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DIVISION OF WATER QUALITY

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 City of Atascadero			
B. Mailing Address 6500 Palma Avenue			
C. City Atascadero	D. County San Luis Obispo	E. State California	F. Zip 93422
G. Contact Person Nick DeBar	H. E-mail address ndebar@atascadero.org	I. Title Director of Public Works	J. Phone 805-470-3456

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: _____
2. ☐ 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: Atascadero Lake

B. Regional Water Quality Control Board(s) where treatment areas are located (REGION 1, 2, 3, 4, 5, 6, 7, 8, or 9): Region 3
(List all regions where algaecide and aquatic herbicide application is proposed.)

V. ALGAECIDE AND AQUATIC HERBICIDE APPLICATION INFORMATION

A. Target Organisms: ____
blue-green algae (cyanobacteria), Dolichospermum

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

- Argos, Cutrine Plus, Captain, Captain XTR, Nautique (Copper)
- Flumigard, Clipper, Propeller (Flumioxazin)
- Alligare Diquat, Reward, Tribune (Diquat dibromide)
- GreenClean, PAK27 (Sodium carbonate peroxyhydrate)
- Aquathol K, Cascade, Hydrothol 191 (Endothall)
- Alligare Fluridone, Sonar one, Sonar Genesis, Sonar AS (Fluridone)
- Glyphosate 5.4, Aquaneat, Rodeo, AquaPro, Glypro (Glyphosate)
- Imox, Clearcast (Imazamox)
- Galleon SC (Penoxsulan)

C. Period of Application: Start Date: April 2019 End Date: When Permit Expires

D. Types of Adjuvants Used: Non-ionic surfactant

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: Nicholas D. DeBar

B. Signature: Nicholas D. DeBar **Date:** 3/29/19

C. Title: Director of Public Works, City of Atascadero

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** _____

AQUATIC PESTICIDE APPLICATION PLAN FOR ATASCADERO LAKE

ATASCADERO
SAN LUIS OBISPO COUNTY, CALIFORNIA

JULY 2018

Prepared for:

City of Atascadero
Department of Public Works
6500 Palma Avenue
Atascadero, California 93422

Prepared by:

Padre Associates, Inc.
369 Pacific Street
San Luis Obispo, California 93401

Project No. 1602-3851

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

Revised March 2019

CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direct supervision in accordance with a system designed to ensure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who managed 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.

Signed and Agreed:

Nicholas D. DeBar, Director of Public Works
City of Atascadero

TABLE OF CONTENTS

1.0 INTRODUCTION 1

1.1 BACKGROUND INFORMATION 1

2.0 AQUATIC PESTICIDE APPLICATION PLAN 2

2.1 ELEMENT 1: DESCRIPTION OF WATER SYSTEM 2
2.1.1 Regionally Occurring Sensitive Habitats 2
2.2 ELEMENT 2: DESCRIPTION OF THE TREATMENT AREA 3
2.3 ELEMENT 3: DESCRIPTION OF THE WEEDS AND ALGAE TO BE CONTROLLED 3
2.4 ELEMENT 4: ALGAECIDES AND AQUATIC HERBICIDES TO BE USED 3
2.5 ELEMENT 5: FACTORS INFLUENCING DECISIONS IN SELECTION OF ALGAECIDE AND AQUATIC HERBICIDE APPLICATIONS FOR ALGAE AND WEED CONTROL 4
2.5.1 Aquatic Vegetation 4
2.5.2 Algae and Cyanobacteria 4
2.6 ELEMENT 6: GATES AND CONTROL STRUCTURES 5
2.7 ELEMENT 7: STATE IMPLEMENTATION POLICY (SIP) SECTION 5.3 EXCEPTION 5
2.8 ELEMENT 8: MONITORING PROGRAM 5
2.8.1 Data Collection 6
2.8.2 Sample Collection 7
2.8.3 Field Measurements 8
2.8.4 Sample Preservation and Transportation 8
2.8.5 Sample Analysis 8
2.8.6 Sampling Methods and Guidelines 9
2.8.7 Reporting Procedures 12
2.9 ELEMENT 9: PROCEDURES TO PREVENT SAMPLE CONTAMINATION 15
2.10 ELEMENT 10: BEST MANAGEMENT PRACTICES (BMPS) 15
2.10.1 Spill Contingency Plan 15
2.10.2 Measures to Ensure Appropriate Use Rate 15
2.10.3 Educational Program for Staff and Applicators 16
2.10.4 Impact Prevention Program 16
2.10.5 Measures to Prevent Fish Kills 16
2.11 ELEMENT 11: EXAMINATION OF POSSIBLE ALTERNATIVES 17
2.11.1 Evaluation of Other Management Options 17
2.11.2 Least Intrusive Method 18
2.11.3 Decision Matrix Concept 18

3.0 REFERENCES 19

LIST OF TABLES

Table 2.4-1 Algaecides and Aquatic Herbicides to be Used 4
Table 2.8-1 Monitoring Requirements 7
Table 2.8-2 Required Sample Analysis 9
Table 2.8-3. Receiving Water Limitation 12
Table 2.11-1 Alternatives Decision Matrix 18

LIST OF FIGURES

Figure 1 – Site Location Map
Figure 2 – Site Plan

LIST OF APPENDICES

Appendix A: Laboratory Analytical Report
Appendix B: Monitoring Forms

1.0 INTRODUCTION

1.1 BACKGROUND INFORMATION

On March 5, 2013, the State Water Resources Control Board (SWRCB) adopted the 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 (General Permit). The permit requires that dischargers seeking permit coverage submit an Aquatic Pesticides Application Plan (APAP) with the permit application package to the SWRCB (Reference: Section II.C.3. General Permit Coverage and Application Requirements, General Permit Application). When the application package and the APAP are deemed complete, the Deputy Director of the SWRCB will issue a Notice of Applicability allowing the discharger to apply aquatic pesticides in accordance with the requirements of the General Permit.

The following Aquatic Pesticide Application Plan (APAP) describes the project site, aquatic plant and algae nuisances, aquatic pesticide products expected to be used, the monitoring program, and best management practices (BMPs) to be followed, as well as the other conditions addressed in the General Permit, Section VIII, Aquatic Pesticide Use Requirements.

2.0 AQUATIC PESTICIDE APPLICATION PLAN

The following sections present the 11 required elements of the APAP, as required by the General Permit.

2.1 ELEMENT 1: DESCRIPTION OF WATER SYSTEM

Atascadero Lake is approximately 30 surface acres with an estimated volume of 210 acre-feet (www.wikipedia.org, 2016). An earthen dam is located on the northwestern side, and an overflow channel extends northwest from the lake to Atascadero Creek. The lake is filled from a small watershed surrounding the lake and through a surface water diversion from Atascadero Creek operated by the City of Atascadero (Water Rights No. A017728).

Warm seasonal temperatures combined with shallow depths and high nutrient value can allow for rapid algae growth and can create a visible scum on the surface. Leaves and debris collect on the lake's surface, impacting the aesthetic quality of the lake as well as increasing nutrient load thereby increasing the carrying capacity for algae.

