

**RECEIVED**

**AUG 04 2016**

**Attachment E – Notice of Intent**

**WATER QUALITY ORDER NO. 2013-0002-DWQ  
 GENERAL PERMIT NO. CAG990005**

DIVISION OF WATER QUALITY

**STATEWIDE GENERAL NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM  
 (NPDES) PERMIT FOR RESIDUAL AQUATIC PESTICIDE DISCHARGES TO WATERS OF  
 THE UNITED STATES FROM ALGAE AND AQUATIC WEED CONTROL APPLICATIONS**

**I. NOTICE OF INTENT STATUS (see Instructions)**

Mark only one item	A. New Applicator	B. Change of Information: WDID# <u>5A34NP00022</u>
	C. <input type="checkbox"/> Change of ownership or responsibility: WDID#	

**II. DISCHARGER INFORMATION**

A. Name Sacramento County, Department of Water Resources			
B. Mailing Address 827 7th Street, Room 301			
C. City Sacramento	D. County Sacramento	E. State CA	F. Zip 95814
G. Contact Person Todd Peterson	H. E-mail address petersonst@saccounty.net	I. Title Principal Civil Engineer	J. Phone 916-875-7164

**III. BILLING ADDRESS (Enter information only if different from Section II above)**

A. Name			
B. Mailing Address			
C. City	D. County	E. State	F. Zip
G. E-mail address	H. Title	I. Phone	

**IV. RECEIVING WATER INFORMATION**

A. Algaecide and aquatic herbicides are used to treat (check all that apply):	
1.	<input checked="" type="checkbox"/> Canals, ditches, or other constructed conveyance facilities owned and controlled by Discharger. Name of the conveyance system: <u>Stormwater Drainage Sites (See attached list)</u>
2.	<input type="checkbox"/> Canals, ditches, or other constructed conveyance facilities owned and controlled by an entity other than the Discharger. Owner's name: _____ Name of the conveyance system: _____
3.	Directly to river, lake, creek, stream, bay, ocean, etc. Name of water body: _____
B. Regional Water Quality Control Board(s) where treatment areas are located (REGION 1, 2, 3, 4, 5, 6, 7, 8, or 9): <u>Region 5</u> (List all regions where algaecide and aquatic herbicide application is proposed.)	

**V. ALGAECIDE AND AQUATIC HERBICIDE APPLICATION INFORMATION**

A. Target Organisms: _____ Vegetation
B. Algaecide and Aquatic Herbicide Used: List Name and Active ingredients  Round-up Custom (Glyphosate)
C. Period of Application: Start Date <u>Annually begin in August</u> End Date <u>Complete in March of the</u> following year
D. Types of Adjuvants Used: Target Pro Spreader Activator (Surfactant Penetrant) Polyacrylamide (Deposition and Drift Retardant)

**VI. AQUATIC PESTICIDE APPLICATION PLAN**

Has an Aquatic Pesticide Application Plan been prepared and is the applicator familiar with its contents? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
If not, when will it be prepared? _____

**VII. NOTIFICATION**

Have potentially affected public and governmental agencies been notified? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
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**VIII. FEE**

Have you included payment of the filing fee (for first-time enrollees only) with this submittal? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> NA
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**IX. CERTIFICATION**

"I certify under penalty of law that this document and all attachments were prepared under my direction and supervision in accordance with a system designed to ensure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine or imprisonment. Additionally, I certify that the provisions of the General Permit, including developing and implementing a monitoring program, will be complied with."

A. Printed Name: Todd Peterson

B. Signature: 

Date: 6/23/16

C. Title: Principal Civil Engineer

**XI. FOR STATE WATER BOARD STAFF USE ONLY**

WDID:	Date NOI Received:	Date NOI Processed:
Case Handler's Initial:	Fee Amount Received: \$	Check #:
<input type="checkbox"/> Lyris List Notification of Posting of APAP	Date _____	Confirmation Sent _____

# County of Sacramento

## Stormwater Utility



## Aquatic Pesticides Application Plan

**Updated: August 2016**

Prepared by  
Department of Water Resources  
Drainage Maintenance Engineering Section

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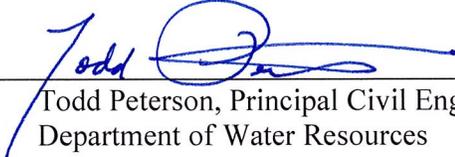
### APPENDIX

#### A - FIELD FORMS

- [Aquatic Pesticide Application Field Log]
- [Aquatic Pesticide Monitoring Field Log]
- [Chain of Custody Form (signed & blank)]

**CERTIFICATION FOR THE COUNTY OF SACRAMENTO  
SACRAMENTO COUNTY AQUATIC PESTICIDES  
MONITORING PLAN**

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

Signed:   
Todd Peterson, Principal Civil Engineer  
Department of Water Resources  
Municipal Services Agency  
County of Sacramento

Date: 7/19/16

## BACKGROUND

On 12 March 2001, the Ninth Circuit Court of Appeals ruled that discharges of pollutants from the use of aquatic pesticides to waters of the United States require coverage under a National Pollutant Discharge Elimination System (NPDES) permit. The State Water Resources Control Board adopted the Statewide General NPDES Permit for Residual Aquatic Pesticide Discharges to Waters of the United States from Algae and Aquatic Weed Control Applications, Water Quality Order 2013-0002-DWQ, for the reissuance of General NPDES Permit CAG990005 in June 2013. Order 2013-0002-DWQ became effective on December 1, 2013. The basic requirements of this General Permit include the following:

1. The dischargers must follow all Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) pesticide label instructions and any Restricted Material Use Permits issued by a County Agricultural Commissioner (CAC).
2. The discharger must be licensed by the Department of Pesticide Regulation (DPR) or work under the supervision of someone who is licensed if the aquatic pesticide is considered a restricted material.
3. The discharger must comply with effluent limitations including developing and implementing an Aquatic Pesticides Application Plan (APAP).
4. The discharger must comply with applicable receiving water limitations.
5. The discharger must comply with monitoring and reporting requirements.

