Attachment E – Notice of Intent

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

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# _____

C. ☐ Change of ownership or responsibility: WDID# _____

II. DISCHARGER INFORMATION

A. Name Rancho Murieta Community Services District			
B. Mailing Address PO Box 1050			
C. City Rancho Murieta	D. County Sacramento	E. State CA	F. Zip 95683
G. Contact Person Paul Siebensohn	H. E-mail address psiebensohn@rmcsd.com	I. Title Director of Field Operations	J. Phone 916-354-3700

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. ☒ Canals, ditches, or other constructed conveyance facilities owned and controlled by Discharger.
   Name of the conveyance system: RMCSD Drainage canals & storm basins
2. ☒ Canals, ditches, or other constructed conveyance facilities owned and controlled by an entity other than the Discharger.
   Owner's name: Rancho Murieta Country Club; Rancho Murieta Association
   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): Region Sacramento
(List all regions where algaecide and aquatic herbicide application is proposed.)

V. ALGAECIDE AND AQUATIC HERBICIDE APPLICATION INFORMATION

A. Target Organisms: Algae, Aquatic weeds

B. Algaecide and Aquatic Herbicide Used: List Name and Active ingredients

Fluridone: Alligare, Sonar A.S., SonarOne
Glyphosphate: Aquamaster Copper Ethanolamine: CutrinePlus, Captain XTR
Imazamox: Clearcast Flumioxazin: Clipper
Copper Sulfate Pentahydrate: SeClear, ChemOne copper sulfate
Diquate: Reward, Dibrox
Sodium Carbonate Peroxyhydrate: GreenCleanPro, Pak27

C. Period of Application: Start Date April End Date October

D. Types of Adjuvants Used: Denali-EA, Liberate, R-11, SYL-TAC-EA

VI. AQUATIC PESTICIDE APPLICATION PLAN

Has an Aquatic Pesticide Application Plan been prepared and is the applicator familiar with its contents?
☒ Yes ☐ No

If not, when will it be prepared? _____

VII. NOTIFICATION

Have potentially affected public and governmental agencies been notified? ☐ Yes ☒ No

VIII. FEE

Have you included payment of the filing fee (for first-time enrollees only) with this submittal?
☒ YES ☐ NO ☐ NA

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: Paul Siebensohn

B. Signature: _____ **Date:** 5/11/2018

C. Title: Director of Field Operations

XI. FOR STATE WATER BOARD STAFF USE ONLY

WDID:	**Date NOI Received:**	**Date NOI Processed:**
Case Handler's Initial:	**Fee Amount Received:** **$**	**Check #:**
☐ **Lyris List Notification of Posting of APAP**	**Date** _____	**Confirmation Sent** _____

Rancho Murieta Community Services District

Aquatic Pesticide Application Plan (APAP) update for Rancho Murieta

Prepared For:

Rancho Murieta Community Services District
15160 Jackson Road
Rancho Murieta, CA 95683

by

Coastland Civil Engineering
11865 Edgewood Road
Auburn, CA 95603
March 2018

For Compliance with Statewide 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
Water Quality Order No. 2013-0002-DWQ
and subsequent amendments
2014-0078-DWQ, 2015-0029-DWQ, 2016-0073-EXEC

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C.1 Description of Water System to Which Algaecides and Aquatic Herbicides Are Being Applied

The Rancho Murieta Community Services District (District) was formed in 1982 to provide water supply collection, treatment and distribution; wastewater collection, treatment and reuse; as well as storm drainage collection, disposal and flood control services for the community of Rancho Murieta. The area served by the District encompasses approximately 3,500 acres. Land uses within this service area include approximately 2,000 acres for single family residences, townhouses, apartments, duplexes and mobile homes. According to the County's approved Planned Unit Development Plan (Sacramento County, 1983), the development of this area represents a potential of roughly 5,189 residential units at buildout. The service area boundary map is presented on Figure 1.

There are many bodies of water in Rancho Murieta, as shown on Figure 2 and Table 1, mainly operated by the District, the Rancho Murieta Country Club (RMCC), and the Rancho Murieta Association (RMA).

