Tributary Monitoring Program**

The UTM sites are located on three urban creeks in the City and County of Sacramento. The program will target the first storm event of the season, two additional storm events, and one dry weather event during the period of December 1, 2005 through June 1, 2006. The UTM includes the MPP, which requires sampling for metals at the Morrison, Arcade, and Willow Creek sites. Sampling for the MPP shall be coordinated to coincide with UTM sampling events. Additional samples shall be collected for the PMP; one day after the UTM sampling event, two days after the UTM sampling event, and three days after the UTM sampling event.

### **Morrison Creek**

Morrison Creek starts in eastern Sacramento County and flows in a southwest direction through Mather Air Force Base and the southern portion of the City of Sacramento. The creek turns south as it crosses under State Route 99 and continues this general direction to its termination in the Stone Lake wetland system in southwest Sacramento County. For this monitoring program, the furthest downstream monitoring point has been established 1300 feet upstream from the confluence of Morrison and Elder Creeks, near where Mack Road crosses Morrison Creek in south Sacramento. The monitoring site is located between Brookfield Drive and Mack Road.

Access to the site is from Brookfield Drive. From Hwy 99, exit Mack Road and travel west. From I-5 exit Meadowview Road and travel east. Turn north on Brookfield Drive and turn right into the driveway before crossing the bridge which spans Morrison Creek. Access is gained using **key #2214**. After entering, lock the gate behind you. Proceed south along the levee road to the sampling site identified in Figure 1.



Figure 1  
Urban Tributary Sampling Location  
on Morrison Creek



## Arcade Creek

Arcade Creek watershed includes 40 mi<sup>2</sup> of urban development within the Cities of Sacramento and Citrus Heights, and unincorporated areas of Sacramento County. The creek flows for approximately 16 miles in a southwest direction to its confluence with the Natomas East Main Drainage Canal near Gardenland and Johnston Parks in the City of Sacramento. The monitoring site is located downstream from the Watt Avenue Bridge and the USGS gauging station.

Access to the site is from Watt Avenue. From I 80 or Business 80, exit Watt Avenue. Travel south on Watt from I 80. Travel north on Watt from Business 80. Turn west on Longview Dr and proceed a short distance to the entrance of Del Paso Park on the left. Park along the shoulder just inside the entrance to the park as shown in Figure 2. The actual sampling location is located under the bridge to Del Paso Park.

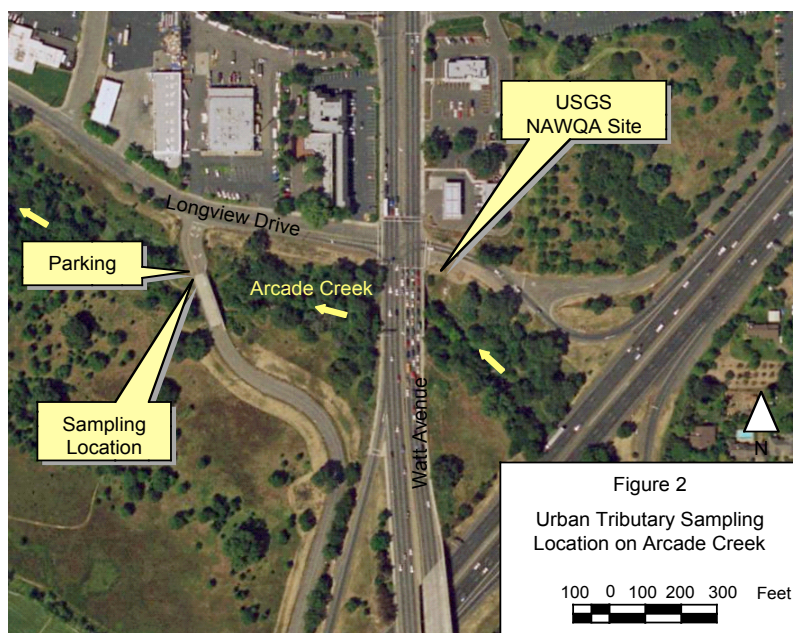


Figure 2  
Urban Tributary Sampling  
Location on Arcade Creek

## Willow Creek

Willow Creek watershed includes both urban and rural areas within the City of Folsom and eastern Sacramento County. The creek flows for over six miles in a southwest direction to its confluence with Lake Natoma. The monitoring site is located at the bridge where Blue Ravine Road crosses Willow Creek.

Access to the site is from Hwy 50. Exit Folsom Blvd and travel north. Turn left on Blue Ravine Rd and park on the right side of the road near the bridge as shown in Figure 3.

## Pesticide Monitoring Program

Additional monitoring for diazinon and chlorpyrifos is performed at Morrison Creek, Arcade Creek, and Willow Creek under the Urban Tributary Monitoring program at the sites described above. The AMP will monitor these constituents at the American River at Business 80, American River at Discovery Park, Sacramento River at Veteran's Bridge, and the Sacramento River at Freeport sampling sites. Pesticides will also be monitored at these additional sites: Elder



Figure 3  
Urban Tributary Sampling Location  
on Willow Creek

Creek, Elk Grove Creek, Natomas East Main Drain Downstream, Natomas East Main Drain Upstream, and Chicken Ranch Slough.

The monitoring shall be performed during one storm event during the dormant spray application season (January – February), one storm event following the dormant spray season, and once during the dry season (May – September). Monitoring shall be coordinated to coincide with attempted other Stormwater NPDES monitoring events. The locations of the above mentioned sites are as follows:

- *Elder Creek Downstream* - Located just upstream from the confluence with Morrison Creek at Mack Road.
- *Morrison Creek Upstream* - Located on Morrison Creek at Sunrise – Douglas Intersection.
- *Natomas East Main Drain Downstream* - Located on Natomas East Main Drain at San Juan Road.
- *Natomas East Main Drain Upstream* – Located on Natomas East Main Drain at Elkhorn Boulevard.
- *Elk Grove Creek Downstream* - Located on Elk Grove Creek at Laguna Springs Drive.
- *Chicken Ranch Slough* - Located on Hallmark Drive near Ethan Way.

### **Sample Collection Scheme**

Samples will be collected under the Urban Tributary Monitoring Program during three wet weather storm events and one dry weather event. A flow proportioned composite sample will be collected during the first wet weather monitoring event. Samples at additional pesticide monitoring sites not included in the urban tributary or AMP programs will be collected as one-time grab samples. Samples collected by other programs will follow their applicable standard operating procedures.

The subsequent sampling events for the urban tributary and pesticide monitoring programs will collect single grab samples at each site. One-time grab samples are collected as close to peak flow as possible. However, due to the difficulty in predicting the time of peak flow, grab sampling during peak flow may be problematic. Therefore, to the greatest extent possible, grab samples will be collected during the first portion of the storm event, at a time when flow rates are increasing and precipitation rates are decreasing. When safety or other issues beyond control of the field crews prohibit effective sample collection as described above, any or all samples may be collected as one-time grabs.

The sample collection program is determined by the requirements of the NPDES MRP. Those monitoring requirements change from event to event as shown in Table 1. The constituents listed in Table 2 will be analyzed for the first wet weather monitoring event. The constituent table includes; sample volume required, sample type, sample containers, and preservatives used for this first event.