The Central Coast Regional Water Quality Control Board (RWQCB) Water Quality Control Plan for the Central Coastal Basin (Basin Plan) lists Atascadero Lake with the following beneficial uses for the surface water: municipal, groundwater recharge, recreation, wildlife, cold water habitat, warm water habitat, spawning, navigation, and commercial uses (RWQCB, 2016).

2.1.1 Regionally Occurring Sensitive Habitats

Special-status amphibian and fish species that have been documented within the region of Atascadero Lake or that have potential habitat within the lake include California red-legged frog (CRLF) (*Rana dratonii*) and south-central California coast steelhead trout (Oncorhynchus mykiss). Although their potential to occur is unlikely, both species have an aquatic component of their life cycles. Based on information obtained from the desktop review, both species have designated Critical Habitats, defined by the Federal Endangered Species Act under Section 3, and protected by the U.S. Fish and Wildlife Service (USFWS) and/or National Marine Fisheries Service (NMFS), that occur in the region and are afforded protection by a federal, state, or local authority.

2.1.1.1 South-Central California Coast Steelhead Trout

USFWS-designated Critical Habitat for southern steelhead is defined under Section 3 of the FESA as: (1) specific areas within the geographical area occupied by the species at the time of listing, on which are found those physical or biological features that are essential to the conservation of the listed species and that may require special management considerations or protection, and (2) specific areas outside the geographical area occupied by the species at the time of listing that are essential for the conservation of a listed species (NOAA, 2005a, b). NMFS is responsible for designating Critical Habitat for this species. Atascadero Creek is designated southern steelhead Critical Habitat and occurs within the Project region (NMFS, 1997) and lies approximately 1,000 feet northwest of Atascadero Lake.

2.1.1.2 California Red-Legged Frog

USFWS-designated Critical Habitat was finalized in March of 2001 for core areas selected based on the following criteria: (1) areas that are occupied by CRLF, (2) areas where populations

of CRLF appear to be source populations, (3) areas that provide connectivity between source populations, and (4) areas that represent areas of ecological significance (USFWS, 2002a). Critical Habitat may include an area that is not currently occupied by the species, but is important for its recovery. Further, CRLF are also protected if occurring outside designated Critical Habitat areas. Critical Habitat for CRLF does not occur within Atascadero Lake. The nearest CRLF Critical Habitat occurs approximately 1.4 miles southwest of the lake.

2.2 ELEMENT 2: DESCRIPTION OF THE TREATMENT AREA

The treatment area in the Atascadero Lake can be the entire lake for the control of aquatic weeds and algae or the treatment area could be a spot or partial lake treatment. Refer to Figure 2.

2.3 ELEMENT 3: DESCRIPTION OF THE WEEDS AND ALGAE TO BE CONTROLLED

Atascadero Lake's shallow depth, water retention time, climate conditions, waterfowl population, and watershed runoff all serve to create an environment that is conducive to heavy algae density as well as high nutrient value. As a result of low water volume and warm summer temperature, the lake is impacted by algae and cyanobacteria growth throughout the summer months.

Algae sampling was conducted by RWQCB staff on April 20, 2017, and submitted to Bend Genetics, LLC, for analysis for the presence of toxigenic cyanobacteria using enzyme linked immunosorbent assay (ELISA) methods and visual microscopy. The ELISA analytical results indicated the presence of anatoxin-a, microcystin, and saxitoxin. Microscopic analysis indicated a very high concentration of *Dolichospermum sp.* cyanobacteria. Refer to Appendix A for the complete laboratory analytical report.

In shallow reservoirs such as Atascadero Lake, algae density becomes a detriment to water quality by impacting water quality water parameters such as transparency, dissolved oxygen, and pH.

2.4 ELEMENT 4: ALGAECIDES AND AQUATIC HERBICIDES TO BE USED

Table 2.4-1 below presents the herbicides and algaecides that would be utilized for control of the plant and algae species listed in the paragraphs above. The herbicide diquat to date has not been used in the lake and would only be used as a last measure if other active ingredients are not effective in eliminating nuisance conditions. Various adjuvants and surfactants labeled for aquatic use may be used in combination with these herbicides and algaecides. Adjuvants containing ingredients represented by the surrogate nonylphenol will not be used in the lakes.

Table 2.4-1 Algaecides and Aquatic Herbicides to be Used

Algaecide Active Ingredient	Application Method(s)	Adjuvant
Fluridone	Drop hose boom system	None
Diquat	Drop hose boom system	None
Copper sulfate Chelated copper	Granular blower/spreader spray nozzle, boom system	None None
Endothall	Drop hose boom system	None
Penoxsulam	Drop hose boom system	None
Imazymox	Drop hose boom system	None
Peroxyhydrate	Eductor/spray jets	None
Glyphosate	Backpack sprayer	Non-ionic surfactant approved for aquatic use

2.5 ELEMENT 5: FACTORS INFLUENCING DECISIONS IN SELECTION OF ALGAECIDE AND AQUATIC HERBICIDE APPLICATIONS FOR ALGAE AND WEED CONTROL

2.5.1 Aquatic Vegetation

The decision to use aquatic algaecides and herbicides is proposed as part of an Integrated Pest Management (IPM) approach. One of the primary operational goals of the IPM approach is to establish a general and reasonable set of control measures that not only aid in managing aquatic vegetation populations, but also address public health & safety, economic, legal, and aesthetic requirements. The IPM approach is based on the determination of nuisance thresholds of plants and algae determined by the City. If vegetation or algae equals or exceeds a threshold, a control method is implemented. Control methods may include mechanical, physical, biological, or chemical strategies. Algaecide and aquatic herbicide use may or may not be employed as a last resort control method, and is considered a critical part of the IPM program. For some aquatic weed varieties, herbicides offer the most effective (i.e. long-lasting or least labor Intensive) control, and often they may be the only control available.

Control tolerances are based on a number of factors. Beneficial uses and the impact of the weed and algae growth on those uses is a primary determining factor when using integrated aquatic plant management technologies to control this growth.

2.5.2 Algae and Cyanobacteria

The dominant aquatic plant species in these systems is cyanobacteria (blue green algae) species and green algae species (planktonic and filamentous). The accumulation of nutrients in

the sediment of a lake such as Atascadero Lake have resulted in a high rate of internal loading of phosphorous into the water column. As algae density increases, sunlight penetration into the water column decreases, and native submersed plants are no longer able to survive. In addition, decomposing plant material uptakes oxygen. This leads to an anoxic environment and a decreases in vascular plant habitat for fishery, invertebrate population density, and the overall water quality necessary to maintain a balanced ecosystem. As water temperatures increase, the metabolic rate of growth and division within the algal cells increase. The algae begin to gather at the water's surface in order to increase their sunlight exposure. This is when "bloom" conditions occur. This is a precursor to a dissolved oxygen crisis in the water column.

The result of this algae density has been manifold: a decline in water quality; pH fluctuation; odor; unsightly appearance; and the potential for dissolved oxygen fluctuation in summer months. All of these have a direct impact on the beneficial use of the lake. In addition to this, blue green algae can produce toxins that are a health hazard to humans and animals.

The decision to us an algaecide or herbicide is based on consultation with the City and in coordination with a certified Pest Control Advisor (PCA). This decision takes into consideration any other viable control options that may work in combination with algaecides and herbicides, and is focused on the most effective technology to achieve control with as little environmental impact as possible.