Figure 1: Rancho Murieta Community Services District's Service Area Map

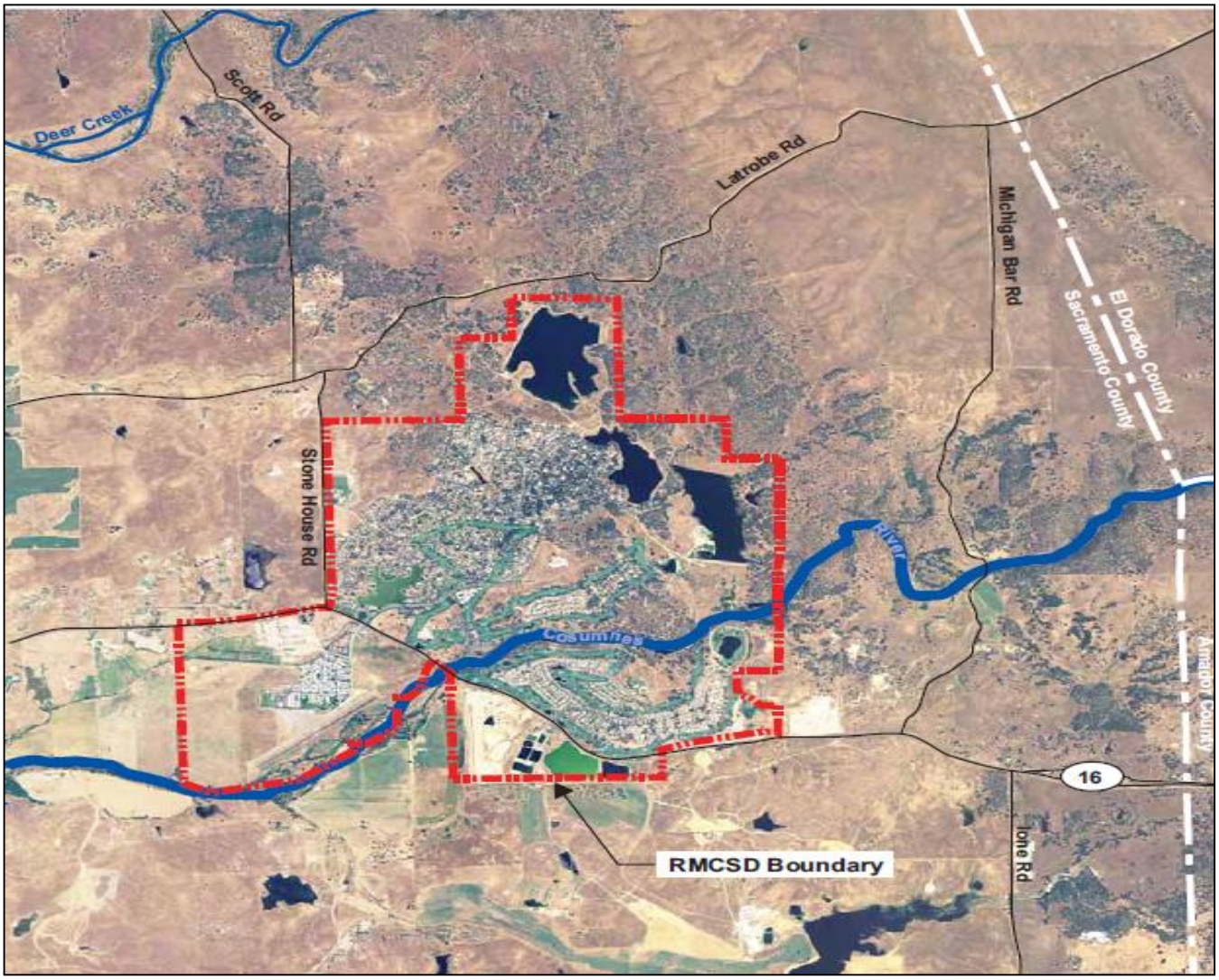
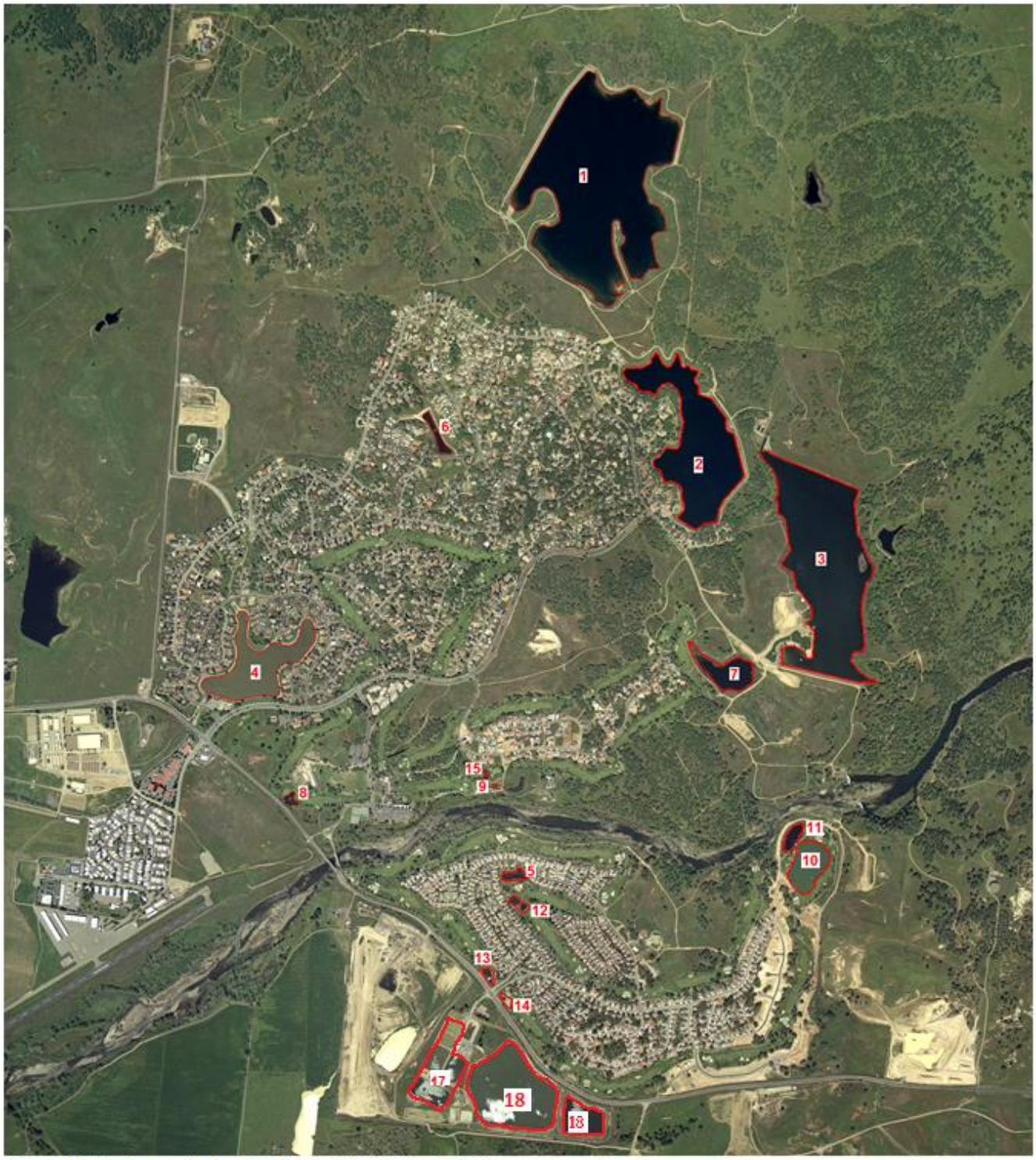