**Table 1**  
**Monitoring and Reporting Program (MRP) Sampling**  
**Requirements**

	Wet Weather Event No.			Dry Weather Event No.
	1	2	3	1
MRP Table 1 Constituents, see Table 2 below	X			
Min. List; TSS, Bacti		X	X	X
Field Measurements	X[d]	X[d]	X[d]	X[d]
PCBs [a]		X	X	X
Copper [b]		X	X	X
OP Pesticides		X[d]	X[d]	X[d]
Metals		X[c]	X[c]	X

[a] Based on MRP and 303d listing (July 2003) PCB sampling is required at Natomas East Main Drain sites only.

[b] Based on MRP and 303d listing (July 2003) Copper sampling is required at Arcade Creek site only.

[c] Metals grabs and all field measurements are required as part of the MPP during the 24 hours following storm runoff, between 24 and 48 hours after the runoff event, and between 48 and 72 hours after the runoff event.

[d] These constituents are collected at the "additional pesticide sampling" locations.



**Table 2**  
**Analyses, Volumes, Analytical Methods, Type, and Preservation by**  
**Sample Bottle for MRP Table 1**

ID	Bottle	Lab	Analysis	Optimum Volume	Method	Sample Type	Preservation
A	1 x 1.0 L Amber Glass	APPL	OC-Pesticides/PCBs	1.00 L	EPA 8081/608	Composite	4°C
B	2 x 1.0 L Amber Glass	APPL	Carbamate Pesticides	2.00 L	EPA 8321	Composite	4°C
C	2 x 1.0 L Amber Glass	APPL	Chlorinated Herbicides	2.00 L	EPA 8151	Composite	4°C
D	1L PE	Caltest	Nitrate + Nitrite	1.00 L	EPA 353.2	Composite	4°C, H <sub>2</sub> SO <sub>4</sub> to pH <2
			Total Kjeldahl Nitrogen [1]	0.10 L	EPA 351.3		
E	250 mL PE	Caltest	Total Hardness [1]	0.10 L	EPA 130.2 SM 2340C	Composite	4°C, HNO <sub>3</sub>
F	1 x 250 mL Amber Glass	Caltest	Glyphosate	0.25 L	EPA 547	Composite	4°C, Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub>
G	3 x 40 mL VOA	Caltest	TOC	0.12 L	EPA 415.1	Composite	4°C, HCl to pH <2
H	1 x 125 mL Amber Glass	Caltest	DOC	0.12 L	EPA 415.1	Composite	4°C, filter and preserve ASAP
I	1.0 L PE	SRCSD	BOD <sub>5</sub>	0.25 L	EPA 405.1	Composite	4°C
			TDS/TSS	0.25 L	EPA 160.1/160.2		
			Turbidity	0.10 L	EPA 180.1		
			Chloride	0.10 L	EPA 300		
			Phosphorus, total	0.10 L	EPA 365.2		
			MBAS	0.25 L	EPA 425.1		
J	500 mL PE	FGS	Low Level Metals, dissolved & total recoverable (As[2], Cd, Cr, Cu, Fe[3], Ni, Pb & Zn)	0.50 L	EPA 1638 ICP/MS	Composite	4°C, preserve ASAP; filter dissolved ASAP
K	3 X 1.0 L Amber Glass	CRG	Semi- & Non- Volatile Organics and PAHs (base neutral and acid extractables)	3.00 L	EPA 625	Composite	4°C
			OP-Pesticides				
			Triazines				
L	3 x 40 mL VOA	Caltest	Total Petroleum Hydrocarbons (Gasoline)	0.12 L	EPA 8015M	Grab	4°C, HCl
M	2 x 1.0 L Amber Glass	Caltest	Total Petroleum Hydrocarbons (Diesel)	2.00 L	EPA 8015M	Grab	4°C
N	100 mL Sterile Plastic	SRCSD	Total coliform, fecal coliform, and <i>Escherichia coli</i>	0.10 L	SM 9221 B&E	Grab	4°C
O	250 mL Teflon or glass	FGS	Mercury, Methyl	0.25 L	CVAFS	Grab	4°C, darkness
P	250 mL Teflon or glass	FGS	Mercury, dissolved & total	0.25 L	CVAFS	Grab	4°C

Notes: [1] SRCSD lab or Caltest to perform these analyses based on available sample volume and logistics

[2] As by HG-AFS

[3] Fe by Colorimetric

Shaded portion of the table indicates one-time grab samples

### **Urban Tributary Monitoring Program for First Wet Weather Event**

Monitoring at each site will be coordinated by CDM. Two shifts of two-person teams will be provided by each of the three consultants and assigned one of the three urban tributary monitoring sites. Manual grab samples will be collected at timed intervals throughout the duration of the storm event hydrograph up to 24 hours. Multiple time paced grab sample aliquots, collected at mid-depth and mid-stream, will be combined to form an approximate flow-proportioned composite sample representative of the sampling period. Stage or flow measurements shall make use of available flow monitoring structures or equipment to the extent feasible. Stage or flow rates shall be recorded along with the timing of each sample aliquot. For constituents that cannot be composited (i.e., those which must be collected as grabs), grab samples shall be collected as near to the peak of the hydrograph as is feasible. Historical flow data and rainfall-runoff relationships are not yet well understood at these sites, which will complicate flow compositing. If flow compositing is not possible because of sample volume limitations or flow measurement difficulties, a time compositing scheme will be used as allowed by the Permit.

### **Sample Collection Scheme For Remaining Urban Tributary And Pesticide Monitoring Events**

Urban tributary and pesticide monitoring events other than the first wet weather event, will collect samples as one-time grabs according to the schedule in Table 1 and the bottle type and sample preservation requirements in Table 3. Grab samples shall be collected on-site directly into prepared sample bottles (i.e. labeled and with preservation, if necessary). Samples shall be collected at mid-depth, mid-stream locations (where feasible), and timed to be as near the peak of the hydrograph as possible during wet weather events.

### **Urban Tributary and Pesticide Dry Weather Monitoring Events**

The dry weather monitoring event for urban tributaries and pesticides shall be coordinated to coincide with other attempted dry weather monitoring events, and monitoring protocols shall be collected as single grab samples. If a given tributary is dry or has only standing water during a scheduled sampling event, then sampling is not required. However, the monitoring program will attempt to sample tributaries at times when water flow is more likely such as the early part of the dry season.

**Table 3  
Analyses, Volumes, Analytical Methods, Type, and Preservation by  
Sample Bottle for Additional Sampling**

ID	Bottle	Lab	Analysis	Optimum Volume	Method	Sample Type	Preservation
Q	1 L Amber	Caltest	Total Phenols	0.20 L	EPA 420.2	Composite	H2SO4 + 4 °C
I	500 mL PE	SRCS	Dissolved Phosphorus	0.50 L	EPA 365.2	Composite	4°C, H2SO4 to pH <2
J	500 mL PE	FGS	Aluminum Antimony Beryllium Selenium Silver Thallium	0.50 L	EPA 1638 ICP/MS	Composite	4°C, preserve ASAP; filter dissolved ASAP
R	500 mL PE	Caltest	Hex. Chromium Fluoride	0.50 L 0.10 L	EPA 1638 ICP/MS EPA 300.0	Composite	4°C
S	500 mL PE	Caltest	Cyanide	0.50 L	EPA 335.2	Grab	NaOH + 4 °C
T	3 x 40 mL VOA	Caltest	Methyl Tertiary Butyl Ether (MTBE)	0.12 L	EPA 8260	Grab	HCl + 4 °C

Notes: Shaded portion of the table indicates one-time grab samples



## **MONITORING STATION MAINTENANCE AND PREPARATION**

Prior to the first targeted storm and immediately after each of the subsequent sampling events, monitoring station maintenance and preparation will be performed as follows.