2.6 ELEMENT 6: GATES AND CONTROL STRUCTURES

This is not applicable. The treatment area does not have any gates or control structures that will be operated during periods of treatment application. The emergency overflow channel at the northwestern corner of the lake is only active during heavy rain events after the lake has reached capacity. Treatment will not occur during the winter months or when the lake is overflowing into Atascadero Creek.

2.7 ELEMENT 7: STATE IMPLEMENTATION POLICY (SIP) SECTION 5.3 EXCEPTION

This is also not applicable. The City of Atascadero has not sought or been granted an exemption to the State Implementation Policy.

2.8 ELEMENT 8: MONITORING PROGRAM

Attachment C of the General Permit presents the Monitoring and Reporting Program (MRP). The MRP addresses the two key questions.

Questions No. 1: Does the residual algaecides and aquatic herbicides discharge cause an exceedance of receiving water limitations?

Questions No. 2: Does the discharge of residual algaecides and aquatic herbicides, including active ingredients, inert ingredients, and degradation byproducts, in any combination cause or contribute to an exceedance of the “no toxics in toxic amount” narrative toxicity objective?

The following section discusses the MRP prepared by the City for ensuring compliance with the General Permit.

2.8.1 Data Collection

Visual monitoring will be performed for all aquatic herbicide and algaecide applications at all sites and will be recorded by qualified personnel on standardized forms (see Appendix B) that will be stored both digitally and centrally and be made available upon request.

Monitoring Locations and Frequency. No water quality sampling is required for applications of products that contain sodium carbonate peroxyhydrate. For application of all other algaecides and aquatic herbicides listed on the General Permit, the City will collect samples for each application event.

If the results from six consecutive sampling events show concentrations that are less than the applicable receiving water limitation/trigger, then sampling frequency for that active ingredient will be reduced to one per year. If the annual sampling shows exceedances of the applicable receiving water limitation/trigger, the City will be required to return to sampling each application event, and until sampling may be reduced again.

In-situ Measurements. In conjunction with sample collection, temperature, turbidity, electrical conductivity, pH, and dissolved oxygen may be measured in the field using field meters: Turbidity, pH, and dissolved oxygen meters are calibrated according to manufacturer's specifications at the recommended frequency, and checked with a standard prior to each use. Table 2.8-1 below indicates the required monitoring parameters as per the General Permit:

Table 2.8-1 Monitoring Requirements

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

Notes:
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 per year, except for glyphosate. If there are less than six application events in a year, collect samples during each application event for each active ingredient. If the results from six consecutive sampling events show concentrations that are less than the receiving water limitation/trigger for an active ingredient, sampling shall be reduced to one application event per year for that active ingredient. If the yearly sampling event shows exceedance of the receiving water limitation/trigger for an active ingredient, then sampling shall return to six application events for that active ingredient. For glyphosate, collect samples from one application event.
6 Pollutants shall be analyzed using the analytical methods described in 40 CFR Part 136.
7 Dissolved copper, diquat, endothall, fluridone, penoxsulam, imazamox, glyphosate.
8 It is required only when a surfactant is used.

2.8.2 Sample Collection

Sampling will include background, event, and post-event monitoring as follows:

1. **Background Monitoring**. Background monitoring (BG) samples will be collected in the application area just prior to (up to 24 hours in advance of) the application event.
2. **Event Monitoring**. Event monitoring (Event) samples will be collected immediately outside of the treatment area, immediately after the application event, but after sufficient time has elapsed such that treated water would have exited the treatment area.

The location and timing for the collection of the Event sample may be based on a number of factors including, but not limited to algae and aquatic weed density and type, size of the treatment area and duration of treatment.

3. **Post-Event Monitoring**. Post event (Post) sample is collected within the treatment area within one week after the application, or when the treatment is deemed complete.

One full set of three samples (i.e. BG, Event and Post) will be collected during each treatment from the representative site(s) treated at the Project Site according to the monitoring and frequency and locations described earlier.

Additionally, one Field Duplicate (FD) and one Field Blank (FB) will be collected and submitted for analysis for each analyte, once per year. The FD and FB samples will most likely be collected during Event Monitoring.

If water depth is 6 feet or greater, the sample will be collected at a depth of 3 feet. If the water depth is less than 6 feet, the sample will be collected at the approximate mid-depth. As necessary, an intermediary device (e.g., Van-Dorn style sampler or long-handed sampling pole) will be used for locations that are difficult to access. Long-handled sampling poles with attached sampling container will be inverted before being lowered into the water to the desired sample depth, where it will be turned upright to collect the sample.

2.8.3 Field Measurements

In conjunction with sample collection, temperature, turbidity, electrical conductivity, pH, and dissolved oxygen will be measured in the field using field meters as available, or analyzed in the laboratory. Turbidity, pH, and dissolved oxygen meters are calibrated according to manufacturer's specifications at the recommended frequency, and checked with a standard prior to each use. Conductivity meters are calibrated by the manufacturer and will be checked according to manufacturer's specifications with standards throughout the year (typically once per month) to evaluate instrument performance. If the calibration is outside the manufacturer's specifications, the conductivity probe will be recalibrated. Calibration logs are maintained for all instruments to document calibration.

In addition, visual observations will be conducted at each monitoring location. The sample will record any floating or suspended matter, discoloration, bottom deposits, aquatic life, visible sheens or coatings, and/or potential nuisance conditions.

2.8.4 Sample Preservation and Transportation

If preservation is required for the monitored constituent, the preservative will be placed in the sample container by the container vendor prior to sample collection. Once a sample is collected and labeled It will immediately be placed in a dark, cold (4°C) environment, typically a cooler with ice. Delivery to the laboratory should occur on the same day or the next day as the sample collection.

2.8.5 Sample Analysis

Table 2.8.2 presents the constituents that each sample will be analyzed for, dependent on type of chemicals applied.

Table 2.8-2 Required Sample Analysis

Analyte	EPA Method	Reporting Limit	Hold Time (Days)	Container	Chemical Preservative
Temperature[1]	N/A	N/A	N/A	N/A	N/A
Dissolved Oxygen[1]	360.1 or 360.2	0.0 mg/L	1	1L Amber Glass	None
Turbidity[2]	180.1	0.00 NTU	2	100 mL HDPE	None
Electrical Conductivity[1]	120.1	0 µs/cm	28	100 mL HDPE	None
Fluridone	SePro FasTest, HPLC*	1 µg/L	7	30 ml Amber HDPE	None
Diquat	549.2*	40 µg/L	7	500 mL Amber HDPE	None
Chelated Copper/copper sulfate	200.8*	20 µg/L	180	500 mL HDPE	HNO_3
Endothall	548.1*	40 µg/L	7	100 mL Amber Glass or 2x40 mL VOA	None
Penoxsulam	532m*	20 µg/L	7	1 L Amber Glass	None
Imazamox	HPLC*	50 µg/L	14	2x40 mL VOA	None
Glyphosate	547*	0.5 µg/L	14	2x40 mL VOA	None
Nonylphenol	550.1m*	0.5 µg/L	7	2x40 mL VOA	None

Notes:
*Signifies testing method for algaecide or aquatic herbicide active ingredient. Chemical analysis is only required for the active ingredients used in treatment.
Analysis is not required for algaecides and aquatic herbicides containing sodium carbonate peroxyhydrate.
1 Field measured.
2 May be field or laboratory measured.
3 Required only when a nonylphenol-based surfactant is used.
HPLC – High Performance Liquid Chromatography.
M – Modified extraction or analysis technique.