Figure 2: Rancho Murieta CSD Water Body Site Map



Rancho Murieta Community Services District - Vacintiy Map for NOI
Key for water bodies attached

Table 1: Key of Water Bodies

Name	Surface Area (acres)
1) Calero	110 -114 acres, 2622 acre-feet volume
2) Chesbro	62- 64 acres, 1130.7 acre-feet
3) Clementia	71-76 acres, 907.1 acre-feet
4) Laguna Joaquin	21.53 – 24.07 acres, 122 acre-feet
5) Basin 5	1.3 acres at 16.5 foot average depth
6) Lake Guadalupe	1.3 acres
7) Bass Lake	6.2 acres, 6 foot average depth
8) North Hole 10 Pond	1.0 acres, 4 foot average depth
9) Basin 6B	0.2 acres, 4.6 foot average depth
10) South Hole 10 Pond	1.4 acres, 5 feet average depth
11) South Hole 11 Pond	6.3, 5.5 foot average depth
12) South Hole 6 Pond	0.4 and 0.28 acres
13) South Hole 16 Pond	0.34 acres, >10 foot depth
14) South Hole 17 Pond	0.27 acres, >10 foot depth
15) North Hole 2 Pond	0.34 acres, 3.4 foot average depth
16) Granlees Basin	0.40 acres, depth varies seasonally 0 – 5.5’
17) Reclamation Plant Secondary Ponds	Pond 1 – 1.06 acres, P2 – 2.8 acres, P3 - 2.29 acres, P4 – 2.94 acres, P5 – 2.25 acres
18) Reclamation Plant Secondary Storage Reservoirs 1 & 2	Reservoir 1 – 27.51 acres, 626 acre-feet Reservoir 2 – 7.03 acres, 141.97 acre-feet

The District’s water supply originates in the Cosumnes River. Further information is provided in Section C.2. The community’s drainage system has two (2) major holding basins, Laguna Joaquin in the North and Basin 5 in the South. Water stored in Laguna Joaquin is used by the Homeowner’s Association for irrigation of public areas, aesthetics, and fishing. There are a`lso many golf course ponds, of which Bass Lake in the North and Pond 11 in the South are used for irrigation of the golf courses. As runoff water collects and stagnates in these basins, algae and aquatic vegetation flourishes. This algae and aquatic

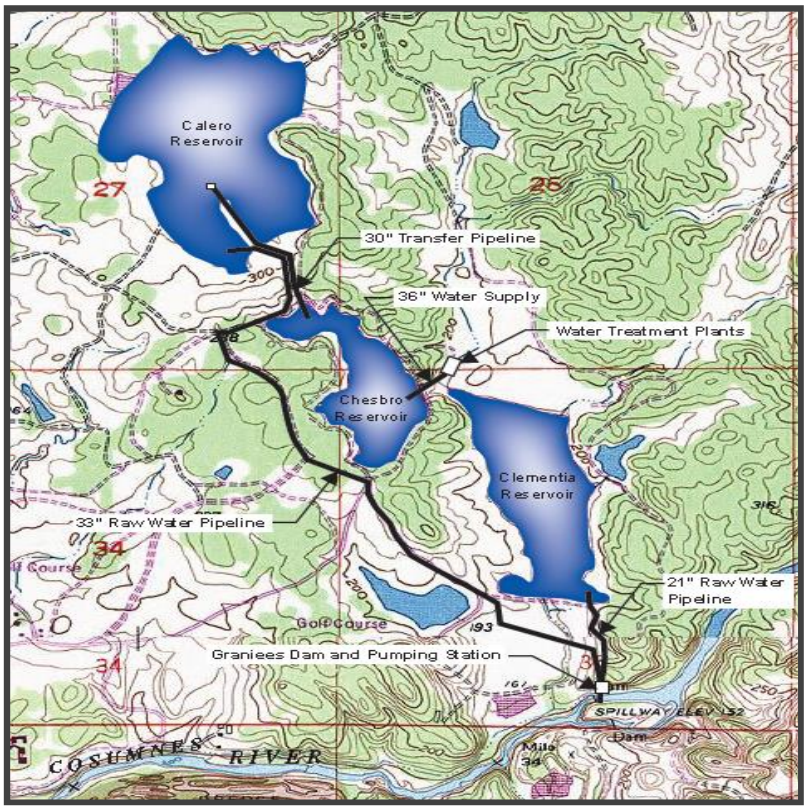
vegetation impacts the irrigation intakes and systems. All other ponds algae and vegetation are mainly maintained for WDR, vector control and aesthetic reasons.

Out of all water bodies described above, only overflow from runoff from Laguna Joaquin, Basin 5, North Hole 2 pond, South Pond 11 and Clementia Reservoir could leave the Rancho Murieta community. North Hole 2, South Pond 11 and Basin 5 South have a direct outflow that could flow to the Cosumnes River due to excessive runoff. South golf course Ponds 16&17 and 10 & 11, and the District's wastewater treatment facility, are managed under a Waste Discharge Requirement (WDR) to maintain a minimum of over two feet (2') of freeboard to prevent overflows.