### **Pre-Season Site Assessment**

Before the beginning of the wet-season, site visits are necessary to prepare for wet weather monitoring. The specific purpose of these visits is to prepare the general area of the site to assure safe access.

Each monitoring site should be inspected for debris, and cutting back or removing weed growth from the area should provide clear site access. Safety and security should be generally assessed. Any concerns should be promptly corrected or relayed to the appropriate agency maintenance department.

### ***Tubing Installation***

At the beginning of the storm sampling season, protocol-cleaned suction tubing and Teflon-coated strainer, for use with a peristaltic pump, will be installed using clean techniques at the Morrison Creek site due to difficult access during storm events. The installation at Morrison Creek will allow for removal of most of the Teflon tubing between sampling events.

### ***Stream Gauge Installation***

The stream gauge at Willow Creek will be inspected and replaced, if stage markings are not visible or the gauge is damaged. The gauge should be permanently mounted on bridge pillar within sight of the monitoring site. Arcade Creek and Morrison Creek sites have existing stream gauges and real time flow data available on the Internet. The Morrison Creek at Mack Road gage may be disabled and the alternate internet-available gage at Morrison Creek at Florin Road should be used.

### **Field Equipment Preparation**

Prior to the wet-season, the field crew should inventory field equipment (see Table 4 and Table 5 for storm kit and equipment checklists) and replace items as necessary.

### **Update Communication Plan**

The communication plan (Figure 4) should be reviewed and updated as necessary.

### **Sampling Teams**

For the first event, two shifts of two person sampling teams will be provided from each of the three participating consultants: CDM, LWA, and Pacific EcoRisk. Each team will be assigned one creek (Willow Creek, Morrison Creek, and Arcade Creek, respectively) to monitor during the course of the event. Creek assignments will be made prior to being placed on "Stand-By". For subsequent wet weather events and the dry weather event, one team will visit each of the three sites and take grabs near the peak of the hydrograph.

**Table 4**  
**Storm Kit Equipment List**

---

Keys to gates
Flashlights (2)
Alkaline D-cell batteries (9)
Spare sample labels
Pencils (2) and waterproof markers (2)
Diagonal clippers
Electrical tape
Cable ties (assorted sizes)
Utility knife
Ziplock baggies (assorted sizes)
Powder-free nitrile gloves
Rubber bands, heavy duty
Camera
Duct tape

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**Table 5**  
**Storm Mobilization Equipment List**

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Storm Kit
Sampling and Analysis Plan
Log books / Field data forms
Paper towels
D.I. water squirt bottles
Chain-of-custody forms
Coolers and ice for all 40 aliquot bottles (first event)
Water for field blanks
Cellular phone
Personal rain gear
Any necessary safety gear
Grab sample bottles
Heavy anchor or weight, rope and zip-ties
Grab Sample pole
Teflon or PE bailer and string for bailer
Portable field meters for DO, Conductivity, Temp, and pH
Portable peristaltic pump & batteries
Pump (flexible) tubing (40 in.)
Suction (Teflon) tubing (15-20 feet, 100 feet for Morrison Creek site)
Teflon coated strainer (already installed at Morrison Creek site)
Personal Flotation Device (PFD)
Umbrella

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## **Storm Tracking, Communication, and Mobilization**

### **Decision to Sample Creeks**

The decision to sample a storm event will be made by the Permittees in consultation with the CDM monitoring manager and the LWA task manager. Generally, the decision will be based on the current forecast, and coordination with the other active studies (e.g., CMP, Pesticide Persistence, Additional Pesticide, and others as requested by the Permittees).

- The Urban Tributary Monitoring Program will target the first storm event of the season with a forecasted amount greater than 0.25" and two additional storm events during the remaining portion of the storm season. The final two wet weather monitoring events will be timed to capture the dormant spray period (January-February following a dry period) and early spring (February-March). If these targeted events are not captured, alternate events will be selected based on forecast reliability and coordination with other monitoring efforts.

The communication plan (Figure 4) is a schematic of the decision making process. If a key Permittee contact is not available, the decision-making will be performed by the next available Permittee staff member on the communication plan contact list or according to a pre-approved event-specific plan.

### **Storm Action Levels**

Five action levels are defined for purposes of preparation and mobilization. Two action levels are defined for monitoring shutdown and activity reporting. These action levels and the corresponding conditions and action items are listed in Table 6.

### **Communication Plan**

When the field crews are notified regarding changes in action levels (including notifications to begin sampling) the communication plan (Figure 4) will be utilized. It is the responsibility of each person shown on the communication plan to contact the people indicated via arrows emanating from their contact information box, and to report to the monitoring manager if they are unable to establish contact.

### **Staging Area and Monitoring Management**

The staging area is located at the Sacramento County Regional Sanitation District treatment plant (SRCSD) lab.