An APAP is a comprehensive plan developed by the discharger that describes the pesticide application project, the need for the project, what will be done to reduce water quality impacts, and how those impacts will be monitored. Specifically, the APAP must contain the following elements:

1. Description of the water body or water body systems being controlled.
2. Description of what vegetation is being controlled and why.
3. Discussion of control tolerances (i.e., how much growth can occur before action is necessarily).
4. Discussion of the factors influencing the decision to use aquatic pesticides in regards to those tolerances (pros and cons).
5. Type(s) of aquatic pesticides used, the method in which they are applied, and the adjuvants used.
6. Description of the application area and the treatment area in the system.
7. Other control methods used (alternatives) and what their limitations are.
8. How much product is needed and how this is determined.
9. Monitoring plan, including the location of representative site(s).
10. If applicable, list the gates or control structures and inspection schedule of those gates or control structures to ensure that they are not leaking.

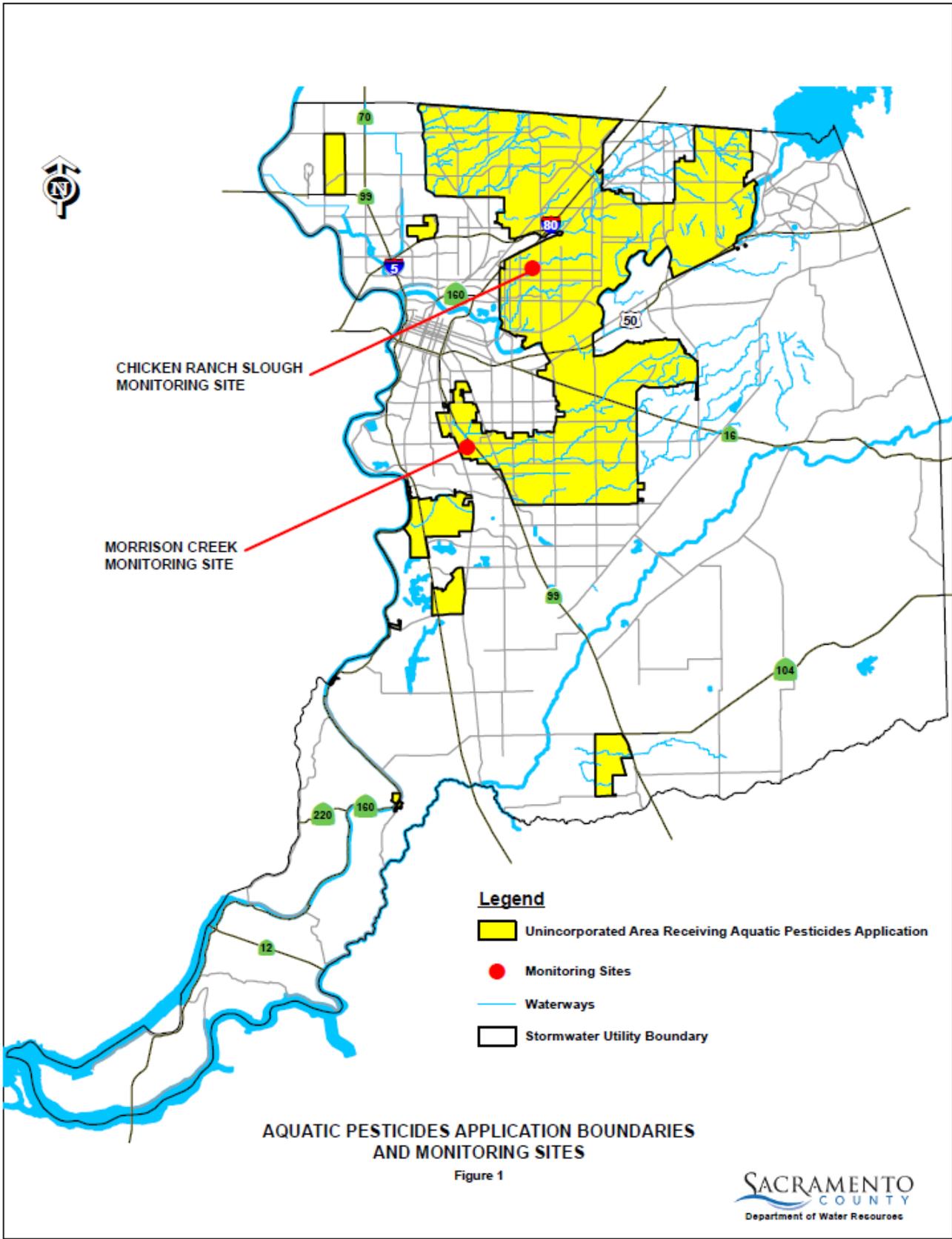
11. If the Control Agency has been granted a section 5.3 exception, describe the exception period. If weeds are also controlled outside of this period, describe how it is ensured that receiving water criteria are not exceeded.
12. Description of the BMPs to be implemented.
13. Evaluation of other available BMPs to determine feasible alternatives to the selected aquatic pesticide application project that could reduce potential water quality impacts.

The APAP described in the following pages addresses all of the above-mentioned requirements. This APAP is proposed by the County of Sacramento (County).

## **DESCRIPTION OF WATER SYSTEM AND TREATMENT AREA**

The County relies on storm pipe systems and channels to convey stormwater to help reduce the risk of flooding. In order for stormwater to be drained properly, channels must be kept clear of vegetation that will obstruct the flow of water. Drainage channel blockage or restriction may lead to flooding and property damage. The County applies aquatic pesticide throughout the unincorporated portion of the County's Stormwater Utility. Open waterways within the County's Stormwater Utility have either a natural-bottom or are concrete-lined. These channels experience flows typically from seasonal precipitation and/or urban runoff. The County of Sacramento's Stormwater Utility boundary is shown in Figure 1. Aquatic pesticide application sites within the Stormwater Utility are summarized below:

1. Arcade Creek
2. Natomas East Main Drainage Canal
3. Natomas East Canal
4. Dry Creek
5. Rio Linda Creek
6. Magpie Creek
7. Chicken Ranch Slough
8. Strong Ranch Slough
9. American River
10. Morrison Creek
11. Elder Creek
12. Strawberry Creek
13. Hood
14. West of Galt
15. Laguna Creek



## **DESCRIPTION OF VEGETATION BEING CONTROLLED AND WHY**

County drainage channels have either a natural-bottom or are concrete-lined. Periodically silt is deposited in the channels, which leads to the growth of aquatic vegetation such as broad leaf weeds and grasses. The County is currently applying pesticide to keep these channels free from nuisance vegetation that could impede or block the flow of water.