C.2 Description of the Treatment Area in the Water System

The District's raw water is exclusively from diversions from the Cosumnes River at Granlees Dam. The District diverts water every year between November 1 and May 31, which is stored in three (3) reservoirs: Calero, Chesbro, and Clementia (Figure 3). Water may be pumped directly into Calero and Clementia Reservoirs from the Granlees Dam pumping station. Currently only Calero and Chesbro Reservoirs are used as potable water sources, with Clementia as a backup supply. Calero Reservoir is the highest in elevation and the largest reservoir. Chesbro Reservoir is filled from Calero Reservoir through a 30-inch siphon line, where it then flows by gravity to the District's water treatment plant (WTP). Clementia Reservoir is located slightly below the Water Plant in elevation with a pump station available for pumping directly to the Water Plant or to Chesbro. Clementia Reservoir may be used for RMCC irrigation supply and is open to the public for recreation uses, including body contact activities. Under existing operation practices, water may be routed from Clementia Reservoir to Bass Lake or Pond 10 for RMCC irrigation use. The level in Chesbro Reservoir is maintained by the District via the operation of a siphon valve between the Calero and Chesbro reservoirs.

Figure 3: Rancho Murieta Community Services District Raw Water Storage Site Map



The remaining water bodies are primarily maintained in conjunction with RMA or RMCC in its golf course ponds. As Title 22 unrestricted use reclaimed wastewater is used in RMCC South Course Ponds 10, 11, 16, and 17 and North Course Bass Lake, they are strictly operated and monitored to prevent overflows, per Monitoring and Reporting Program in Order R5-2014-0149. Any discharges from the golf course ponds containing reclaimed water would be a violation of Order R5-2014-0149.

C.3 Description of the Types of Weed(s) and Algae that are Being Controlled and Why

There are two (2) basic categories of aquatic weeds requiring control within the District's reservoirs, RMA lakes, and RMCC ponds:

1. Submerged Weeds - These plants are completely underwater and are generally rooted in the bottom sediment. If flowers exist, they may extend above the surface of the water. Plants in this group include Coon Tail, Eurasian Milfoil, and Elodea.

   Reason for control: Impedes the ability to properly maintain reservoirs, lakes, and ponds, and for prevention of Total Organic Carbon (TOC) buildup which may contribute to the formation of disinfection byproducts (DBPs) in the water treatment process. Control is also to provide adequate flow through their respective screening and pumping systems and a requirement per Waste Discharge specifications of the District's WDR R5-2014-0149.

2. Algae and various mosses – A very diverse group of simple autotrophic organisms that grow and spread rapidly in water.

   Reason for control: Impedes the flow of water, plugs irrigation screens, and high-tech irrigation systems, such as sprinklers, drop and micro irrigation systems. Algae blooms can also cause an undesirable tastes and odors in the water supply with some even imparting toxic byproducts.

C.4 Algaecide and Aquatic Herbicide Products or Types of Algaecides and Aquatic Herbicides Expected to be Used and If Known Their Degradation Byproducts, the Method in Which They Are Applied, and If Applicable, the Adjuvants and Surfactants Used

Summary Table:

Aquatic Herbicides

Product Name	Product Type	Manufacturer	EPA Reg. #
Aqua Master	Glyphosphate	Monsanto	524-343
Cutrine Plus	Copper Ethanolamine	Applied Biochemists	8959-10
Captain XTR	Copper Ethanolamine	SePRO	67690-09
Clearcast	Ammonium Salt of imazamox	SePRO	241-437-67690
Clipper	Flumioxazin	Valent	59639-161
Copper sulfate	Copper Sulfate Pentahydrate	CHEM ONE LTD	56576-1
Se-Clear	Copper Sulfate pentahydrate	SePro	67690-55-AA

Greenclean Pro	Sodium Carbonate Peroxyhydrate	BioSafe Systems	70299-15
PAK 27	Sodium Carbonate Peroxyhydrate	SePRO	68660-9-67690
Reward	Diquat	Syngenta	101-1091-AA
Dibrox	Diquat	Lake Restoration, Inc.	83529-12-84868
Alligare	Fluridone	Alligare, LLC	81927-45
Sonar A.S.	Fluridone	SePro	67690-4
Sonar One	Fluridone	SePro	67690-45

Detailed descriptions:

- Copper Sulfate Crystals (Copper Sulfate Pentahydrate) – Applied as a granule, utilizing a broadcast spreader, or bagged and dragged, or dissolved in solution, and distributed evenly as possible over or under the entire surface area to be treated.
    - Product Degradation - Copper formulations have different characteristics to increase the length of time that the copper remains biologically available for uptake into the algae's and aquatic weeds. As the copper product is applied to the treatment area, it is readily absorbed into the algae and aquatic plants, disrupting plant growth. Only the portion of copper that is biologically available is absorbed into the plans and algae. Any remaining dissolved copper readily binds itself with sediment, clay and other humic particles and becomes biologically unavailable to plants and animals.
    - Product names of potential use: Copper Sulfate Crystals, SeClear *(NSF approved for potable systems)*

- Copper Ethanolamine – Applied as liquid, or mixed into a liquid solution, utilizing a trailer mounted spray system or direct injection in the reservoirs. The amount of product used is dependent upon the amount of algae and aquatic weeds present, and the amount of water flowing through the treatment area.
    - Product Degradation - Copper formulations have different characteristics to increase the length of time that the copper remains biologically available for uptake into the algae's and aquatic weeds. As the copper product is applied to the treatment area, it is readily absorbed into the algae and aquatic plants, disrupting plant growth. Only the portion of copper that is biologically available is absorbed into the plans and algae. Any remaining dissolved copper readily binds itself with sediment, clay and other humic particles and becomes biologically unavailable to plants and animals
    - Product names of potential use: Cutrine-plus, Captain XTR

- Diquat – Applied as a liquid, utilizing a sprayer along the banks of the reservoirs, lakes and ponds or by dispersion by boat for emerged aquatic plants and other weeds growing at the water line and to floating-leaved aquatic weeks. This herbicide may be mixed with an aquatic approved non-ionic surfactant.
    - Product Degradation – Diquat Bromide poses virtually no environmental risks and will not contaminate groundwater. It is quickly deactivated once absorbed by clay particles in the soil or reservoir sediment. The concentration of Diquat Bromide is low immediately after application and rapidly decreases as it is absorbed into soil sediments, aquatic vegetation

and organic matter. As a result of this rapid absorption and binding of any Diquat Bromide remaining in the system, it is rendered biologically unavailable.