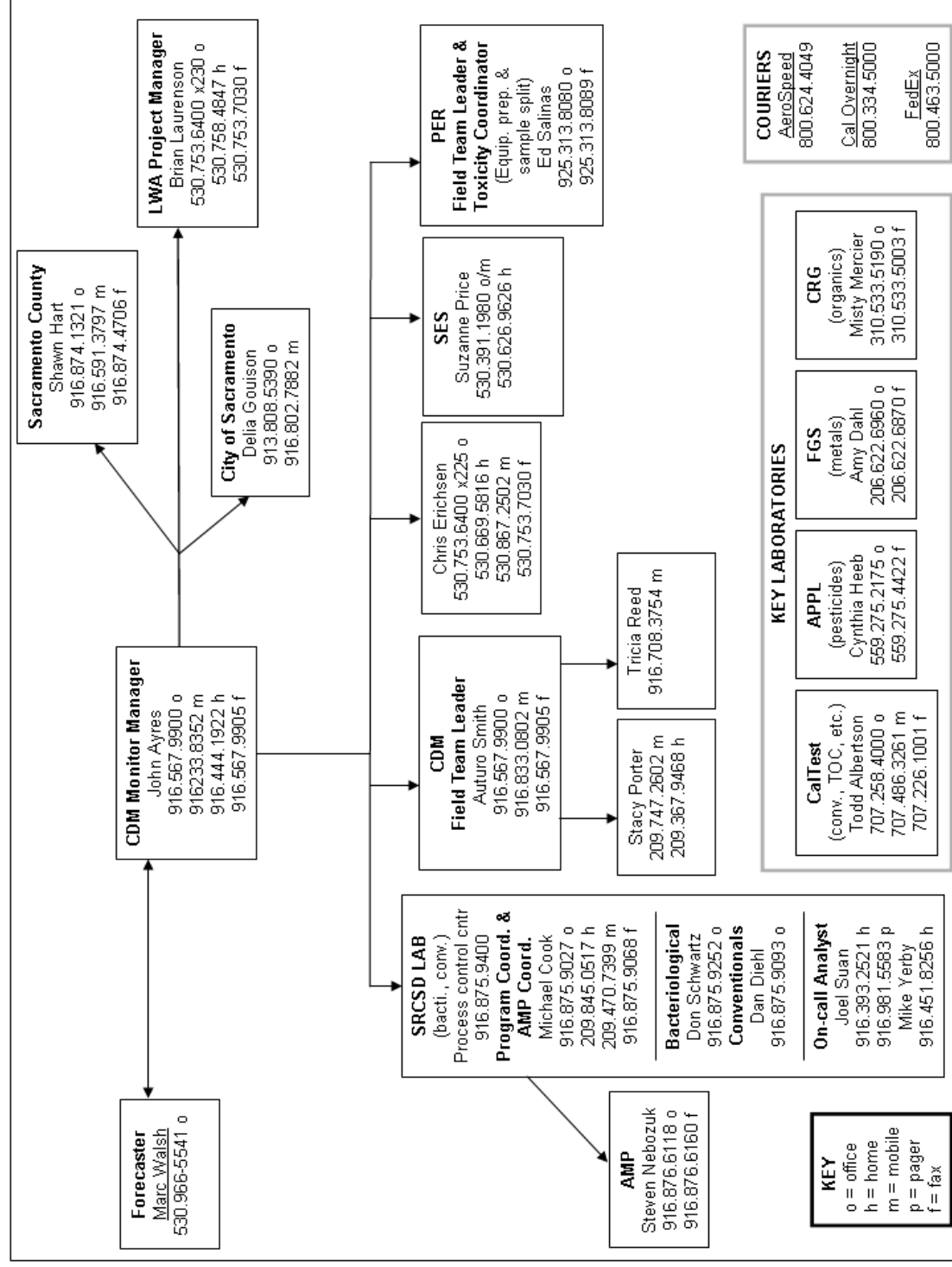
To get to the treatment plant from I-5, use the following directions:

- I-5 to Laguna Blvd Exit
- Laguna Blvd east to Franklin Blvd.
- Franklin Blvd. to SRCSD entrance (Simms Road)
- At STOP sign turn right
- See detailed directions for on-site access to staging area in the Site Specific Operating Procedures\*



Monitoring management activities will be located in Sacramento or Yolo County. Contact information is listed in the communication plan (Figure 4).

Figure 4. Communication Plan



**Table 6 - Storm Action Levels**

<b>Action Level</b>	<b>Condition</b>	<b>Action</b>
<b>Chill</b>	No targeted storm expected within the foreseeable future.	<i>Monitoring Manager</i> <ul style="list-style-type: none"> <li>• monitor twice-weekly weather reports</li> </ul> <i>Field crew:</i> <ul style="list-style-type: none"> <li>• no impact on activities.</li> </ul>
<b>Standby</b>	Evaluating storm system	<i>Monitoring Manager:</i> <ul style="list-style-type: none"> <li>• monitor weather reports every 24 hours.</li> <li>• alert field crew regarding change in action level.</li> </ul> <i>Field crew:</i> <ul style="list-style-type: none"> <li>• notify <i>Monitoring Manager</i> where you will be and how you can be reached if you leave the area for more than one or two days.</li> <li>• arrange for substitute if needed.</li> </ul>
<b>Pre-Alert</b>	Target storm expected within the next 72 hours	<i>Monitoring Manager</i> <ul style="list-style-type: none"> <li>• contact County of Sacramento, City of Sacramento &amp; LWA.</li> <li>• monitor weather reports every 6 hours.</li> <li>• alert field crew/laboratories regarding change in action level via communication plan and verify availability/readiness.</li> </ul> <i>Field crew:</i> <ul style="list-style-type: none"> <li>• remain in Sacramento area if possible.</li> <li>• verify availability with <i>Monitoring Manager</i>.</li> <li>• prepare for sampling effort.</li> </ul>
<b>Alert</b>	Target storm expected within the next 24 hours	<i>Monitoring Manager</i> <ul style="list-style-type: none"> <li>• confer with County of Sacramento, City of Sacramento &amp; LWA.</li> <li>• monitor weather reports as needed.</li> <li>• alert field crew regarding change in action level and probable time of storm via communication plan.</li> <li>• alert laboratory regarding potential incoming samples with critical holding times.</li> <li>• reset station sample pacing, set stations to "storm" mode</li> </ul> <i>Field crew:</i> <ul style="list-style-type: none"> <li>• perform on-site station preparation.</li> </ul>
<b>Go</b>	Precipitation imminent or has begun on targeted storm.	<i>Monitoring Manager</i> <ul style="list-style-type: none"> <li>• monitor weather reports as needed.</li> <li>• mobilize field crew for composite bottle changes and grab sampling.</li> <li>• mobilize standby bacti. lab analyst</li> </ul> <i>Field crew:</i> <ul style="list-style-type: none"> <li>• mobilize to sample collection stations for grab sampling, composite bottle changes, or sampling performance checks.</li> <li>• deliver bacteriological samples to laboratory</li> </ul>
<b>Cool Down</b>	Precipitation ceased or sampling requirements completed	<i>Monitoring Manager</i> <ul style="list-style-type: none"> <li>• mobilize Pacific EcoRisk for sample splitting</li> <li>• demobilize field crew.</li> </ul> <i>Pacific EcoRisk</i> <ul style="list-style-type: none"> <li>• mobilize to staging area, split composite sample into individual sample bottles, and ship samples to laboratories.</li> <li>• prepare for next storm (inventory/order/organize equipment).</li> <li>• notify laboratories that samples with critical holding times are ready for pick-up or delivery.</li> </ul> <i>Field Crew:</i> <ul style="list-style-type: none"> <li>• deliver full sample bottles and grab samples to staging area.</li> <li>• complete notes re: problems and solutions.</li> </ul> <i>Laboratories</i> <ul style="list-style-type: none"> <li>• analyze samples</li> </ul>
<b>Post-Alert e-mail</b>	Following storms that reach "Alert" status when either monitoring is called off or field crew activities in the "Cool Down" action level are completed	<i>Monitoring Manager</i> <ul style="list-style-type: none"> <li>• prepare a brief e-mail to the City of Sacramento and the County of Sacramento stating whether or not the event was monitored.</li> </ul>

## **FIELD EQUIPMENT AND SITE PREPARATION**

Before and after each of the monitoring events, the field crew will physically prepare all equipment. Clean sample handling techniques outlined below will be followed when installing sample tubing, strainers or any other laboratory cleaned item.

### **Field Equipment**

Prior to and after each event the field crew will inventory field equipment (see Table 4 and Table 5 storm kit and equipment checklists) and replace items as necessary.