## **DISCUSSION OF CONTROL TOLERANCES**

Aquatic pesticide applications by the County are restricted to the timeframe window of August 15<sup>th</sup> through March 1<sup>st</sup> per limitations set by the California Department of Fish and Wildlife. During this application season, aquatic pesticide applications are made at the minimum frequency and volume necessary to control vegetation to a level which will effectively maintain stormwater conveyance capacity. Typically, only one application is made at each application site during each application season. In special cases, a second application might be administered in areas of excessive vegetation growth. The application frequency at a given site may vary based on seasonal weather patterns, species of vegetation present, density of vegetation, and the availability of application crews.

## **AQUATIC PESTICIDE USED AND APPLICATION METHODS**

Glyphosate is the only type of aquatic pesticide applied by the County in drainage channels. These applications are limited to the boundaries of the County's Stormwater Utility (Figure 1). Glyphosate is the active ingredient in Roundup Custom<sup>TM</sup> manufactured by the Monsanto Company. Glyphosate is a non-selective herbicide that kills vegetation that it comes in contact with.

The County adds the biodegradable, low foaming, non-ionic surfactant penetrant Target Pro Spreader Activator <sup>TM</sup> (manufactured by Creative Marketing & Research, Inc.) to glyphosate based aquatic pesticide prior to application. Target Pro Spreader Activator <sup>TM</sup> contains the ingredient alkyl phenol ethoxylate.

Additionally, the County adds a deposition aid and drift retardant containing polyvinyl polymer (polyacrylamide). This product has been developed specifically for the spraying of pesticides.

The County applies aquatic pesticide using various methods depending on site accessibility and abundance of target aquatic vegetation. The three applications methods commonly used by the County are as follows: spray from a truck-mounted boom, spray from a hose pulled from a truck, and backpack sprayers.

## **APPLICATION/TREATMENT AREA**

Because glyphosate is most effective when applied directly to target aquatic vegetation, the County sprays aquatic pesticide only directly to live vegetation above the water surface, not directly into the water. Incidental contact of aquatic pesticide with water may occur when there is overspray during application. In other words, the County does not attempt to treat nuisance

vegetation by applying aquatic pesticide directly to water bodies. Therefore, for this program, the treatment area is the same as the application area.

Application areas are typically in channels that have been selected based on their limited capacity to drain stormwater flow. Pesticide application areas are surrounded by a variety of land use types, including: urban, industrial, commercial, and agriculture.

## **DETERMINATION OF PRODUCT VOLUME AND CONCENTRATION REQUIRED**

All aquatic pesticide applications are made in a manner consistent with product label instructions. Applications are made directly to live target vegetation, which are treated by complete coverage until wet, not to the point of runoff. The aquatic pesticide concentration used is within the range specified by the product label.

## **FACTORS INFLUENCING DECISION TO USE AQUATIC PESTICIDES**

Glyphosate is applied by the County within the County's Stormwater Utility boundary (refer to Figure 1 in this report and the County's 2016 General Permit NOI for complete maps of application areas). Specific application areas are typically selected based on their limited capacity to drain stormwater flow. County drainage channel maintenance crews do not apply pesticide to bodies of waters, such as lakes or ponds. The County applies glyphosate directly to the aquatic vegetation within drainage channels.

Application of the aquatic pesticide glyphosate has proven to be the most effective, cost efficient and environmentally compatible option for controlling nuisance vegetation in the County's drainage channels. Mechanical and hand removal has been known to cause problems with erosion control as well as habitat disruption and water quality degradation. Furthermore, mechanical removal is often problematic due to site accessibility issues. Also, hand and mechanical removal typically results in roots being left behind and the increased spreading of seeds, thereby increasing the required frequency of removal. For a more detailed discussion, see the *Evaluation of Available Alternatives* section of this document.

## MONITORING PLAN

In this section, all aspects of the Monitoring Plan are discussed in detail, including: overall approach, site selection, sampling procedures, quality assurance/quality control (QAQC), monitoring site descriptions, and reporting. The County must comply with the Monitoring and Reporting Program (MRP), which is detailed in Attachment C of General Permit No. CAG990005. The goals of the MRP are to:

1. Determine compliance with the receiving water limitations and other requirements specified in this General Permit.
2. Measure and improve the effectiveness of the APAP.
3. Support the development, implementation, and effectiveness of BMPs.
4. Assess the chemical, physical, and biological impacts on receiving waters resulting from aquatic pesticide applications.
5. Assess the overall health and evaluate long-term trends in receiving water quality.
6. Demonstrate that water quality of the receiving waters following completion of resource or weed management projects are equivalent to pre-application conditions.
7. Identify and characterize aquatic pesticide application projects conducted by the discharger.
8. Ensure that projects that are monitored are representative of all pesticides and application methods used by the discharger.

### *Monitoring Approach*

Since glyphosate is commonly used in agricultural as well as residential areas, background concentrations may exist prior to, or after, an application event by the County. Each application site selected for monitoring shall be sampled in multiple locations. Collection of five samples at each representative monitoring site shall take place according to the following:

- Pre-event background monitoring - Sample upstream of the application area at the time of application or collected at the treatment area just prior to application (up to 24 hours in advance of the application).
- Event monitoring - Sample immediately downstream of the treatment area in flowing waters, collected immediately after the application event or shortly after application (after sufficient time has elapsed for treated water to enter the adjacent or downstream area).
- Post-event background monitoring - Sample upstream of the application area within one-week after the application event.
- Post-event treatment area monitoring - Sample within the treatment area within one-week after the application event.
- Post-event downstream monitoring - Sample immediately downstream of the treatment area within one-week after the application event.