  - Product names of potential use: REWARD, Dibrox

- Sodium Carbonate Peroxyhydrate – Applied as granules utilizing a broadcast spreader. It is added directly to either still or slow flowing water, dissolving as it falls through the water column. Most effective in controlling algae in slow moving water.
  - Product Degradation – Sodium Carbonate Peroxyhydrate degrades into sodium carbonate, carbon dioxide, hydrogen dioxide, typically in 20 minutes or less. No bioaccumulation from this product.
  - Product names of potential use: GreenClean Pro, PAK 27

- Glyphosate – Applied as a liquid utilizing a sprayer, on the reservoir banks or by boat for emerged aquatic plans and other weeds growing at the water line and to floating leaved aquatic weeds. These herbicides may be mixed with an aquatic approved non-ionic surfactant.
  - Product Degradation – Over time, glyphosate undergoes microbial degradation in soil, sediment and natural waters, under both aerobic and anaerobic conditions. The major metabolite formed is aminomethylphosphonic acid, which undergoes further microbial degradation. Glyphosate is ultimately metabolized to carbon dioxide, inorganic phosphate, and other naturally occurring compounds. Glyphosate readily dissipates from surface water by two (2) primary mechanisms. It quickly partitions from water into sediment, and then is microbially degraded over time in both water and the sediment.
  - Product names of potential use: Aqua Master

- Fluridone – Applied as a liquid, utilizing a backpack or vehicle mounted sprayer or broadcast spreader, on the reservoir banks or by boat for emerged aquatic plans and other weeds growing at the water line and to floating leaved aquatic weeds.
  - Product Degradation – Fluridone rapidly degrades into water through microbial degradation and rapidly binds to clays and sediments.
  - Product names of potential use: Alligare Fluridone, Sonar A.S., Sonar One

- Flumioxazin – Applied as a tank mixed water dispersing granule. It is mixed and sprayed utilizing a backpack sprayer or mounted sprayer, on the reservoir banks or from a boat for selected emergent and floating aquatic weeds.
  - Product degradation: Flumioxazin is unstable in the environment with a half-life ranging from 0.01-5 days depending upon pH. The data indicates hydrolysis is probably the primary pathway for degradation. Flumioxazin is unstable in the presence of light with a one-day half-life in water and 3/8-day half-life on soil.
  - Product names of potential use: Clipper

- Ammonium Salt of Imazamox – Applied as a liquid that may or may not be diluted in water, utilizing a backpack or tank sprayer for submerged, floating and emergent aquatic plans and other weeds growing in or at the water line.

- Product degradation: Imazamox is only moderately persistent, and it degrades aerobically in the soil to a non-herbicidal metabolite which is immobile or moderately mobile. It also degrades by aqueous photolysis.
- Product names of potential use: Clearcast

Surfactant(s) used

Adjuvants

Denali-EA	Fatty Acid Ester	Wilbur-Ellis	2935-50204
Liberate	Lecithin	Loveland Products	34704-50030
R11	n/a	Wilbur-Ellis	2935-50142
SYL-TAC-EA	Ethylated seed oil	Wilbur-Ellis	Ca Reg. 2935-50203

- Denali-EA - a nonionic surfactant approved for aquatic use that is designed to increase efficacy and performance by providing a combination of surfactancy and buffering the spray solution to an acidic pH. DENALI-EA increases spreading action and promotes more uniform coverage.
  - Polyoxyalkylene Polyol Fatty Acid Ester, Alcohol Ethoxylate & 2-Hydroxy-1,2,3-propanetricarboxylic acid.
  - Product is not classified as environmentally hazardous. No data for persistence and degradability.

- Liberate – A non-ionic, low foam penetrating adjuvant combination of Lecithin, methyl esters of fatty acids and alcohol ethoxylate that is mixed with products such as Aqua Master or REWARD to enhance the activity and effectiveness of the herbicide.

- R-11 - A non-ionic, low foam penetrating adjuvant combination of Lecithin, methyl esters of fatty acids and alcohol ethoxylate that is mixed with products such as Aqua Master or REWARD to enhance the activity and effectiveness of the herbicide.
  - Product Degradation – Being Soy based products; Liberate and R-11 are biodegradable.

- SYL-TAC-EA – It is an Ethylated seed oil; Polyether-Polymethylsiloxane-Copolymer, and Polyoxyalkylene fatty ester.
  - Product is not classified as environmentally hazardous.

C.5 Discussion of the Factors Influencing the Decision to Select Algaecide and Aquatic Herbicide Applications for Algae and Weed Control

The factors that influence the decision to use aquatic algaecides and herbicides are determined by the time of year, increase in the average water and air temperatures, observed algae and aquatic growth, measured algae growth through CyanoWatch Flourometers, testing results of taste and odor components in water, and resident/customer complaints received due to taste and odors.

As temperature increases, algae and aquatic weeds grow and mature at a faster pace. It is the goal of the District to limit the growth of the algae and aquatic weeds utilizing the least amount of active ingredient as possible. By pursuing algae's and aquatic weeds early in their growth cycle, the younger plants are more susceptible to lower concentrations of the active ingredient and there is less plant mass to target, resulting in better control of the target pests. Further, reduction in algae and aquatic weeds reduces the

organic loading into the water treatment plant, allowing the water treatment plant to operate more efficiently.