A peristaltic pump will be used to collect urban tributary aliquots at specified time intervals and grab samples near peak flow. At the Willow Creek site an anchor will be lowered into the stream channel by a rope attached to the bridge railing. The rope will serve as a guide for the pump tubing and strainer. The strainer will be weighted and attached to a small rope and lowered into the channel for sample collection. The tubing will be outfitted with zip-ties, which will guide the strainer and tubing along the anchor rope to the middle of the water column. The strainer, tubing, rope, and anchor should be lifted out of the creek channel during breaks in sampling to avoid entanglements with debris. This method may also be employed at Arcade Creek, or the field team may choose to attach the strainer and tubing to the end of a sampling pole to submerge the strainer and collect samples from the creek bank near the bridge. At the Morrison Creek site, pump tubing will have been installed and secured prior to arrival for sampling (see Site Preparation section).

Each team is responsible for providing coolers to hold and ice down all the time-paced aliquot samples collected during the first event. Strainers and pump tubing will be provided by LWA.

### **Vehicles**

Each sampling team will provide their own vehicles as needed for field crew use during monitoring events.

### **Communication**

The project manager will mobilize field crews for coverage of the anticipated monitored storm event and confirm crew status with the monitoring manager. Each sampling team will be equipped with a cellular phone or other means of remote communication.

### **Site Preparation**

When the alert level changes to “ALERT” the following activities will be performed by the field crew at each of the sampling stations:

- Check for hazardous conditions and clear debris if necessary.
- The field team assigned to the Morrison Creek site will mobilize to the site and connect the tubing to the strainer and run the tubing perpendicular to the flow up to the top of the levee. The team will stake the tubing to the ground between the strainer and the collection point at the top of the levee.

## FIELD MONITORING

A two to three person field crew will mobilize to each sampling site to collect grab samples. The first monitoring event will collect grab samples at specified time intervals during the entire storm event for a maximum of 24 hours. Subsequent monitoring events will consist of a single visit by a two-person field crew that will take grabs for all constituents near the peak flow.

### Flow Data Collection

Arcade Creek will rely on a stage gauge mounted on the Watt Bridge and real time flow data provided by USGS available at <http://waterdata.usgs.gov/ca/nwis/uv?11447360>. Morrison Creek will rely on a stream gauge associated with the pumping plant at Mack Road and real time stage data provided by the Sacramento Dept of Public Works available at <http://cdec.water.ca.gov/cgi-progs/plotReal?staid=MCM> or the upstream gauge <http://cdec.water.ca.gov/cgi-progs/plotReal?staid=MFR>. Willow Creek will rely on a stage gauge mounted on Blue Ravine Road Bridge. There is no real time data available for this site. Stage data will be recorded each time a sample is collected.

### Sample Collection and Schedule

#### *First Urban Tributary Monitoring Event*

Beginning with the first sample taken one half hour after a one tenth of a foot rise in stage, samples will be collected according to the schedule in Table 7. Samples will be collected using peristaltic pumps and tubing and clean techniques. The tubing will be rinsed with sample water prior to collecting each sample.

With each aliquot, the collection time, number, river stage, bottle type, and comments will be recorded on the standard field data sheet shown in Appendix A. A minimum of five aliquots will be collected during the first event for creation of flow-weighted composites. One 2.5-liter amber glass jug, one double-bagged 0.25-liter polyethylene bottle, and one 1.0 liter polyethylene bottle will be filled for each scheduled aliquot sample as shown in Table 7. The monitoring manager may modify the aliquot collection schedule based on rainfall and runoff conditions. For example, if a smaller storm event is anticipated, the time increment between aliquots will be compressed to allow for more aliquots.

**Table 7**  
**Aliquot Sample Schedule**

Sample Number	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Hours From 0.1 Foot Rise in Stage	0	1	2	3	4	5	6	7	8	10	12	16	20	24

Each aliquot bottle will be labeled with the following information:

- Aliquot Number
- Sample Date/Time
- Site Name
- Monitoring Program Component (i.e. Sacramento Urban Tributary or Sacramento Pesticide)
- Event Number

A second field crew should be made available by each consultant to relieve the first crew if a shift exceeds 12 hours. The monitoring manager will determine the sampling start and end times based on stage readings and rainfall forecasts. The monitoring manager will also determine the time to perform grab sampling and dispatch a courier to pick up the bacteriological samples and deliver them promptly (<6 hours from sample time) to the laboratory.

One time grab samples (listed in the gray section of Table 2) shall be collected as follows:

- TPH (gasoline) VOAs shall be filled using the TPH (Diesel) 1.0L amber glass bottle taking care not to over fill the VOA and lose the HCL preservative
- TPH (diesel and motor oil) shall be filled directly using a grab sampling pole
- Total and Fecal Coliform samples shall be grabbed directly or by using a bailer
- Mercury- methyl, total, and dissolved, shall be grabbed directly using a sampling pole
- Cyanide shall be filled directly using a grab sampling pole
- MTBE shall be filled using the TPH (Diesel) 1.0L amber glass bottle taking care not to over fill the VOA and lose the HCL preservative

#### *Subsequent Urban Tributary and Pesticide Monitoring Events*

Grab samples for the subsequent urban tributary and pesticide monitoring events will be collected as one time grabs as described in the Sample Collection Scheme section. Each bottle will be labeled as outlined in the Sample Splitting and Shipment section.

#### **Clean Sample Handling**

“Clean sampling” techniques are required to collect and handle water samples, pump tubing and strainers in a way that results in neither contamination, loss, or change in the chemical form of the analytes of interest. Samples are collected using protocols based on EPA Method 1669, as summarized below:

1. Samples are collected only into pre-cleaned sample bottles.
2. At least two persons, wearing clean, powder-free nitrile gloves at all times, are required on a sampling crew.
3. One person (“dirty hands”) touches and opens only the outer bag of all double bagged items (such as sample bottles, tubing, strainers and lids), avoiding touching the inside of the bag.
4. The other person (“clean hands”) reaches into the outer bag, opens the inner bag, and removes the clean item (sample bottle, tubing, lid, strainer, etc.).
5. After a grab sample is collected, or when a clean item must be re-bagged, it is done in the opposite order from which it was removed.
6. Clean, powder-free nitrile gloves are changed whenever something not known to be clean has been touched.



7. For this program, clean techniques must be employed whenever handling the suction tubing strainers, the double bagged aliquot bottles, or mercury and bacteriological grab sample bottles. During sample splitting, the metals bottles are also handled using clean techniques.
8. In order to reduce potential contamination, sample collection personnel will adhere to the following rules while collecting stormwater samples:
  - a. No smoking.
  - b. Never sample near a running vehicle. Do not park vehicles in immediate sample collection area (even non-running vehicles).
  - c. Avoid allowing rainwater to drip from rain gear into sample bottles.
  - d. Do not eat or drink during sample collection.
  - e. Do not breath, sneeze or cough in the direction of an open sample bottle.

### **Prior to Leaving the Site**

1. Add ice to all collected sample coolers/carrying buckets.
2. Physical inspection of monitoring equipment (tubing, stream gauges, etc.).
3. Rinse and purge sample collection tubing/strainer and store in a clean double-bagged plastic garbage bag.
4. Fill out log sheet.
5. Secure the site.
6. Contact monitoring manager to report site status.