2.8.6 Sampling Methods and Guidelines

The purpose of this section is to present methods and guidelines for the collection and analysis of samples necessary to meet the APAP objective of assessing adverse impacts, if any, to beneficial uses of water bodies treated with aquatic herbicides and algaecides.

This section describes the techniques, equipment, and methods for sample collection and analysis.

2.8.6.1 Sample Collection

If the water depth is 6 feet or greater the sample will be collected at a depth of 3 feet. If the water depth is less than 6 feet the sample will be collected at the approximate mid-depth. The sampling container will be inverted before being lowered into the water to the desired sample depth, where it will be turned upright to collect the sample.

During collection, the samples will be collected in a manner that minimizes the amount of suspended sediment and debris in the sample. Surface water grab samples will be collected directly by the sample container or by intermediary container in the event that the sample container cannot be adequately or safely used.

To ensure data quality control, each container will be affixed with a label indicating a sample number for each sample location. The label will also indicate the date and time of sampling and the sampler's name.

2.8.6.2 Field Sampling Procedures

A logbook will be maintained for each sampling site. The log book will indicate sampling times, locations, observations, and field monitoring results for parameters collected with field equipment and not requiring laboratory analysis.

As per the General Permit, field observations will note: floating or suspended matter, discolorations, bottom deposits, aquatic life, visible sheens or coatings, and/or potential nuisance conditions. See Appendix B.

2.8.6.3 Sample Equipment Cleaning

Upon completion of the sampling event, the equipment will be thoroughly cleaned with and triple rinsed with distilled water, and then rinsed once with the water being sampled prior to its first use at a new sampling location.

2.8.6.4 Sample Preservation

If necessary, samples will be collected with bottles containing the correct preservative(s), refrigerated at four (4) degrees Celsius (c), stored in a dark place, and transported to the analytical laboratory within a suitable time frame, so as to ensure compliance with required hold times for specific constituents.

2.8.6.5 Sample Packing and Shipping

All samples will be packed and transported the day they are collected in order to observe required holding times for lab samples. Ice will be included in coolers containing samples that require temperature control and samples will be packaged in the following manner:

1. Each sampling container will have an identifying label;
2. A chain of custody form will be completed with the required date, time, location, sample collector, and required analysis; and

3. Samples requiring shipment will be properly packed with protective padding and secured for express delivery or courier pick-up

2.8.6.6 Sample Preservation and Transportation

If preservation is required for the monitored constituent, the preservative will be placed in the sample container by the container vendor prior to sample collection. Once a sample is collected and labeled it will immediately be placed in a dark, cold (4° C) environment, typically a cooler with ice. Delivery to the laboratory should occur on the same day or the next day as the sample collection.

2.8.6.7 Chain-of-Custody

A chain-of-custody (COC) form will be completed for each sampling event, and the form will accompany the samples to the laboratory. COC forms will indicate time, date, location of sampling, sampler name, and analyses required. A copy of the COC will be retained upon delivery of samples to the lab.

2.8.6.8 Field Sampling Kit

Each field sampling kit will contain the following equipment:

1. Appropriate sampling container as provided by certified lab;
2. COC's;
3. Field collection forms;
4. Sample I.D. Labels;
5. Deionized water;
6. Cooler or ice chest
7. Ice packs
8. Sub surface sampler
9. Non powdered plastic or nitrile gloves
10. GPS for sampling location collection
11. Plastic storage bags for samples and/or paperwork

2.8.6.9 Laboratory Quality Assurance and Quality Control

All laboratory analyses will be conducted by a state certified laboratory as per General Permit specification. Laboratory precision and accuracy will be monitored by a series of laboratory-generated quality control samples. As long as sufficient sample volume is collected and submitted to the laboratory, no additional effort is required by field activities to generate laboratory quality control samples. Each set of field samples will have associated with it one each from the following set of laboratory quality control samples.

2.8.6.10 Receiving Water Limitations

The General Permit requires that the application of pesticides to water of the United States does not exceed chemical parameters as presented in the Basin Plan. The following Table 2.8-

3 presents the receiving water limitations for each algaecide/aquatic pesticide included in this APAP.

Table 2.8-3. Receiving Water Limitation

Constituent/Parameter	Beneficial Use			Basis
	MUN (µg/L)	WARM or COLD (µg/L)	All Designations	
Copper	1,300	30 (if >100 mg/L $CaCO_3$)	Copper Chronic= 0960exp(0.8545[ln(hardness)]-1.702	California Toxics Rule, Basin Plan
Diquat	20	--	--	U.S. EPA MCL
Endothall	100	--	--	U.S. EPA MCL
Fluridone	560	--	--	U.S. EPA Integrated Risk Information System
Penoxsulam	--	--	--	--
Imazamox	--	--	--	--
Glyphosate	700	--	--	U.S. EPA MCL
Nonylphenol	--	--	6.6 µg/L	U.S. EPA National Recommended Ambient Water Quality Criteria
Toxicity	Algaecide and aquatic herbicide applications shall not cause or contribute to toxicity in receiving waters			Basin Plan

Notes:
MCL – Maximum Contaminant Level (federal or California)
$CaCO_3$ – Calcium carbonate
"—" No Data

2.8.7 Reporting Procedures

2.8.7.1 Recordkeeping

The City will complete and retain all information for the previous reporting year beginning January 1 and ending December 31. When requested by the Deputy Director of the SWRCB or the Executive Director of the RWQCB, the City will submit the following information:

1. An Executive Summary discussing compliance or violation of the General Permit and the effectiveness of the APAP to reduce or prevent the discharge of pollutants associated with herbicide applications;

2. A summary of monitoring data, including the identification of water quality improvements or degradation as a result of algaecide or aquatic herbicide application, if appropriate, and recommendations for improvement to the APAP (including proposed BMPs) and monitoring program based on the monitoring results. All receiving water monitoring data shall be compared to applicable receiving water limitations and receiving water monitoring triggers;
3. Identification of BMPs and a discussion of their effectiveness in meeting the General Permit requirements;
4. A discussion of BMP modifications addressing violations of the General Permit;
5. A map showing the location of each treatment area;
6. Types and amounts of aquatic herbicides used at each application event during each application;
7. Information on surface area and/or volume of treatment area and any other information used to calculate dosage, concentration, and quantity of each aquatic herbicide used;
8. Sampling results shall indicate the name of the sampling agency or organization, detailed sampling location information (including latitude and longitude or township/range/section if available), detailed map or description of each sampling area (address, cross roads, etc.), collection date, name of constituent/parameter and its concentration detected, minimum levels, method detection limits for each constituent analysis, name or description of water body sampled, and a comparison with applicable water quality standards, description of analytical quality assurance/quality control plan. Sampling results shall be tabulated so that they are readily discernible; and
9. Summary of Aquatic Herbicide Application Logs. The data will be tabulated so that they are readily discernible.