C.6 If Applicable, List the Gates or Control Structures to be Used To Control the Extent of Receiving Water Potentially Affected by Algaecide and Aquatic Herbicide Application and Provide an Inspection Schedule of Those Gates or Control Structures to Ensure They Are Not Leaking

Algaecide and aquatic herbicides may be applied by the District to all bodies of water identified in Table 1, during the spring and summer months. The levels are controlled by either the District or RMCC to prevent spilling into adjacent drainage systems during and after treatments. As discussed earlier, the golf course ponds are operated and regulated in a manner to prohibit off-site discharge.

No water from Cosumnes River is diverted to the three (3) reservoirs during the spring and summer. Bass Lake is controlled by diversion from Clementia Reservoir. Therefore, the District has significant control over the diversion of water to the reservoirs during the timeframe of algaecide and aquatic herbicide application.

Laguna Joaquin and Basin 5 are affected by urban runoff and used for irrigation of public areas during the summer months. Drainage gates are open in the fall, prior to the first anticipated rain event.

The water levels of any water body being treated at the time of application is noted in the Aquatic Herbicide Application Log (See Appendix A). If there is a chance that the body of water being treated may spill after an application occurs, the District will not apply algaecide and aquatic herbicides to that water body.

Most of the bodies of water have man-made spillways and valving built into the reservoirs to control their levels. Spillways and valving are inspected and operated a minimum of annually to ensure functionality. This is typically done in fall prior to the rainy season.

C.7 Not Applicable

The District is not listed as an agency with an exemption per Attachment G of the General Order.

C.8 Description of Monitoring Program

Two (2) bodies of water are proposed for monitoring in compliance with the General Order: 1) Laguna Joaquin, and 2) Calero Reservoir. Samples will be taken upstream (if available), at the body of water, and downstream (if any downstream flow available). These samples will be sent out to a certified contract laboratory for testing within the proper hold times using chain of custody procedures.

GPS coordinates of sampling sites are below.

Laguna Joaquin

- Site 1 (Upstream): 38.497322, -121.065955
- Site 2 (Downstream of community): 38.481509, -121.107568
- Site 3 (Downstream, last point of drainage outfall from community): 38.483367, -121.131125

Calero Reservoir

- Spillway: 38.517301, -121.084460
- Site 1 (Upstream): 38.526326, -121.086333
- Site 2 (Downstream): 38.519937, -121.103925

Figure 4: Laguna Joaquin Sample Location Map

Monitoring Map: 1 - Upstream, 2 - Downstream from sites 3,7,10,11 , 3 - Downstream from the rest of the sites, except 1.

Figure 5: Calero Reservoir Sample Location Map

As part of each monitoring event, District staff will complete a monitoring form and record the results for the field analysis and other observations (Appendix B). The District will monitor and report as per the Standard Provisions Water Quality Order No.2016-0073-EXEC (See Appendix C).

Table 2: Sampling Plan

Sample Type	Constituent / Parameter	Units	Sample Method	Minimum Sampling Frequency	Sample Type Requirement	Required Analytical Test Method
Visual	1. Monitoring area description (Pond, Lake, Reservoir, channel, etc)	Not Applicable	Visual Observation	1	Background, Event and Post-event Monitoring	Not Applicable
	2. Apprearance of waterway (sheen, color, clarity, etc.)					
	3. Weather conditions (fog, rain, wind, etc.)					
Physical	1. Temperature[2]	˚F	Grab[4]	5	Background, Event and Post-event Monitoring	6
	2. pH[3]	Number				
	3. Turbidity[3]	NTU				
	4. Electric Conductivity[4] @ 25˚C	µmhos/cm				
Chemical	1. Active Ingredient[7]	µg/L	Grab[4]	5	Background, Event and Post-event Monitoring	6
	2. Nonylphenol[8]	µg/L				
	3. Hardness (if copper is monitored)	mg/L				
	4. Dissolved Oxygen[2]	mg/L				

1. All applications at all sites.
2. Field testing
3. Field or laboratory testing.
4. Samples shall be collected at three feet below the surface of the water body or at mid water column depth if the depth is less than three feet.
5. Collect samples from a minimum of six application events for each active ingredient in each environmental setting (flowing watre and non-flowing water). If the results of monitoring from six consecutive application events show concentrations that are less than the receiving water limitation/trigger for an active ingredient in an environmental setting, sampling shall be reduced to one application event per year that that active ingredient and that environmental setting. To support a reduction in monitoring frequency, the six sampling events showing concerntraions that are less than the receiving water limitation/trigger for an active ingredient must be consecutive and can spore than one year or application season. The reduction in monitoring frequency under this provision applies to all listed active ingredients including SIP listed active ingredients. If the yearly sampling event shows exceedance of the receiving water limitations/trigger for an active ingredient in an environmental setting, then sampling shall return to six application events for that active ingredietn in each environmental setting. For glyphosate, collect sample from one application even from each environmental setting (flowing water and non-flowing water) per year.
6. Pollutants shall be analyzed using the analytical methods described in 40 C.F.R. part 136.
7. 2,4-D, acrolein, chlorine, dissolved copper, diquat,rndothall, flumioxazin, fluridone, glyphosate, imazamox, imazapyr, penoxsulam, and tricopyr.
8. It is required only when a surfactant is used.

In addition to the required monitoring, the District also conducts sampling for MIB and Geosmin to determine the levels of taste and odor and to determine effectiveness of treatments. Once MIB & Geosmin levels approach the minimum levels that can be perceived, the District will begin treatment. Also, pre-treatment and post-treatment samples for copper from the Water Treatment Plants may be collected to ensure no elemental copper is passing through the treatment process. The secondary maximum contaminant level (MCL) for copper is 1.0 mg/L.

C.9 Description of Procedures Used to Prevent Sample Contamination from Persons, Equipment, and Vehicles Associated with Algaecide and Aquatic Herbicide Application

Personnel responsible for sample collection and field analysis are trained annually on proper sample collection techniques to ensure representative samples are collected and to avoid sample contamination. Sample containers will be provided and prepared by the laboratory performing the analysis. All sample containers and field analysis will be kept separate from all aquatic herbicide containers and application equipment. As samples are collected, a sample container label will be completed, noting the date, time and location of sample. A separate monitoring form will also be completed to record the results for the field analysis and other observations (Appendix B). All field equipment will be cleaned after use at each sample location.