### **QUALITY CONTROL SAMPLES**

Quality control samples will be collected during each monitoring event according to the schedule presented in Table 8. Rinstate blanks, lab duplicate, and matrix spike/matrix spike duplicate analyses for the Urban Tributary and Pesticide Monitoring Programs will rely on the QA/QC activities described below. Quality control sample results will be used for data evaluation and interpretation. Note that wet and dry weather monitoring events are combined in Table 8.

**Table 8  
QC Schedule**

<b>Site</b>	<b>Pre-Season</b>	<b>Event #1</b>	<b>Event #2</b>	<b>Dry Event1</b>	<b>Event #3</b>	<b>Dry Event 2</b>
Morrison Creek		Duplicate		Field Blank		Field Duplicate
Arcade Creek	Tubing Blank	Field Blank	Lab Duplicate		Field Duplicate	Field Blank

Willow Creek	Tubing Blank		Field Blank	Field Duplicate	Field Blank	
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## **Pre-Storm Bottle and Equipment Blanks**

All bottles, lids, strainers, and tubing will be cleaned according to specified procedures. See Appendix B for field and equipment blank sample collection procedures.

### ***Equipment Blanks***

Prior to the wet season, an equipment blank (blank water run through the cleaned tubing installed at Morrison Creek) will be collected according to the QA/QC schedule in Table 8 and will be analyzed for total recoverable metals and Semi- and Non-Volatile Organics (EPA 625).

### ***Rinsate Blanks***

Prior to the first monitoring event CRG Marine Labs will collect a composite bottle rinsate blank and will analyze the rinsate Semi- and Non-Volatile Organics (EPA 8270/625). Frontier Geosciences will analyze the rinsate for total recoverable metals. Prior to the first monitoring event, Frontier Geosciences will collect a metals storage bottle blank, according to protocols in Appendix B, and will analyze it for total recoverable metals. This pre-season blanking will be coordinated with the Urban Runoff Program to the extent possible.

## **Monitoring Event Quality Control Samples**

The following quality control samples will be analyzed during each monitoring event:

- Composite Field Blank (total recoverable metals and pesticides)
- Grab Field Blank (bacteriological and mercury analyses)

## **QC Sample Collection Schedule**

Field-generated quality control samples (field duplicates and field blanks) will be submitted “blind” to the laboratory, except those samples that are analyzed by Frontier Geosciences. Composite and grab quality control samples will be collected according to the schedule shown in Table 8.

## **Collection Methods**

Specific collection methods for each quality control sample type are described below.

### ***Field Blank***

Grab sample field blanks will be collected immediately prior to the collection of normal grab sample. The field crew will use the blank water provided and will fill each grab sample container according to standard procedures.

Composite sample field blanks will be collected at the end of the sampling period. Blank water will be poured directly into the composite aliquot container.

Field blanks will be submitted “blind” to the laboratory using the “Noden Creek” site name pseudonym. The date and time of sampling should be noted on the log sheet.

### ***Field and Laboratory Duplicate***

Field duplicates will be collected as specified in Table 8.

Grab sample field duplicates will be collected immediately following and in the same manner as the

environmental grab samples.

Composite sample field duplicates will be produced during the compositing process. Double the normal composite sample volume (24 liters) is required for these samples. Field duplicates and environmental sample containers will be filled in random order.

Field duplicates will be submitted “blind” to the laboratory using the “Sandy Creek” site name pseudonym. The date and time of sampling should be noted on the log sheet.

Laboratory duplicates are samples that are split by the laboratory. Each half of the split sample is then analyzed and reported by the laboratory. A pair of field duplicates is two samples taken at the same time, in the same manner into two unique containers.

## **SAMPLE SPLITTING AND SHIPMENT**

Following collection of each sample, the sample container must be labeled, the chain-of-custody form must be filled out, and the sample must be shipped to the appropriate laboratory. These actions are described below.

### **Labels/Station Codes**

Urban Tributary sampling sites used in the 2005/06 sampling program shall be designated by the names and site codes listed here.

<b>Site Code</b>	<b>Site Name</b>	<b>Location</b>
MC01	Morrison Creek	@ Brookfield
AC03	Arcade Creek	@ Watt
WC01	Willow Creek	@ Blue Ranch
MC02	Morrison Creek	@ Sunrise
ELKGV01	Elk Grove Creek	@ Laguna
CRS01	Chicken Ranch Slough	@Hurley
NEMD01	Natomas East Main Drain (Down Stream)	@San Juan
NEMD02	Natomas East Main Drain Up Stream)	@ Elkhorn Blvd
EC01	Elder Creek	@ Mack Road

In addition, quality control samples submitted “blind” to the laboratory should be designated by the pseudonyms and site codes listed below.

<b>Site Code</b>	<b>Site Name</b>	<b>QC Sample</b>
------------------	------------------	------------------

NC01	Noden Creek	(field blank)
SC01	Sandy Creek	(field duplicate)

### Sample ID Conventions

Sample bottles submitted to laboratories for analysis shall be labeled with the sampling site name, sampling site code, the date of sample, and a sample ID devised as follows:

Sacto. SW *SITE* Type–Event #XX

Where: *SITE* = Site code (see above), and

*XX* = Event number (i.e., 01, 02, 03, or 04)

*Type* = Sample type (i.e., C = composite, G = grab, P = Pesticide)

For example, Sacto. SW UT2C–Event #01 would be the sample ID used for a composite sample collected from Arcade Creek during the first sampled storm.

### Chain-of-Custody Forms

Chain-of-custody (COC) forms will be filled out for all samples submitted to each laboratory. Sample date, sample site, and analysis requested shall be noted on each COC. See Appendix C for example COC forms. Analytical methods, quantification limits, and holding times for each analyte monitored are presented in Table 9.

### Transport to Lab

Samples will be hand delivered, sent via FedEx, or couriered to the appropriate laboratory as listed in Table 2. Because of the short holding times required by the analytical methods (6 hours), bacteriological grab samples must be delivered to the SRCSD laboratory immediately. BOD should also be delivered to SRCSD to meet the 48 hour hold time. Metals should be delivered by next morning delivery so that those samples can be filtered and preserved within 48 hours. Arrangements to transport and receive bacteriological samples at the SRCSD lab should be made by the monitoring manager in advance of collection of these samples to allow the lab to set up the analyses within the holding time. This is especially important when sample collection is expected outside normal business hours.

### Mercury and Metals

The field crew will package mercury and metals samples with ice and chain of custody for next morning delivery to Frontier Geosciences (Seattle, Washington).