Monitoring shall be conducted once per application season at each of the selected representative monitoring site locations.

**Monitoring Site Selection**

The General Permit requires monitoring of 10 percent of all aquatic pesticide application sites. If 20 or fewer application sites exist, monitoring is required at two representative application sites. Therefore, based on the list of 15 application sites presented previously in this document, the County is required to monitor two representative application sites.

Representative aquatic pesticide monitoring sites were selected based on the following considerations:

- Presence of low volume during application months (adequate for water quality sample collection).
- Adequate site access and safety.
- Conveyance system construction (natural vs. improved channels).
- Pesticide application methods (hand vs. truck mounted equipment).

Maps of all of the application areas, which are the County channels within the Stormwater Utility boundaries, were reviewed prior to selecting monitoring site locations. The selected monitoring sites were then evaluated to assess presence of flow, site access and safety, conveyance system configuration, and application methods. The sites selected were known to have adequate flow volume present during application months for water quality sample collection and adequate safe access for sampling personnel. Also, the sites selected were typical of application channel configuration (both an unlined and a concrete-lined channel were selected). Additionally, monitoring sites were selected that receive application by hand, as well as from truck-mounted equipment. Selected monitoring sites are presented in Figure 1 and Table 1.

**Table 1 - Aquatic Pesticide Monitoring Sites**

Monitoring Site Name	Application Location	Active Ingredient Applied
Chicken Ranch Slough	Between Watt Ave & Montclair St	Glyphosate
Morrison Creek	Between Hwy. 99 & Franklin Blvd	Glyphosate

Chicken Ranch Slough

This site is located on Chicken Ranch Slough, east of Watt Avenue, between Whitney Avenue (to the north) and Marconi Avenue (to the south). The glyphosate application area is approximately between Watt Avenue (west border) and Montclair Street (east border) Chicken Ranch Slough flows from east to west at this location. Between Watt Avenue and Montclair Street, Chicken Ranch Slough is an unlined channel. Typically glyphosate applications at this location are made using backpack sprayers and hoses pulled from a truck.

### *Driving Directions*

#### Upstream of Application Area

- From downtown Sacramento take **Interstate Business 80** east
- Exit at **El Camino Avenue** and head east (right)
- Turn **left** on **Watt Avenue** (north)
- Turn **right** (east) on **Robertson Avenue**
- Turn **left** on **Montclair Street**
- Chicken Ranch Slough passes under Montclair Street just north of Robertson Avenue
- Park on Montclair Street

#### Downstream of Application Area

- From downtown Sacramento take **Interstate Business 80** east
- Exit at **El Camino Avenue** and head east (right)
- Turn **left** on **Watt Avenue** (north)
- Chicken Ranch Slough passes under Watt Avenue between Robertson Avenue (south) and Lynne Way (north) just east of Del Paso County Club
- Park on Robertson Avenue or Lynne Way

### Morrison Creek

This site is located at Morrison Creek west of State Highway 99 at Florin Road. The glyphosate application area is between Florin Road and Franklin Blvd. Morrison Creek flows from north to south at this location. Between State Highway 99 and Franklin Boulevard, Morrison Creek is a concrete lined channel. Glyphosate applications at this site are typically made using a truck-mounted boom.

### *Driving Directions*

#### Upstream of Application Area

- From downtown Sacramento take State **Route 99** south
- Exit at **Florin Road** and turn right (west)
- Turn **right** on **East Parkway** and park
- Morrison Creek passed under Florin Road just west of East Parkway

#### Downstream of Application Area

- From downtown Sacramento take **State Route 99** south
- Exit at **Florin Road** and turn right (west)
- Turn **left** on **Franklin Blvd**
- Morrison Creek passed under Franklin Blvd. Between Doss Way (north) and A Parkway (south)
- Park on Doss Way or A Parkway

### ***Notification and Schedule***

Monitoring at the two selected representative sites shall be coordinated between application personnel and sampling personnel. Schedules shall be updated regularly for planning purposes so that sampling personnel are prepared, having all necessarily supplies and equipment for monitoring events. County application personnel shall notify sampling personnel of the time, date, and location of application events with sufficient advance notice (at least two days prior to planned application).

After glyphosate is applied to one of the selected monitoring sites, application crews shall cease application upstream of the monitoring site, as well as to any tributaries to the monitoring site channel upstream of the monitoring site, until after the final samples associated with the monitoring event for the site are collected (approximately one week).

When applying pesticide, applicators shall fill out a Pesticide Application Field Log (Appendix A). Information from the completed Pesticide Application Log sheets will be used in the production of the calendar year annual report.

### ***Visual Inspection***

During each monitoring site visit, the sampling crew shall note visual observations such as vegetation, channel configuration, weather and flow conditions, and any other notable observations. Visual observations shall be recorded on the Aquatic Pesticide Monitoring Field Log sheet (Appendix A). The sampling crew shall also note whether there are any irregular discharges or excessive floating material visible that could potentially affect the concentration of targeted components.

### ***Water Quality Monitoring***

County water quality sample collection personnel have received comprehensive training on the following procedures: preparation for monitoring events, sample collection (consistent with EPA guidance), field measurements, clean sample handling, and sample delivery and chain of custody.

Constituents to be analyzed, monitoring preparation and logistics, grab sample collection procedures, clean sample handling, sample shipment procedures, and chain-of-custody procedures are presented below.

#### **Constituents to be Monitored**

Field monitoring shall be conducted for the constituents listed in Table 2 below. In addition to the active ingredient glyphosate, conventional parameters (as specified in the General Permit) listed in Table 2 shall also be monitored.

**Table 2 - Constituents List**

<b>Constituent</b>	<b>Analytical Method</b>	<b>Volume &amp; Bottle Required</b>	<b>Preservative</b>	<b>Reporting Limit</b>	<b>Max Hold Time</b>
Glyphosate	EPA 547	250 ml Amber	4°C	7 µg/L	14 days
Temperature	Field Meter	N/A	N/A	N/A	N/A
pH	Field Meter	N/A	N/A	N/A	N/A
Conductivity	Field Meter	N/A	N/A	N/A	N/A
Dissolved Oxygen	Field Meter	N/A	N/A	N/A	N/A
Turbidity	Field Meter	N/A	N/A	N/A	N/A

Monitoring Preparation and Logistics

The following equipment preparation and maintenance activities shall be performed in preparation for each monitoring event.