2.8.7.2 Annual Report

An annual report for each reporting period, from January 1 to December 31 will be prepared by March 1 of the following year and will be submitted to the RWQCB. In years when no algaecides or aquatic herbicides are used, a letter stating no applications will be sent to the RWQCB in lieu of the annual report. The annual report will be submitted via the California Integrated Water Quality System (CIWQS) and hard copies, unless directed by the SWRCB to submit only electronic copies. The annual report will contain the following information as described in Attachment C of the General Permit, including:

4. An Executive Summary discussing compliance or violation of the General Permit and the effectiveness of the APAP; and
5. A Summary of monitoring data, including the identification of water quality improvements or degradation as a result of algaecide or aquatic herbicide application.

2.8.7.3 Other Reporting Requirements

Twenty-Four Hour Report. The City will report to the SWRCB and RWQCB of any noncompliance, including any unexpected or unintended effect of an algaecide or aquatic

herbicide that may endanger health or the environment. Any information will be provided orally within 24 hours from when the City becomes aware of the circumstances and must include the following information:

a. The caller's name and telephone number;

b. Applicator name and mailing address;

c. Waste Discharge Identification (WDID) number;

d. The name and telephone number of a contact person;

e. How and when the City became aware of the noncompliance;

f. Description of the location of the noncompliance;

g. Description of the noncompliance identified and the U.S. Environmental Protection Agency (EPA) pesticide registration number for each product the Discharger applied in the area of the noncompliance; and

h. Description of any steps that the City has taken or will take to correct, repair, remedy, cleanup, or otherwise address any adverse effects.

If the City is unable to notify the SWRCB and RWQCB within 24 hours, the City will do so as soon as possible and also provide the rationale for why the City was unable to provide such notification within 24 hours.

Five-Day Written Report. The City shall also provide a written submission within five (5) days of the time the City becomes aware of the noncompliance. The written submission shall contain the following information:

a. Date and time the City contacted the SWRCB and RWQCB notifying of the noncompliance and any instructions received from the SWRCB and RWQCB; information required to be provided as required by 24-Hour Reporting requirements;

b. A description of the noncompliance and its cause, including exact date and time and species affected, estimated number of individual and approximate size of dead or distressed organisms (other than the pests to be eliminated);

c. Location of incident, including the names of any waters affected and appearance of those waters (sheen, color, clarity, etc);

d. Magnitude and scope of the affected area (e.g. aquatic square area or total stream distance affected);

e. Algaecide and aquatic herbicide application rate, intended use site (e.g., banks, above, or direct to water), method of application, and name of algaecide and herbicide product, description of algaecide and herbicide ingredients, and U.S. EPA registration number;

f. Description of the habitat and the circumstances under which the noncompliance activity occurred (including any available ambient water data for aquatic algaecides and aquatic herbicides applied);

g. Laboratory tests performed, if any, and timing of tests. Provide a summary of the test results within five days after they become available;

h. If applicable, explain why the City believes the noncompliance could not have been caused by exposure to the algaecides or aquatic herbicides from the City's application; and

i. Actions to be taken to prevent recurrence of adverse incidents.

The SWRCB or RWQCB staff may waive the above-required written report under this provision on a case-by-case basis if an oral report has been received within 24 hours.

2.9 ELEMENT 9: PROCEDURES TO PREVENT SAMPLE CONTAMINATION

City personnel that are making algaecide and aquatic herbicide applications will not be allowed to collect samples. Sample collection will be done no closer than 50 feet from application equipment and preferably upwind. Sample collection personnel will not be allowed to handle or come into contact with algaecide or aquatic pesticide application equipment, containers or personal protective equipment (PPE) used by applicators. Care will be taken by samplers to minimize into contact with any treated water or vegetation.

In the event that sampling equipment will be used in more than one location, the equipment will be thoroughly cleaned with a non-phosphate cleaner, triple-rinsed uncontaminated water, and then rinsed once with the water being sampled prior to its first use at a new sample collection location. Gloves will be changed between sites.

2.10 ELEMENT 10: BEST MANAGEMENT PRACTICES (BMPS)

The City has established the following Best Management Practices (BMP) in order to assure that all aquatic herbicides are used in a safe and effective manner.

2.10.1 Spill Contingency Plan

Applicators take care when mixing and loading aquatic herbicides and algaecides and adjuvants. All label language is followed to ensure safe handling and loading of algaecides and aquatic herbicides. Application equipment is regularly checked and maintained to identify and minimize the likelihood of leaks developing or failure that would lead to a spill.

If aquatic herbicides or algaecides are spilled, they will be prevented from entering any waterbodies to the extent practicable. Applicator staff are trained in the use of absorbent materials such as kitty litter, "pigs" and "pillows". Spills will be cleaned up according to label instructions, and all equipment used to remove spills will be properly contained and disposed of or decontaminated as appropriate. Applicators will report spills as required and in a manner consistent with local, state and federal requirements.

2.10.2 Measures to Ensure Appropriate Use Rate

Site Scouting. Prior to the treatment, qualified staff will scout sites to determine where nuisance thresholds have been exceeded. These thresholds are based on the agreed upon standard and maintenance of the beneficial uses of the lake.

If a location is deemed to have exceeded a threshold, or given algae or aquatic weed population is anticipated to exceed a threshold based on site and weather conditions, lake depth, historic aquatic weed growth, or other information, an aquatic herbicide or algaecide application is considered. If the application can be made without negatively impacting the water quality, then an application is made.

Applications Made According to Label. All aquatic herbicide and algaecide applications are made in accordance with the Federal Insecticide Fungicide and Rodenticide Act (FIFRA) and in accordance with the regulations of the U.S. EPA, California EPA, California Department of Pesticide Regulation (CADPR), and local Agricultural Commissioner.

Applications Made by Qualified Applicator Certificate Holders. Applicators with Qualified Applicator License-holders (QALs), Qualified Applicator Certificate-holders (QACs) or properly trained staff under the supervision of applicators with QALs or QACs make applications or supervise applications. These staff have knowledge of proper equipment loading, nozzle selection, calibration, and operation so that spills are minimized, precise application rates are made according to the label, and only target plants are treated.

2.10.3 Educational Program for Staff and Applicators

The City's application staff hold QALs from CADPR and are trained annually in the safe handing, mixing, application, storage, and transport of all aquatic herbicides and algaecides that are used. In addition to this, staff are briefed as to site specific conditions including water volume, use restrictions, environmental constraints, flow conditions, pest identification, and nuisance thresholds. All application staff are familiar with label instructions and conditions in regard to the safe and legal handing, mixing, and application of aquatic herbicides and algaecides in their control. Training materials and procedures are updated every six to twelve months or as required depending upon the use of different active ingredients, compounds, or the addition of new treatment sites. All QALs require 20 continuing education units every two years in order to stay current on new application methods and requirements.

2.10.4 Impact Prevention Program

As required by the aquatic herbicide and algaecide label, water users potentially affected by any water use restrictions will be notified prior to an application being made. Atascadero Lake has no gates or weirs that could potentially discharge residual aquatic herbicides or algaecides to off target locations.

2.10.5 Measures to Prevent Fish Kills

Applications Made According to Label. Precautions on the product label to prevent fish kills will be followed. For example, limitations on the surface water area treated will be followed to prevent dead algae or aquatic weeds from accumulating and then decaying and subsequently depressing the dissolved oxygen (DO) level.