Ship mercury & metals samples to:

Frontier Geosciences  
ATTN: Amy Dahl  
414 Pontius Ave. North  
Seattle, Washington 98109

phone: 206.622.6960  
fax: 206.622.6870

**Table 9. Analytes, Methods, Reporting Limits, and Holding Times**

Constituent	Method	Reporting Limit	Holding Time
<b>Metals: (Total Recoverable and Dissolved [1])</b>		<i>units = µg/l</i>	
Aluminum	ICP-MS	100	6 mos.
Antimony	ICP-MS	0.5	6 mos.
Arsenic	HG-AFS	1	6 mos.
Beryllium	ICP-MS	0.5	6 mos.
Cadmium	ICP-MS	0.25	6 mos.
Chromium	ICP-MS	0.5	6 mos.
Chromium, Hex.	ICP-MS	5	6 mos.
Copper	ICP-MS	0.5	6 mos.
Iron	Colorimetric	100	6 mos.
Lead	ICP-MS	0.5	6 mos.
Mercury, total and diss. [2]	CV-AFS	0.05	6 mos.
Mercury, total methyl	CV-AFS	0.0001	6 mos.
Nickel	ICP-MS	1	6 mos.
Selenium	ICP-MS	1	6 mos.
Silver	ICP-MS	0.25	6 mos.
Thallium	ICP-MS	1	6 mos.
Zinc	ICP-MS	5	6 mos.
<b>Conventional Inorganics</b>		<i>units = mg/l</i>	
BOD	EPA 405.1	1	48 hours
Cyanide	EPA 335.2	0.005	14 Days
Fluoride	EPA 300.0	0.1	28 days
Turbidity	EPA 180.1	1 NTU	48 hours
MBAS	EPA 425.1	0.05	48 hours
Hardness	EPA 130.2 Titration	1	6 mos.
Chloride	EPA 300	2	28 days
Nitrate + Nitrite	EPA 353.2	0.1	28 days
Phosphorus, Dissolved	EPA 365.2	0.05	28 days
Phosphorus, total	EPA 365.3	0.02	28 days
Solids, Total Dissolved	EPA 160.1	10	7 days
Solids, Total Suspended	EPA 160.2	3	7 days
Total Phenols	EPA 420.2	0.1	28 days
<b>Microbiological</b>		<i>units = MPN/100ml</i>	
Total Coliform, Fecal Coliform, & Escherichia coli	SM9221	2 lower limit to 2E6 upper limit	6 hours
<b>Organics</b>		<i>units = µg/l</i>	
Carbamates	EPA 8321	0.07 to 3.5	7/40 days
Orthophosphate Pesticides	EPA 8141	0.05 to 0.5	7/40 days
Organochlorine Pesticides	EPA 8081 or EPA 608	0.05 to 1	7/40 days
Chlorinated Herbicides	EPA 8151	0.1 to 0.5	7/40 days
Methyl Tertiary Butyl Ether (MTBE)	EPA 8260		7/40 days
Semi- & Non- volatiles (includes PAHs)	EPA 625	0.01 to 0.2 PAHS - 0.005	7/40 days
TPH (gasoline/BTEX/MTBE)	EPA 8015M	50	14 days
TPH (diesel/motor oil)	EPA 8015M	50/200	14 days
Glyphosate	EPA 547	5	14 days
Triazines	EPA 625	0.5	7/40 days
TOC	EPA 415.1	1	28 days
DOC [2]	EPA 415.1	1	28 days

[1] Dissolved constituents should be filtered ASAP.

Note: Holding times for methods 619, 625, 8321, 8081, 8141 and 8151 are 7 days for extraction, 40 days after extraction for the analysis.



### ***Metals, Semi- and Non-Volatiles***

Samples for metals, semi- and non-volatile organics (EPA 625) are transported to CRG Marine Lab (Torrance, California) via “Sunrise” California Overnight Courier Service (see Figure 4 for contact information). The field crew, with assistance from the monitoring manager, will prepare samples for delivery and be responsible for shipment.

Ship EPA 625 samples to: CRG Marine Labs.  
ATTN: Misty Mercier  
2020 Del Amo #200  
Torrance, CA 90501

phone: 310.533.5190  
fax: 310.533.5003

### ***Pesticides***

Samples for organophosphate pesticide analysis (EPA 8141 + Simazine scan), carbamate pesticide analysis (EPA 8321) and organochlorine pesticide analysis (EPA 8081) are shipped to APPL, Inc. (Fresno, California) by “Sunrise” California Overnight Courier Service. The sampling crew, with assistance from the monitoring manager, is responsible for ensuring that the samples are delivered. The holding time for this analysis is 7 days.

Ship pesticide samples to: APPL, Inc.  
ATTN: Cynthia Heeb  
4203 West Swift  
Fresno, CA 93722

phone: 559.275.2175  
fax: 559.275.4422

### ***Conventional & Bacteriological***

Samples for TDS, TSS, BOD<sub>5</sub>, Turbidity, Chloride, Total Phosphorus, MBAS, Escherichia coli, and fecal and total coliform will be analyzed by the SRCSD lab, and should be delivered to the sample submission window at the treatment plant lab with proper chain of custody documentation. The lab can provide sample containers for these analyses, if necessary. The business hours contact at the SRCSD is Michael Cook (916.875.9027).

### ***Nutrients, Hardness, Ammonia, and Organic Carbon***

Samples for total phosphorus, TKN, total hardness, ammonia, TOC, and DOC are transported to Caltest (Napa, California). Check Table 2 for appropriate preservation and bottle types. Caltest provides courier service for these constituents and should be contacted to schedule a pick-up.

Alternatively, the samples can be sent via California Overnight to:

CalTest Analytical Laboratory  
ATTN: Todd Albertson  
1885 N. Kelly Road  
Napa, CA 94558

phone: 707.258.4000  
fax: 707.226.1001

**APPENDIX A**  
**FIELD DATA FORMS**

## Sacramento Urban Tributary Stormwater Monitoring Program

Date: \_\_\_\_\_

Sampling Team: \_\_\_\_\_

Location: \_\_\_\_\_

Crew: \_\_\_\_\_

Aliquot #	Hours from Start Time	Time	Stage	Arrival Time:		
1	0.5			Stage Upon Arrival:	<b>+ 0.1"</b>	Rise in Stage Start Time
2	1					
3	1.5			Sum of Above Time Target Stage Reached:		<b>=Target St</b>
4	2					<b>= Start Tim</b>
5	2.5					
6	3					
7	4					
8	5					
9	6					
10	7					
				Collect grab samples in container specified below. Do not pump sample using polyethylene bailer if necessary. Collect Double volume if duplicates are required. All samples are poured directly (or via clean bailer if used for other samples).		
				Grab sample will be collected as near to the peak of the flow as is feasible.		
11	8			Grab Sample	Container & Volume	Time
12	10			TPH Gasoline	3 x 40ml VOA	
13	12			TPH Diesel	2 x 1.0 L Amber glass	
14	15			Bacti	2 x 100 ml sterile plastic	
15	18			Mercury, Methyl	250 ml Teflon or glass	
16	21			Mercury, dissolved & Total	251 ml Teflon or glass	
17	24			Toxicity	4 x 5 Gallon Jerrycan	

**APPENDIX B**

**CLEANING AND BLANK SAMPLING SOPS**

**Bottle and Equipment Cleaning Procedure**

**Blank Preparation and Collection Procedures**

## COMPOSITE BOTTLE REPLACEMENT

Note: The monitoring manager should always be contacted before beginning a bottle change. Exercise caution!

- Use two people whenever possible.
- Person #1 is “clean hands” and must wear clean latex gloves and must avoid all contaminated surfaces!
- Keep extra gloves within easy reach.