*Field Equipment*

Prior to each monitoring event, the field crew shall inventory field equipment and replace items as necessarily. A checklist of field equipment is listed on Table 3. Additionally, all field meters and equipment shall be maintained, serviced, and calibrated at the appropriate intervals as specified by the manufacturer.

**Table 3 - Monitoring Equipment List**

<b>Equipment List</b>	
✓	Grab sample bottles (laboratory supplied and preferably pre-labeled by sampling personnel). See Table 2 for sample bottle requirements.
✓	Expandable grab sampling pole. May be required in situations where grab sampling by wading is unsafe.
✓	Clean intermediate containers (may be required for use with grab sampling pole)
✓	Bubble wrap for glass containers
✓	Waders and/or hip boots
✓	Pencils (2) and waterproof markers (2)
✓	Extra labels for sample containers
✓	Powder free nitrile gloves
✓	Coolers (laboratory supplied) and Ice
✓	Water for field blanks (laboratory supplied)
✓	One gallon Ziploc bags (for storage of clean gloves and other clean items)
✓	Field meters (pH, conductivity, temperature, dissolved oxygen, turbidity)
✓	D.I. water squirt bottle for rinsing field meter probes
✓	Cellular phone
✓	First Aid kit
✓	Digital camera
<b>Document List</b>	
✓	This Aquatic Pesticides Application Plan (APAP)
✓	Area map (Thomas Guide)
✓	Field log book (including Application and Monitoring Field Logs included in Appendix A)
✓	Chain-of-custody forms (located in Appendix A)

*Communication*

Each field crewmember shall possess a cellular phone or other means of remote communication. This is important for safety reasons as well as for obtaining needed information from, and coordinating with County application personnel. The field crew shall always possess a project contact list (Table 4 below) while in the field.

**Table 4 - Contact List**

<b>Name</b>	<b>Agency/Company</b>	<b>Phone Number (office/mobile)</b>	<b>Email/Fax</b>
Kevin Siu	County of Sacramento	(916) 876-6692 (916) 708-4312	siuk@saccounty.net
Rod Goss	County of Sacramento	(916) 875-6331 (916) 838-0864	gossr@saccounty.net
Magnolia Busse	Eurofins Eaton Analytical	(626) 386-1100	

*Bottle Order*

Bottle orders shall be placed prior to each monitoring event. The bottle orders shall be placed with Eurofins Eaton Analytical for this project. The following shall be requested with each bottle order:

- Sample bottles
- Ice chest(s)
- Blank water for field blank collection
- Chain of custody forms

*Bottle Labels/Station Codes*

Waterproof sample bottle labels shall be prepared and applied to sample bottles by sampling personnel prior to each monitoring event. It is important to label bottles in advance to simplify field activities. Labeling sample bottles after sample collection is not advised since labels do not adhere well to wet sample bottles.

Sample bottles shall be labeled using the sampling location codes listed in Table 5.

**Table 5 - Sampling Location Codes**

<b>Code</b>	<b>Sampling Location</b>
CRSU-P	Chicken Ranch Slough upstream - prior to application
CRSD-I	Chicken Ranch Slough downstream - immediately after application
CRSU-W	Chicken Ranch Slough upstream - week after application
CRSM-W	Chicken Ranch Slough mid-application - week after application
CRSD-W	Chicken Ranch Slough downstream - week after application
MCU-P	Morrison Creek upstream - prior to application
MCD-I	Morrison Creek downstream - immediately after application
MCU-W	Morrison Creek upstream - week after application
MCM-W	Morrison Creek mid-application - week after application
MCD-W	Morrison Creek downstream - week after application

#### Water Quality Sample Collection Procedures

For this project, the preferred method for sample collection is direct submersion of sample bottles at mid-stream and mid-depth. Sample collection personnel shall fill sample bottles as follows:

1. Wade to approximately mid-stream, while holding the sample bottle to be filled;
2. Allow adequate time for any disturbed sediment to wash downstream;
3. Fill sample bottle facing upstream by submerging the bottle to approximately mid-depth (using "clean techniques" as described later in this section);
4. After securing the cap of the full sample bottle, place the bottle upright in a cooler with ice (frozen blue ice is acceptable);
5. After samples have been collected at a given site, glass bottles should be wrapped with bubble wrap or other packaging material to reduce the chance of breakage during transportation and shipping;
6. Samples shall remain on ice from the time of collection to the time of delivery to the analytical laboratory.

If sample collection by wading and direct filling of sample bottles is not possible due to monitoring site configurations and safety concerns, an alternative sample collection method may be required. The alternative method involves the attachment of the sample bottle to an expandable grab sampling pole and reaching out into the flow stream (as closely as possible to mid-stream) and filling the sample bottle by submerging to approximately mid-depth.

### Field Measurement Procedures

Field measurements shall be recorded for the parameters listed in Table 2. These measurements shall be taken at approximately mid-stream using either a multi-parameter field meter or multiple single-parameter field meters. The field meter probe(s) shall be submerged to approximately mid-depth and readings recorded in a field logbook. If mid-stream, mid-depth readings are difficult to obtain because of low flow or access restrictions, measurements may be taken using a clean intermediate container. If this alternative method is required, a clean intermediate container or sample bottle shall be filled using an expandable grab pole (as noted above under "Water Quality Sampling Procedures") and field measurements taken promptly from the intermediate container or bottle. The intermediate container shall be triple rinsed with site water prior to use at each site. All field measurements shall be taken in a manner consistent with manufacturer instruction manuals.