The sample will then be placed into an insulated container with ice packs to maintain a temperature near 4˚C. Samples will be accounted for utilizing a standard "chain of custody" form supplied by the laboratory performing the analysis to insure the integrity of the sample collection and transfer process.

C.10 Description of the Best Management Practices to be Implemented.

Best Management Practices (BMPs) are used to prevent the release of the products used outside of the area of intended use. BMPs are utilized for compliance with all pesticide label instructions, as well as requirements to comply with receiving water limitations. The BMPs required herein are intended to: 1) minimize the area and duration of impacts caused by the use of pesticides, and 2) allow for restoration of water quality and protection of beneficial uses of the receiving waters to pre-application quality following completion of an application event.

Typical BMPs are as follows:

- Review alternative methods vs aquatic herbicide applications to determine if applications are necessary.
- Applications will only occur during periods in which the bodies of water are not spilling and there is adequate freeboard, over one foot, at the spillway.
- Applications will not occur if for any day within 5-day forecast, at weather.com for Sloughhouse, CA http://www.weather.com/weather/tenday/Sloughhouse+CA+95683:4:US, forecast predicts a chance of precipitation for any day over 30%.
- Water flow from the Cosumnes Irrigation Association ditch will not be diverted into Laguna during and five days after applications to prevent possible overflows.
- Use products at manufacturer's label rate or less per application.
- Follow Pest Control Advisor recommendations.
- Only staff or contractor with a California Department of Pesticide Regulations (DPR), Qualified Applicator Certificate Category F, or staff trained by that individual, will be used for applications.
- Follow all DPR regulations.
- Do not apply via spray gun if even slightly windy conditions exist to eliminate potential drift.
- Properly inspect and maintain all application equipment and storage trailers.

C.10.a Measures to Prevent Algaecide and Aquatic Herbicide Spill and for Spill Containment During the Event of Spill

All algaecide and aquatic herbicide applications are made by properly trained staff and are recommended by a Pest Control Advisor. Employees that are assigned to apply algaecides and aquatic herbicides are continually trained in the proper handling and safe use of algaecides and aquatic herbicides. This insures that the dosing, mixing, application and usage of the algaecides and aquatic herbicides are conducted in vats that minimize accidental spills and overexposure to both the applicators and the environment. In the event of a spill or accidental release of algaecide or aquatic herbicides, all District algaecide and aquatic herbicide application vehicles and storage areas are equipped with appropriate spill containment supplies. All spills will be cleaned up according to label instructions and properly disposed of. Employees will also report all spills, when required, to all Local, State and Federal agencies as appropriate.

C.10.b Measures to Ensure That Only an Appropriate Rate of Application Consistent with Product Label Requirements is Applied for the Target Weeds or Algae

Prior to any algaecide and/or aquatic herbicide application, a currently certified Qualified Applicator will determine the amount of product to be used for the volume and area in accordance with the label rate for the weeds or algae to be treated. Before algaecides or aquatic herbicides are applied, the application rate is verified at the application point prior to treatment. The District may also request a Pest Control Advisor perform a site visit to the applications area(s) to determine proper treatment application and provide a formal recommendation for trained staff to utilize for applications.

C.10.c The Discharger's Plan in Educating Its Staff and Algaecide and Aquatic Herbicide Applicators on How to Avoid Potential Adverse Effects from the Algaecide and Aquatic Herbicide Applications

Annually, before the beginning of the application/treatment season, the District conducts a meeting with all herbicide applicating staff to review the needs for algaecide and aquatic herbicide applications; the schedule of when and where treatments will occur; and potential effects of the treatment operations. In addition, the District maintains a Certified Applicator on staff who is required to receive training in order to maintain their applicator license.

C.10.d Discussion on Planning and Coordination with Nearby Farmers and Agencies with Water Rights Diversion so that Beneficial Uses of the Water (Irrigation, Drinking Water Supply, Domestic Stock Water, etc.) are not Impacted During the Treatment Period

As discussed above, only downstream users via the Cosumnes Irrigation Association ditch receive water. The District will conduct public outreach annually as required in Section VIII.B of the General Order and on-going coordination is maintained with the users of water from the Cosumnes Irrigation Association ditch throughout the irrigation season.

C.10.e A Description of Measures that Will Be Used for Preventing Fish Kill When Algaecides and Aquatic Herbicides Will Be Used for Algae and Aquatic Weed Controls.

Fish can be harmed during the application of algaecides and aquatic herbicides that contain copper, which can reduce the amount of dissolved oxygen in the water. Only lower amounts of algaecides and/or aquatic herbicides containing copper is applied to the reservoirs to control the growth of algae and/or aquatic weeds in sections at a time. Temperature, prior dissolved oxygen levels, and algae concentrations will be closely monitored as they may all play a factor towards impacting any potential existing fish from a treatment.

C.11 Examination of Possible Alternatives. Dischargers Should Examine the Alternatives to Algaecide and Aquatic Herbicide Use to Reduce the Need for Applying Algaecides and Herbicides. Such Methods Include:

C.11.a Evaluating the following management options, in which the impact to water quality, impact to non-target organisms including plants, algaecide and aquatic herbicide resistance, feasibility, and cost effectiveness should be considered

C.11.a.i No Action

If algae and/or aquatic weed growth is at a minimum and not impacting the operation or capacity of the reservoirs or the taste and odor of the water supply, then no action is taken to control the algae or aquatic weed growth. During the later spring or when air and water temperatures increase, algae and aquatic weed growth is accelerated. If not controlled, this algae and aquatic weed growth has the possibility to affect the quality of water delivered from the reservoirs, and foul and plug irrigation system components.