Applications Made by Qualified Applicator Certificate Holders. Holders of QACs, QALs, or those under their direct supervision make applications recommended by the PCA. These applicators have knowledge of proper equipment loading, nozzle selection, calibration, and operation so that spills are minimized, precise application rates are made according to the label,

and only target algae or vegetation are treated. Calibration ensures that the correct quantity and rate of herbicide is applied.

2.11 ELEMENT 11: EXAMINATION OF POSSIBLE ALTERNATIVES

The following section describes the range of possible alternatives considered by the City as required by the General Permit.

2.11.1 Evaluation of Other Management Options

When developing an aquatic vegetation management program, all applicable aquatic plant management technologies should be considered along with their limitations and applicability to the situation experienced in the lake. An Integrated Pest Management (IPM) approach is developed with this principle in mind.

Aquatic plant management technologies are broadly categorized within the following framework:

- No action;
- Prevention;
- Mechanical or physical methods;
- Cultural methods;
- Biological control agents; and
- Algaecides and aquatic herbicides.

No Action. As feasible, this technique is used. Treatment will only be applied when the threshold of a nuisance has been reached.

Prevention, Mechanical, Physical, and Cultural Methods. After removal of non-native terrestrial and emergent invasive species, the introduction and re-establishment of native species has been successful at the water's edge in some cases. This technique is intended to provide competition for non-native or invasive species and reduce the need for algae and aquatic weed abatement only around the perimeter of the lake. Limitations to this approach include availability of suitable native species, availability of labor to plant native species, and safe access to banks for work crews. The City will also consider other habitat modifying techniques, including dredging, oxygenation and aeration, and light prevention. The lake is currently equipped with six oxygen diffusers and three aerating pumps to increase oxygen levels and circulation within the lake. The use of light-attenuating dyes to prevent and control massive invasive plant growth in the lake may also be considered. Only non-toxic dye products approved for use in lakes and ponds by the California Department of Pesticide Regulation will be considered. Dredging has been completed recently in an attempt to increase the water volume, reduce organic matter, and remove nutrient-containing sediment. The City has also previously utilized goats to graze on vegetation within the lake bed, when it is exposed, to reduce the amount of decaying vegetative matter that would persist in the lake when it refills. The City will continue to utilize these alternative methods to reduce the amount of pesticide required to remediate nuisance conditions within the lake.

2.11.2 Least Intrusive Method

The City will use specialized mechanical vehicles (trucks, all-terrain vehicles, small boats, etc.) and personnel with backpack sprayers to make algaecide and aquatic herbicide applications. Combined with the need to hold, safely transport and properly apply algaecides and aquatic herbicides, the City's techniques are the least intrusive as feasibly possible. Refer to Table 2.4-1 for application methods.

2.11.3 Decision Matrix Concept

The PCA scouts the area to be treated, makes a positive identification of pest(s) present, checks appropriate algaecide and aquatic herbicide product label(s) for control efficacy, and prepares a written recommendation. The written recommendation includes rates of application, and any warnings or conditions that limit the application. The PCA may also recommend that an adjuvant be used to enhance the efficacy of the algaecide or aquatic herbicide.

The following Table 2.11-1 provides a general summary of the effectiveness, costs, intrusiveness, and impact to water quality of the possible alternatives of aquatic plant management technologies.

Table 2.11-1. Alternatives Decision Matrix

Alternatives Considered	Effectiveness	Cost	Intrusiveness	Impact to Water Quality
No Action	None	None	None	High
Prevention	High	Medium	Low	Medium
Mechanical	Medium	High	High	Low
Cultural	Medium	Low	Medium	Medium
Biological	Medium	Medium	Low	Low
Chemical	High	Low	Low	Medium

3.0 REFERENCES

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SWRCB. 2017. Maximum Contaminant Levels for Drinking Water. Accessed at: http://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/MCLsandPHGs.shtml.

U.S. Fish and Wildlife Service (USFWS). 2002. Recovery Plan for the California Red-legged Frog (*Rana aurora draytonii*). U.S. Fish and Wildlife Service, Portland, Oregon. viii + 173 pp.

Wikipedia. 2017. California Lakes web-page. Accessed at www.wikipedia.org.

FIGURES

LEGEND:

Atascadero Lake

MAP EXTENT:

Source: USGS 7.5 minute Quad, County of San Luis Obispo
Coordinate System: NAD 1983 StatePlane California V FIPS 0405 Feet
Notes: This map was created for informational and display purposes only.

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

PROJECT NAME: ATASCADERO LAKE AQUATIC PESTICIDE APPLICATION PLAN SAN LUIS OBISPO COUNTY, CA		SITE LOCATION MAP	FIGURE 1
PROJECT NUMBER: 1602-3851	DATE: June 2018		

Atascadero Lake\Site Location Map.mxd 8/1/2017

LEGEND:

Atascadero Lake

Atascadero Lake Park Boundary

MAP EXTENT:

Source: NAIP Imagery 2016, County of San Luis Obispo
Coordinate System: NAD 1983 StatePlane California V FIPS 0405 Feet
Notes: This map was created for informational and display purposes only.

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

PROJECT NAME: ATASCADERO LAKE AQUATIC PESTICIDE APPLICATION PLAN SAN LUIS OBISPO COUNTY, CA

PROJECT NUMBER: 1602-3851

DATE: June 2018

SITE PLAN

FIGURE 2

Atascadero LakeSite Plan.mxd 6/1/2017

APPENDIX A

LABORATORY ANALTYICAL REPORT

Bend Genetics, LLC
87 Scripps Drive, Ste. 108
Sacramento, CA 95825
Tel: (916) 550-1048

Date: 4/22/2017

Subject: Microscopy & cyanobacterial toxin testing results - (15-041-130)

From: Tim Otten, Laboratory Director

To: Mary Hamilton
Central Coast Regional Water Quality Control Board

Attached are the results of ELISA analyses conducted on a sample collected from Atascadero Lake on 4/20/2017. These data have been reviewed and are considered final.

Analyses included in this report:

- Quantification of total cyanobacterial toxins by class (anatoxins, cylindrospermopsins, microcystins and saxitoxins) using enzyme linked immunosorbent assay (ELISA) methods.
- Identification of potentially toxigenic cyanobacteria (PTOX) via microscopy.