### Clean Sample Handling

"Clean sampling" techniques are required to collect and handle water samples in a way that result in contamination, loss, or change in the chemical form of the analytes of interest. Therefore, clean techniques shall be used during the collection of water samples for glyphosate analysis. Samples shall be collected using the protocols summarized below:

1. Samples shall be collected only into new clean sample bottles provided by the analytical laboratory.
2. Sampling personnel shall wear clean, powder-free, nitrile gloves at all times during sample collection.
3. Clean, powder-free nitrile gloves shall be changed whenever something not known to be clean has been touched.
4. Clean techniques shall be employed whenever handling sample bottles or equipment used for the collection of samples.
5. Water samples are most cleanly obtained by surface grab, using clean powder-free nitrile gloved hands, and facing into a flowing body of water.

To reduce potential sample contamination, sample collection personnel shall adhere to the following rules at all times while collecting or handling samples:

1. No smoking.
2. Wear clean, powder-free, nitrile or similar surgical-quality gloves when handling sample containers.
3. Never sample near a running vehicle. Do not park vehicles in immediate sample collection area (even non-running vehicles).
4. Minimize the amount of time any sample container is left open.
5. Do not set lids down where they may accumulate contaminants.
6. To the greatest extent possible, prevent foreign material (blowing dust, leaves, etc.) from entering any open sample container.

7. Never touch the inside surfaces of sample bottles, lids, or composite carboys, even with gloved hands.

### Safety

Safety is a primary concern while conducting monitoring activities. Preferably sampling crews shall consist of a minimum of two people. During grab sample collection, sampling personnel shall be sure their footing is secured prior to sample collection. If for any reason grab sample collection appears to be unsafe, the sampling event shall be terminated. In general, field personnel should be aware of their surroundings, stay together, and keep an eye out for each other.

### Sample Shipment

Water quality samples shall be shipped on ice, in a cooler chest, accompanied by chain of custody, via overnight courier to Eurofins Eaton Analytical for analysis of glyphosate by EPA method 547. Samples shall be kept cool from the time of sample collection to the time of sample receipt by the analytical laboratory. Samples shall arrive at the laboratory in adequate time to start analysis within the maximum allowable holding time of 14 days. Weekend delivery should be avoided, however, if weekend sample delivery is necessary, prior arrangements should be made with the laboratory to be sure that laboratory personnel are on hand to receive and log in samples. Samples shall be shipped to the following address:

*Eurofins Eaton Analytical  
750 Royal Oaks Dr, Suite 100  
Monrovia, CA 91016-3629*

### Chain-of-Custody Forms (COCs)

COCs shall be filled out for all samples submitted to the laboratory. Sample ID, date, time, sample location, and analysis requested shall be noted on each COC. A Eurofins Eaton Analytical COC is located in Appendix A. Specify on the COC the site/sample to receive matrix spike/matrix spike (MS/MSD) or duplicate analysis (if required) as noted in Table 6.

### ***Quality Assurance/Quality Control (QA/QC) Samples***

Quality control samples shall be collected during each monitoring event according to the schedule presented in Table 6. Quality control sample results shall be evaluated to verify the precision and accuracy of analytical testing procedures and variability or contamination introduced by field or laboratory procedures. QA/QC results shall be used to qualify corresponding environmental results as necessary.

The following quality control samples shall be collected/analyzed for glyphosate during this project (See Table 6 for *QA/QC* sample collection schedule):

- Field Blank
- Matrix Spike/Matrix Spike Duplicate (MS/MSD)
- Duplicates

**Table 6 - QA/QC Sample Collection Schedule**

Site	Location Code	QA/QC	Total Bottle Required
Chicken Ranch Slough upstream (prior to application)	CRSU-P	Field Blank	2
Chicken Ranch Slough downstream (immediately following application)	CRSD-I	-	1
Chicken Ranch Slough upstream (one week following application)	CRSU-W	-	1
Chicken Ranch Slough mid-application (one week following application)	CRSM-W	-	1
Chicken Ranch Slough downstream (one week following application)	CRSD-W	MS/MSD (2)	3
Morrison Creek upstream (prior to application)	MCU-P	-	1
Morrison Creek downstream (immediately following application)	MCD-I	-	1
Morrison Creek upstream (one week following application)	MCU-W	-	1
Morrison Creek mid-application (one week following application)	MCM-W	Lab Dup	2
Morrison Creek downstream (one week following application)	MDS-W	-	1

## QA/QC Sample Collection Methods

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

### *Field Blank*

Grab sample field blanks shall be collected to check sampling containers and procedures for potential contamination. Field blank samples shall be collected immediately prior to the collection of normal grab samples. The field crew shall generate field blank samples by pouring laboratory provided blank water (using "clean techniques") into a clean grab sample bottle. This procedure shall mimic actual environmental sample procedures as closely as possible.

### *Matrix Spike/Matrix Spike Duplicate*

Matrix spike and matrix spike duplicate (MS/MSD) analyses shall be requested on the specified sample for the sites and monitoring events specified in Table 6. MS/MSD analyses are internal (laboratory performed) QA/QC checks for both precision and accuracy. No special sample collection considerations are required. However, triple the normal sample volume must be collected. So, three bottles shall be filled at each sample collection site. MS/MSD analyses shall be requested on the COC for the sites specified in Table 6.

### *Laboratory Duplicate*

Laboratory duplicate analysis shall be requested for the samples specified in Table 6. Laboratory duplicate analysis is requested for the purpose of checking variability in laboratory sample handling and analytical procedures. No special sampling considerations are required. However, laboratory duplicate analysis shall be noted on the sample bottle label and COC.

## **PROPOSED BEST MANAGEMENT PRACTICES (BMPS)**

During pesticide application, the BMPs listed below shall be implemented by the County to maximize efficiency of control efforts and minimize adverse impacts to the environment.

1. Licensing, Pesticide Labeling, and Permits. Sacramento County Channel Maintenance has two licensed Pest Control Advisors (PCA) and all employees that make aquatic applications are licensed with a Qualified Applicator Certificate or Qualified Applicator License. The PCA recommendation is written to only allow pesticide use that is consistent with the pesticide label.

All applicators go through annual training. Training covers such topics as safe application techniques, proper use of application equipment, applicable laws and regulations (including water quality), and specifics about the use of aquatic and non-aquatic herbicides.