Composite bottle replacement at KLASS sites is carried out as follows:

1. Check status of sampler. (\*6AD)
2. If the bottle is full, flag 5 should be high.
3. If the bottle is not full (as at the end of a storm), flag 5 will not be high and the Sigma will read “Program Running.” (Toggle flag 5 high and press “Change/Halt” on the Sigma to avoid accidental sampling.)
4. **Person #2** opens the refrigerator door.
5. **Person #1** carefully removes the pump tubing from the bottle and places the end of the tubing into a clean zip-lock baggy.
6. **Person #1** removes the hole-containing Teflon lid from the bottle and places it onto the clean replacement bottle and clamps it down.
7. **Person #1** places a hole-less Teflon lid onto the filled bottle and secures it with the clamp.
8. **Person #2** removes the full sample bottle from the refrigerator.
9. **Person #2** places the clean replacement bottle into the refrigerator.
10. **Person #1** carefully reinserts the pump tubing through the lid approximately three inches down into the bottle.
11. Close the refrigerator door.
12. Set flag 5 low. (On the keypad, press in order \*6AD, then press 5.)
13. Restart the Sigma sampler by pressing “Resume Program”. The Sigma should now read “Program Running.”
14. Fill out the appropriate information on the label of the full sample composite bottle.
15. Record the bottle numbers for both bottles onto the log sheet.
16. Ice the full sample bottle. Secure the bottle inside the vehicle.



**APPENDIX C**  
**CHAIN OF CUSTODY FORMS**



APPL, Inc.  
4203 W. Swift  
Fresno, CA 93722

Phone: (559) 275 2175  
Fax: (559) 275-4422

C.O.C. No 9259

CHAIN OF CUSTODY RECORD

PLEASE PRINT				PLEASE PRINT			
Report to:		Company Name <u>LWA</u>		Invoice to:		Company Name <u>LWA</u>	
Address <u>707 4th St. #200</u>		Phone: <u>530-753-6400</u>		Address <u>707 4th St. #200</u>		Phone: <u>530-753-6400</u>	
City <u>DAVIS, CA 95616</u>		Fax: _____		City <u>DAVIS, CA 95616</u>		Fax: _____	
Attn: <u>BRIAN LAURENSEN</u>		Attn: <u>BRIAN LAURENSEN</u>		Attn: <u>BRIAN LAURENSEN</u>		Attn: <u>BRIAN LAURENSEN</u>	
Project Name/Number <u>SACTO CEBANTRIB</u>		Sampler (Print) <u>Patricia Reed</u>		Analysis Requested/Method Number		Date Shipped: <u>Carrier: Cal Overnight</u>	
Purchase Order Number		Sampler (Signature) <u>Patricia Reed</u>				Waybill No. _____	
Sample Identification		Location		Date Collected		Time Collected	
MCO1-DRY01		MORRISON		FW 1		X	
AC03-DRY01		Arcade		FW 1		X	
NG01-DRY01		NADEN		FW 1		X	
WCO1-DRY01		WILLOW		FW 1		X	
SCO1-DRY01		SAMPY		FW 1		X	
ECO1-DRY01		EIDER		FW 1		X	
CR01-DRY01		Lichten Ranch		FW 1		X	
MCO2-DRY01		UPPER MORRISON		FW 1		X	
NEMD01-DRY01		NADEN		FW 1		X	
NEMD02-DRY01		NADEN		FW 1		X	
ELK01-DRY01		ELK GROVE		FW 1		X	
Shuttle temperature:		Tubalund requested: MUST CHECK ONE					
<input checked="" type="checkbox"/> Standard (2-3 weeks)		<input type="checkbox"/> One week		<input type="checkbox"/> 24-48 hour			
Relinquished by sampler:		Date <u>7/8/94</u> Time <u>1830</u>		Relinquished by:		Date _____ Time _____	
Relinquished by:		Date _____ Time _____		Relinquished by:		Date _____ Time _____	
White: Return to client with report		Yellow: Laboratory Copy		Pink: Sampler			

# WATER QUALITY CONTROL LABORATORY

Евгений Александрович Р. Я. и Ирина Ивановна А. С. и их дети

DANIEL

8521 LAGUNA STATION RD., ELK GROVE, CA 95758  
(916) 875-9000 • FAX (916) 875-9068

☐ Hazardous Waste  
☐ Unknown Material

Customer Address: 1017 N. 4th St.  
Darien, CA 95616

Customer Phone:	530-753-6400	Mail Code:	
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Program Name: SACFO CRIMAN TRIB

Sampled By:	J. J. E. / S. M. T. et
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Customer Name:	BRIAN LAWRENSON (LWA)										Analysis Requested										<input checked="" type="checkbox"/> Normal (21 days)								
Customer Address:	707 4TH ST. #200 DAVIS, CA 95616																												
Customer Phone:	530-758-6400 Mail Code:																				<input type="checkbox"/> Rush _____ days								
Program Name:	SACRED URBAN TRIB																				<input type="checkbox"/> Other: _____								
Sampled By:	A. KES / S. MITT																				<input type="checkbox"/> QC Requirements								
LIMS #	Sample	Comp	Grab	Sample Location	# Containers	Matrix *	Field pH	Temp., °C	EPA 160.2	TSS	SM 9221 B+E	TOTAL Eco											<input type="checkbox"/> Lab Standard						
	Date	Time																					<input type="checkbox"/> Special, see attached						
	2-7	11:30	<input checked="" type="checkbox"/>	MORRISON OI	2	-			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Remarks/Additional Sample Information
	2-7	07:45	<input checked="" type="checkbox"/>	ARCHADE 03	2	-			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	2-7	07:45	<input checked="" type="checkbox"/>	NODEN OI	2	-			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	2-7	10:30	<input checked="" type="checkbox"/>	WILLIAM OI	2	-			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	2-7	10:30	<input checked="" type="checkbox"/>	SANDY OI	2	-			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		

\***Matrix:** P = Pliable Water, W = Wastewater, A = Ambient Water, G = Groundwater, B = Biosolid, S = Soil, O = Other (specify):

**Transport/Shipping Info.:**

Relinquished by	Date
-----------------	------

Received by

Date

Time

☐ US/PS    ☐ UPS    ☐ FedEx

Reinquished by	Date	Time
<i>[Signature]</i>	2-7	11:35
		11:37

Received by	Date	Time
Jim Schultz	3-7-06	137

☐ US/PS ☐ UPS ☐ FedEx  
☒ Other Drop Off

This Section for Lab Receipt Condition: Container intact Y ☒ N ☐; Correct container Y ☒ N ☐; Field Preserved: Y ☐ N ☒; Cooled: Y ☒ N ☐  
Custody tape intact: Y ☐ N ☐ No Tape ☒ Comments: \_\_\_\_\_

Sample Storage:	Ambient		Ice Chest		Bottle #:		Disposal Date:		Disposed By:	(Units)
Only	<input type="checkbox"/>		<input checked="" type="checkbox"/>		76					

DISTRIBUTION: Original, to Lab File. Copies, to: Supervisor(s); Requestor, Project/Program Coord. Dist. Date: 3-3-06 By: *WV* (Inits.)



## Chain-of-Custody Record & Laboratory Analysis Request

Date: 2/7/00 Page: 1 of 1

Low level  
1 CP-MKs

2832-47939 mobiliment.  
Storm