Bend Genetics, LLC
87 Scripps Drive, Ste. 108
Sacramento, CA 95825
Tel: (916) 550-1048

Project: DD20012; PO# 27948
Analysis for Toxigenic Cyanobacteria
Agreement #: 15-041-130
Reported: 4/22/2017 11:50

ANALYTICAL REPORT FOR SAMPLES

Sample ID	BG_ID	Date Collected	Date Received	Matrix
Atascadero Lake	CC_01	4/20/2017 6:32	4/21/2017 10:37	Water

Bend Genetics, LLC
87 Scripps Drive, Ste. 108
Sacramento, CA 95825
Tel: (916) 550-1048

Project: DD20012; PO# 27948
Analysis for Toxigenic Cyanobacteria
Agreement #: 15-041-130
Reported: 4/22/2017 11:50

SAMPLE RESULTS

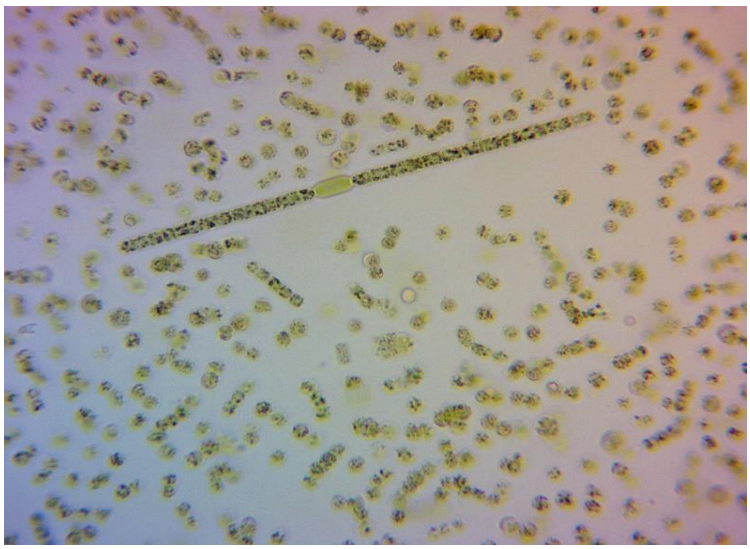
BG ID	Method	Target	Result	Units	Quantitation Limit	Notes
CC_01	ELISA	Anatoxin-a	1.00	µg/L	0.11	
CC_01	ELISA	Cylindrospermopsin	ND	µg/L	0.04	U
CC_01	ELISA	Microcystin	0.34	µg/L	0.11	
CC_01	ELISA	Saxitoxin	0.024	µg/L	0.017	

Bend Genetics, LLC
87 Scripps Drive, Ste. 108
Sacramento, CA 95825
Tel: (916) 550-1048

Project: DD20012; PO# 27948
Analysis for Toxigenic Cyanobacteria
Agreement #: 15-041-130
Reported: 4/22/2017 11:50

Microscope evaluation of potentially toxigenic cyanobacteria (PTOX)

BG ID	Dominant	Sub-dominant	Also present	Notes
CC01	*Dolichospermum*			This sample contained a very high concentration of *Dolichospermum* sp.; no other cyanobacteria were observed. Notably, the *Dolichospermum* filaments were highly disintegrated, existing almost entirely in a single cell morphology. A relatively low number of akinetes were also present. The photomicrograph was taken under 400X magnification.



Bend Genetics, LLC
87 Scripps Drive, Ste. 108
Sacramento, CA 95825
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Project: DD20012; PO# 27948
Analysis for Toxigenic Cyanobacteria
Agreement #: 15-041-130
Reported: 4/22/2017 11:50

QUALITY CONTROL

Method	Analyte	Result	Qualifiers / Comments	Units	Expected Value	%REC	%REC Limits
ELISA	ATX - Blank	ND	U	µg/L	0		
ELISA	ATX - Positive	0.80		µg/L	0.75	106.8	70-130
ELISA	ATX - Matrix Sp	1.21		µg/L	1.45	83.4	70-130
ELISA	CYN - Blank	ND	U	µg/L	0		
ELISA	CYN - Positive	0.69		µg/L	0.75	91.9	70-130
ELISA	CYN - Matrix Sp	0.46		µg/L	0.50	91.5	70-130
ELISA	MC - Blank	ND	U	µg/L	0		
ELISA	MC - Positive	0.81		µg/L	0.75	107.6	70-130
ELISA	MC - Matrix Sp	2.53		µg/L	2.80	90.2	70-130
ELISA	STX - Blank	ND	U	µg/L	0		
ELISA	STX - Positive	0.07		µg/L	0.08	96.6	70-130
ELISA	STX - Matrix Sp	0.10		µg/L	0.12	82.7	70-130

QUALIFIERS/COMMENTS/NOTES

C1	The reported concentration for this analyte is below the quantification limit.
C2	The reported concentration for this analyte is above the calibration range of the instrument.
J	The reported result for this analyte should be considered an estimated value.
U	Undetected

Freshwater Harmful Algal Bloom Monitoring
Request for Analysis and Chain of Custody Record

Group:
Fiscal Year: 17/18
PO:
EventCode: WQ

Project Code: 15-041-130
Sampling Procedures Used:
Sampling Agency:
Field Crew:

Project Lead: MARY HAMILTON mary.hamilton@waterboards.ca.gov
Field Sampling Lead: 805-542-4768
Bend Genetics Lab Contact: Tim Otten (916) 550-1048 ottentim@bendgenetics.com

SampleID	Sampling Location/ Station Name	Sample Date	Collection Time	Sample Volume	Field Preservation	Circle / Select: Sample Type Code	Circle / Select: Sample Container	Remarks	Water Analysis Authorization *Circle/select requested analysis, see comments below* — One bottle per sampling location/site: Toxin Analysis	QPCR Analysis	Microscope ID
CC01	ATASCADERO LAKE	4/20/17	6:32	125 mL	10% diluent Stored 2-10°C	Grab / Integrated	Glass / PETG	Collected on Bank	Toxin Analysis 1 2 3 4	QPCR Analysis 5 6 7 8 9	Microscope ID Y N
				125 mL	10% diluent Stored 2-10°C	Grab / Integrated	Glass / PETG		Toxin Analysis 1 2 3 4	QPCR Analysis 5 6 7 8 9	Microscope ID Y N
				125 mL	10% diluent Stored 2-10°C	Grab / Integrated	Glass / PETG		Toxin Analysis 1 2 3 4	QPCR Analysis 5 6 7 8 9	Microscope ID Y N
				125 mL	10% diluent Stored 2-10°C	Grab / Integrated	Glass / PETG		Toxin Analysis 1 2 3 4	QPCR Analysis 5 6 7 8 9	Microscope ID Y N
				125 mL	10% diluent Stored 2-10°C	Grab / Integrated	Glass / PETG		Toxin Analysis 1 2 3 4	QPCR Analysis 5 6 7 8 9	Microscope ID Y N
				125 mL	10% diluent Stored 2-10°C	Grab / Integrated	Glass / PETG		Toxin Analysis 1 2 3 4	QPCR Analysis 5 6 7 8 9	Microscope ID Y N
				125 mL	10% diluent Stored 2-10°C	Grab / Integrated	Glass / PETG		Toxin Analysis 1 2 3 4	QPCR Analysis 5 6 7 8 9	Microscope ID Y N
				125 mL	10% diluent Stored 2-10°C	Grab / Integrated	Glass / PETG		Toxin Analysis 1 2 3 4	QPCR Analysis 5 6 7 8 9	Microscope ID Y N
				125 mL	10% diluent Stored 2-10°C	Grab / Integrated	Glass / PETG		Toxin Analysis 1 2 3 4	QPCR Analysis 5 6 7 8 9	Microscope ID Y N
				125 mL	10% diluent Stored 2-10°C	Grab / Integrated	Glass / PETG		Toxin Analysis 1 2 3 4	QPCR Analysis 5 6 7 8 9	Microscope ID Y N
				125 mL	10% diluent Stored 2-10°C	Grab / Integrated	Glass / PETG		Toxin Analysis 1 2 3 4	QPCR Analysis 5 6 7 8 9	Microscope ID Y N

Total # sites/bottles:

Comments: For each row choose analysis corresponding to # 1 - 9 below; Sample volume = 125 mL; Add 12.5 mL of 10X preservative diluent before collecting 112.5 mL of water sample.