2. Preliminary Site Evaluations are made at a minimum of once per year by the Pest Control Advisor to determine areas in need of treatment, suitability and location of a treatment site, and precautions to be followed during treatment.

3. Secondary Site Evaluations and Pre-treatment Monitoring are conducted by the applicator upon arrival at the site. Some factors considered are weed species present, growth stage, weed location, and weed density. These factors are used to determine whether mechanical, manual, or aquatic herbicide controls shall be used. If herbicide treatment is the preferred method, type of application and rate are recommended.
4. Operations of Gates or Control Structures. The County operates gates at various pump stations. However, these are for flood control purposes and not for the prevention of aquatic herbicides to surface waters. The County does not operate gates or control structures as described in Provision VIII.C.6 of the General Permit.
5. Alternative Control Measures. Several alternative measures have been investigated, as described in a previous section of this document. To date, no acceptable alternatives have been identified. The County will continue to track and consider potential alternative control measures.
6. BMPs Done Prior to and During a Treatment.
  - a) If the wind is high enough or becomes high enough to cause significant drift at the start or during an aquatic glyphosate application, the application will either be postponed or terminated.
  - b) If it is raining or rain is expected shortly after a scheduled aquatic glyphosate application, the application will be postponed. If the water level in the creek or channel is much higher than normal, the application will be postponed.
  - c) If the applicator observes livestock feeding in the drainage area, lack of vegetative obstructions, children playing in the creek or channel, water being pumped for irrigation purposes or any other negative factor, the application will be postponed.
  - d) Any non-plant aquatic life killed by chemical treatment must be reported immediately to the Department of Fish and Wildlife.

In general, the applicator considers site conditions, weather conditions, and water use in making the decision to proceed with treatment or to postpone an herbicide application. The County uses glyphosate to spot-treat, applying the aquatic herbicide directly to the target vegetation, minimizing overspray. Control is achieved while using the least amount of herbicide in order to minimize any environmental effects. Applications are made "spray to wet", not to the point of runoff. Only minor amounts of unavoidable glyphosate overspray and runoff from sprayed vegetation come in contact with the water in the drainage channels.

7. Post Treatment Evaluation. The assessment of herbicide application efficacy normally begins one week after application and continues for the rest of the growing season. If a treatment is ineffective, a drainage area is modified by construction, or hazards to the application are identified, crews either take corrective action by modifying the application or remove that particular creek or channel segment from the herbicide application schedule.

8. **Spill Prevention and Containment.** In the event of an aquatic pesticide spill County staff will prevent the contaminated water from reaching adjacent water bodies wherever feasible. The use of absorbent granules and/or pads will be deployed as needed. The County will report spills as required by the local, state, and federal regulations.

## EVALUATION OF AVAILABLE ALTERNATIVES

Glyphosate controls most grasses and broad leaf weeds and is unique because it controls root systems. The County has evaluated other non-toxic, or less toxic, control methods for nuisance vegetation control in drainage channels, as described in this section.

As an alternative to glyphosate, the County performs mechanical excavator and hand crew vegetation control. Easily accessible sites with heavy vegetation are cleared with the use of excavators and other heavy equipment for vegetation control. At sites with limited access or sensitive habitat that would be damaged by heavy equipment, hand crews perform mechanical vegetation removal. While mechanical vegetation removal does an adequate job in the short term, the County has found that the lack of chemical controls allows unwanted vegetation, such as cattails and water primrose, to grow extremely rapidly in freshly cleaned creeks and channels. Additionally, mechanical vegetation removal causes the water to become very turbid with suspended solids. These suspended solids can cause damage to fresh water aquatic life in the disturbed sections of creeks or channels, and for some distance downstream of the mechanical vegetation removal project. In addition, mechanical removal of weeds can slowly enlarge channel size beyond acceptable limits, create erosion problems, and does not provide adequate weed control. Mechanical and hand removal of weeds is more cost prohibitive.

The County has evaluated alternative pesticides for use in drainage channels. However, none of the alternatives have proven to provide the same level of effectiveness as glyphosate. The alternatives investigated have been generally more toxic to non-target species. Additionally, alternative pesticides have some of the following problems:

- Don't control the same spectrum of weeds
- Have use restrictions
- Are not labeled for aquatic use
- Labels may have a higher handling hazard
- Don't translocate, and therefore are not as effective in the long term
- May have negative effects on surrounding crops or the environment

The County of Sacramento operates under a Routine Maintenance Agreement with the State of California Department of Fish and Wildlife that allows control of aquatic and terrestrial vegetation by the use of chemicals. As a mitigation measure, only herbicides registered with the California Department of Pesticide Regulation may be used. All herbicides must be applied in accordance with regulations set by the California Department of Pesticide Regulation. All herbicides must be used in accordance with labeled instructions, specifically when chemicals are used in the vicinity of Waters of the State. Labeled instructions for the pesticide used must be made available to the Department of Fish and Wildlife upon request.

It is the County's position that glyphosate is the most effective, cost efficient, and environmentally compatible option for controlling nuisance vegetation in the County's drainage channels.

## **REPORTING**

All reports shall be submitted to the Regional Water Quality Control Board (RWQCB) Executive Officer. All reports submitted shall comply with the provisions in the General Permit, including the signatory requirements. Reporting requirements are summarized in this section.

### Annual Report

The County shall submit a calendar year annual monitoring data summary report due March 1, of the following year. The Annual Report shall contain the following:

1. Executive Summary
2. Summary of monitoring data
3. Identification of BMPs
4. Application area map
5. Amounts of aquatic pesticide used at each application event
6. Information used to calculate dosage
7. Sampling results
8. Recommendations
9. Proposed changes

Reports shall be submitted to the following address:

*Regional Water Quality Control Board  
11020 Sun Center Drive #200  
Rancho Cordova, CA 95670*

All notifications and reports must also be submitted to the State Water Resources Control Board. Email the annual reports as PDFs to: [NPDES\\_Wastewater@waterboards.ca.gov](mailto:NPDES_Wastewater@waterboards.ca.gov)

### Signatory Requirement

Any person signing a document submitted to the Regional Board shall complete the following certification:

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

violations."