C.11.a.ii Prevention

Continual efforts are made to reduce or prevent the growth of algae's and aquatic weeds. Efforts include limiting intercepted storm and other runoff from entering the reservoirs and providing nutrients for plant growth. Allowing reservoir levels to be drawn down allows shoreline vegetation and benthic algal growths to dry out. If accompanied by freezing it may even kill off the vegetation. This has proven well for the aquatic weeds that grow below the high-water line such as Milfoil, Hydrilla, and Coontail, but has not been effective on Cat tails (Typha) or the Phormidium mats along the shoreline which seems to rehydrate and grow again.

C.11.a.iii Mechanical of Physical Methods

Aquatic harvesting is a relatively inexpensive way to remove a large portion of the aquatic vegetation. The vegetation contributes to the total organic carbon (TOC) present in the reservoir, as well as being a food source for algae and a substrate for its growth. A problem with aquatic harvesting is that cut pieces of aquatic vegetation not removed can spread throughout the reservoir and continue to grow.

C.11.a.iv Cultural Methods

Allowing reservoir levels to be drawn down allows shoreline vegetation and benthic algae growths to dry out. If accompanied by freezing it may even kill off the vegetation. This has proven well for the aquatic weeds that grow below the high-water line such as Milfoil, Hydrilla, and Coontail, but has not been effective on Cat tails (Typha) or the Phormidium mats along the shoreline which seems to rehydrate and grow again.

Barley straw has been noted as having a possible effect for controlling algae growths. Although the actual method of why it sometimes works is currently unknown, it is suggested that the barley straw decomposition releases peroxide which oxidizes fragile algal cells. Recorded cases show that it does not reliably. The District tested its use in its wastewater treatment Pond #4 with no sign of success.

C.11.a.v Biological Control Agents

The District maintains 23 Triploid grass carp, 19 in Basin 5 and 4 in Pond 6 to eat aquatic vegetation. Unfortunately, they do little to control aquatic weeds.

C.11.a.vi Algaecides and Aquatic Herbicides

The Pest Control Advisor considers a variety of algae and aquatic weed control approaches that may include mechanical removal, cultural methods, and/or algaecide and aquatic herbicides. Algaecides and aquatic herbicides may be applied alone, or in combination with other algae and/or aquatic weed control methods.

The quantity of algaecide and/or aquatic herbicide that is applied to the reservoirs is determined by the Pest Control Advisors recommendations following Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) label instructions. The optimal dosage of algaecide and aquatic herbicide used is highly variable and depends upon the plant mass, turbidity of water, type of algae and/or aquatic weed, concentrations and goal of application. All these factors are considered by the Pest Control Advisor when making a recommendation for an application.

C.11.b Using the Least Intrusive Method of Algaecide and Aquatic Herbicide Application

It is the goal of the District to only use that amount of algaecide and aquatic herbicide necessary to control the growth of algae's and aquatic weeds. The amount of algaecide and aquatic herbicides needed for complete elimination of all algae's and aquatic weeds is cost prohibitive and could result in excessive release of active ingredients, potentially harming non-target plants and animals.

The District utilizes each of the management options above to manage algae and aquatic weeds in the various water bodies, and resorts to the use of algaecide and aquatic herbicides when all other management options are no longer effective. All algaecide and aquatic herbicides are applied using a backpack sprayer or broadcast spreader in order to limit the amounts of applied product(s) and to isolate applications to designated treatment areas only.

C.11.C Applying a Decision Matrix Concept to the Choice of the Most Appropriate Formulation

As previously stated, the Pest Control Advisor or Qualified Applicator evaluates the area to be treated prior to the application to determine the presence and extent of the target algae(s) and aquatic weeds. Once evaluated, the Pest Control Advisor, following the FIFRA label, will determine the dosage and amount of algaecide and/or aquatic herbicide to apply, including the rate of application. Information for and about each application is recorded on a form, including the desired dosage rate, application rate, and other physical observations. If the location has been designated for sampling, additional information, including the results of field sampling analysis is included.

RANCHO MURIETA COMMUNITY SERVICES DISTRICT

AQUATIC PESTICIDE APPLICATION LOG

Date of Application: _____

Location of application: _____

Reason for Application: _____

Visual Assessment before application:

_____

Name of Product(s) used: _____

Amount of Product(s) Used: _____ (*lbs., oz, Gallons, etc.*)

Surfactant Used (if any): _____ Amount:_____

Flow or level and volume of water body:_____

Applicator Certification:

I _____ certify that the APAP and BMPs have been followed.
(*print name)*

_____ _____
(signature) *(date)*

Appendix B – Field Monitoring Log Form

RANCHO MURIETA COMMUNITY SERVICES DISTRICT
AQUATIC PESTICIDE MONITORING FIELD LOG

General Information					
Site ID:			Approximate Application Area (Ac):		
Date:			Time of Arrival:		
Type of Water Body (circle):		Statice (No-Flow)		Flowing	
Type of Event (circle):		Application Event		Post-Application Event	
Type of Pesticide Applied:					
GPS Coordinates:		Latitude:		Longitude:	
Photos Taken (Reference)					
Weather (fog, rain, wind, etc.):					
Water Quality Information					
Sheen:	Yes No	Clarity:	Good	Fair	Poor
Odor:	Yes No	Floating Material:	Yes No	Color:	
Other Observations:					
Sample Information					
Sample Collection Time:		Water Samples Collected:			
QA/QC Samples Collected (circle):		Field Blank		Field Duplicate	
Field Measurement Time:		Temperature (˚C):		pH:	
Dissolved Oxygen (mg/L):		Turbidity (NTU):		Conductivity (µs/cm):	
Description of Sample Location:					
Date:			Time of Leaving:		
Name:			Signature:		