#### Monitoring Event Summary Reports

Within 30 days of a monitoring event, a brief event summary report shall be produced and filed. These summary reports will be used in the production of the annual report and included in the annual report in an appendix. Monitoring event summary reports shall, at a minimum, include the following.

- Monitoring event dates, times and locations.
- Completed field log sheets including field measurements, and visual observations.
- Completed and signed COC forms;
- Difficulties encountered during monitoring, if any;
- Laboratory analytical reports.

#### Twenty-Four Hour Reporting

The County shall report any noncompliance that may endanger health or the environment. Any information will be provided orally within 24 hours from the time that the County becomes aware of the circumstances. A written submission will be provided within five days of the time that the County becomes aware of the circumstances. The written submission will contain a description of the noncompliance, its cause, the period of noncompliance, including exact dates and times and, if the noncompliance has not been corrected, the anticipated time it is expected to continue, and, steps taken or planned to reduce, eliminate, and/or prevent recurrence of the noncompliance.

#### Public Notification

The County will coordinate with affected public agencies and ensure that beneficial uses of the water (irrigation, drinking water supply, etc.) are not impacted during the treatment period.

APPENDIX **A**

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Field Forms

### PESTICIDE APPLICATION FIELD LOG

Application Date	Creek Segment	Facility Map Page	Applicator Name	Application Details				Visual Monitoring		
				Water Temp	Surface Area <i>(Spot or Blanket Treatment)</i>	Application Start/Stop Times	Quantity Applied & Concentration	Site Description <i>(lined/unlined channel, Estimate of % water covered by vegetation )</i>	Appearance of Waterway <i>(sheen, color, clarity, odor, floating mater, etc.)</i>	Weather <i>(Fog, rain wind, etc.)</i>
<b>Comments and Observations:</b>										

*Note: information such as surface area or volume of application is not applicable for aquatic glyphosate applications as applications are made directly to vegetation.*

I hereby certify that all applications listed on this sheet were conducted in accordance with the County of Sacramento Aquatic Pesticide Application Plan:

Signature: \_\_\_\_\_

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





Eaton Analytical

# CHAIN OF CUSTODY RECORD

555516

750 Royal Oaks Drive, Suite 100  
Monrovia, CA 91016-3629

Phone: 626 386 1100  
Fax: 626 386 1101

800 566 LABS (800 566 5227)

Website: [www.EatonAnalytical.com](http://www.EatonAnalytical.com)

EUROFINS EATON ANALYTICAL USE ONLY:

LOGIN COMMENTS: 5.7-0.0=5.7  
46/11

SAMPLES CHECKED AGAINST COC BY: Pr/Welton

SAMPLES LOGGED IN BY: 5

SAMPLE TEMP RECEIVED AT:

Colton / No. California / Arizona \_\_\_\_\_ °C (Compliance: 4 ± 2 °C)

Monrovia 5.7-0.0 5.6 °C (Compliance: 4 ± 2 °C)

SAMPLES REC'D DAY OF COLLECTION?  (check for yes)

CONDITION OF BLUE ICE: Frozen \_\_\_\_\_ Partially Frozen \_\_\_\_\_ Thawed \_\_\_\_\_ Wet Ice  No Ice \_\_\_\_\_

METHOD OF SHIPMENT: Pick-Up / Walk-In / FedEx / UPS / DHL / Area Fast / Top Line / Other: Other

TO BE COMPLETED BY SAMPLER:

COMPANY/AGENCY NAME: SRWTP 8521 Laguna Station Rd Elk Grove, CA 95758		PROJECT CODE: DWR Aquatic Spraying Drainage		COMPLIANCE SAMPLES <input checked="" type="checkbox"/> NON-COMPLIANCE SAMPLES <input type="checkbox"/>		REGULATION INVOLVED:	
EEA CLIENT CODE:		COC ID:		SAMPLE GROUP:		Type of samples (circle one): ROUTINE SPECIAL CONFIRMATION (eg. SDWA, Phase V, NPDES, FDA,...)	
TAT requested: rush by adv notice only		STD <input type="checkbox"/> 1 wk <input type="checkbox"/> 3 day <input type="checkbox"/> 2 day <input type="checkbox"/> 1 day <input type="checkbox"/>		SEE ATTACHED BOTTLE ORDER FOR ANALYSES <input type="checkbox"/> (check for yes), <u>OR</u>		list ANALYSES REQUIRED (enter number of bottles sent for each test for each sample)	
SAMPLE DATE	SAMPLE TIME	SAMPLE ID	CLIENT LAB ID	MATRIX *	FIELD DATA	FIELD DATA	SAMPLER COMMENTS
9/24/15	0905	Morrison Creek Pre-Event	1509240056	RSW			PO#81165313
9/24/15	1020	Morrison Creek Event	1509240057	RSW			High value expected
9/24/15	1120	Natomas East Canal Pre-Event	1509240058	RSW			
9/24/15	1135	Natomas East Canal Event	1509240059	RSW			High value expected
9/24/15	0905	Field Blank	1509240055	RSW			

\* MATRIX TYPES: RSW = Raw Surface Water    CFW = Chlor(am)inated Finished Water    SEAW = Sea Water    BW = Bottled Water    SO = Soil    O = Other - Please Identify  
 RGW = Raw Ground Water    FW = Other Finished Water    WW = Waste Water    SW = Storm Water    SL = Sludge

SAMPLED BY:	SIGNATURE	PRINT NAME	COMPANY/TITLE	DATE	TIME
RELINQUISHED BY:	<u>Celeste Patena</u>	CELESTE PATENA	SRWTP	9-28-15	1045
RECEIVED BY:	<u>Dean Hoover</u>	Dean Hoover	EEA	09/28/15	1045
RELINQUISHED BY:	<u>Pr/Welton</u>	Pr/Welton	EEA	09/28/15	1600
RECEIVED BY:	<u>Pr/Welton</u>	Pr/Welton	EEA	9-29-15	1045

PAGE \_\_\_\_ OF \_\_\_\_