1 Microcystins + Nodularin by ELISA, Total fraction measured (no filtering)
2 Anatoxin-a by ELISA, Total fraction measured (no filtering)
3 Cylindrospermopsin by ELISA, Total fraction measured (no filtering)
4 Saxitoxin by ELISA, Total fraction measured (no filtering)
5 Microcystin gene; lab analysis includes concentration + extraction per method
6 Anatoxin-a gene; lab analysis includes concentration + extraction per method
7 Cylindrospermopsin gene; lab analysis includes concentration + extraction per method
8 Saxitoxin gene; lab analysis includes concentration + extraction per method
9 Total cyanobacteria; quantifies "cell/mL", by qPCR

Samples Relinquished by: Name (Print and Sign)	Date & Time	Samples Received by: Name (Print and Sign) (**Attention Lab - If sample arrives >10 °C do not analyze**)	Date & Time	Distribution of COC form: Original accompanies shipment, Electronic copy emailed customer_service@bendgenetics.com
MARY HAMILTON Mary	4/20/17 @ 10:40	Tim Otten Tim Otten	4/21/17 10:37	

Bill to: Moore Twining Associates, Inc.
Julio Morales
juliom@mooretwining.com

Please mail samples with following day delivery (by 10:30 AM):
Bend Genetics, LLC
87 Scripps Drive Ste 108
Sacramento, CA 95825
Tel: (916) 550-1048

Bend Genetics, LLC
87 Scripps Drive, Ste 108
Sacramento, CA 95825
(916) 550-1048

Sample Receipt Checklist

Sample Information

Project Number: 15-041-130

Received Date: 4/21/17 10:37

Work Order No(s): project code: DD20012, PO# 27948

Received By: T. Otten

Custody Seals Intact (check if applies)

☐ Yes ☐ No ☒ N/A

☐ External Seals ☐ Internal Seals ☒ Hand Delivered

Sample Containers Intact

☒ Yes ☐ No

If not intact, was volume recoverable for analysis ☐ Yes ☐ No ☐ N/A

Check if applies: ☐ Bottle/Jar/Vial Broken ☐ Cap Broken or Loose ☐ Other: _____

Temperature

Temperature °C: 8.7°C

Within Acceptable Range ☒ Yes ☐ No ☐ Ambient OK

Check if applies:

☐ Provided Temp Blank ☒ Between 6°C to 10°C ☐ Still Cooling (sampled today & iced)

☐ Previously Frozen ☐ Insufficient/Melted Ice ☐ Delivery Delay

Chain of Custody (COC) Received

COC complete and consistent with labels ☒ Yes ☐ No

Check if applies: ☐ Not Relinquished ☐ Inconsistency Resolved ☐ Follow-Up Needed (See Comments)

TAT and analyses match scheduling ☒ Yes ☐ No ☐ N/A

Check if applies: ☐ Preliminary Results ☐ Rush Request ☐ 7-day TAT

Within hold times ☒ Yes ☐ No ☐ N/A ☐ Expires Today

All shipping and sample containers accounted for ☒ Yes ☐ No ☐ N/A

Preservation/Filtration

☐ Preserved ☐ Not Preserved ☐ Preservative Needed ☒ N/A

Sample ID	Bend Genetics ID	Date & Time preserved/filtered	Volume filtered (mL)	Original pH	Adjusted pH
ATASCADERO LAKE	CC01	4/21/17 10:40	NA	7.01	NA

Follow-up/Comments

APPENDIX B

FIELD FORMS

RECEIVING WATER MONITORING FORM PHYSICAL AND CHEMICAL

Location:		**Date:**		
Sampled by:				
Background Monitoring Parameters (u/s or at treatment area up to 24 hours or at time of treatment)				
Physical Sample (3 feet below surface or mid depth if <3ft)	**Temperature[2](°F)**	**pH[2](number)**	**Turbidity[2] (NTU)**	**Electrical Conductivity[2](µmhos/cm)**
Chemical Sample (3 feet below surface or mid depth if <3ft)	**Active Ingredient (µg/L)**	**Nonylphenol (µg/L)[3]**	**Hardness ($CaCO_3$)[4]**	**Dissolved Oxygen (mg/L)[2]**
GPS latitude and longitude coordinates:				

Location:		**Date:**		
Sampled by:				
Event Monitoring Parameters (immediately adjacent to treatment area after application)				
Physical Sample (3 feet below surface or mid depth if <3ft)	**Temperature[2](°F)**	**pH[2](number)**	**Turbidity[2] (NTU)**	**Electrical Conductivity[2](µmhos/cm)**
Chemical Sample (3 feet below surface or mid depth if <3ft)	**Active Ingredient (µg/L)**	**Nonylphenol (µg/L)[3]**	**Hardness ($CaCO_3$)[4]**	**Dissolved Oxygen (mg/L)[2]**
GPS latitude and longitude coordinates:				

Location:		**Date:**		
Sampled by:				
Post Event Monitoring Parameters (within treatment area within one week after application)				
Physical Sample (3 feet below surface or mid depth if <3ft)	**Temperature[2](°F)**	**pH[2](number)**	**Turbidity[2] (NTU)**	**Electrical Conductivity[2](µmhos/cm)**
Chemical Sample (3 feet below surface or mid depth if <3ft)	**Active Ingredient (µg/L)**	**Nonylphenol (µg/L)[3]**	**Hardness ($CaCO_3$)[4]**	**Dissolved Oxygen (mg/L)[2]**
GPS latitude and longitude coordinates:				

NPDES RECEIVING WATER VISUAL OBSERVATION FORM

Background Monitoring Parameters (u/s or at treatment area up to 24 hours or at time of treatment)						
Monitoring Date:		**Location**				
Sampled By:						
Monitoring Area Description (pond, waterway, channel…)						
Site Conditions/Appearance of Waterway		**present**	**absent**	**Visible films, sheens, or coatings:**	**present**	**absent**
Floating or suspended matter:				**Fungi, slimes, objectionable growths:**		
Discoloration:				**Potential nuisance conditions:**		
Bottom deposits:						
Aquadic life:						
Weather Conditions/observations:						

Event Monitoring Parameters (immediately adjacent to treatment area after applicaion)						
Monitoring Date:		**Location**				
Sampled By:						
Monitoring Area Description (pond, waterway, channel…)						
Site Conditions/Appearance of Waterway		**present**	**absent**	**Visible films, sheens, or coatings:**	**present**	**absent**
Floating or suspended matter:				**Fungi, slimes, objectionable growths:**		
Discoloration:				**Potential nuisance conditions:**		
Bottom deposits:						
Aquadic life:						
Weather Conditions/observations:						

Post Event Monitoring Parameters (collected in the treatment area within one week post application)						
Monitoring Date:		**Location**				
Sampled By:						
Monitoring Area Description (pond, waterway, channel…)						
Site Conditions/Appearance of Waterway		**present**	**absent**	**Visible films, sheens, or coatings:**	**present**	**absent**
Floating or suspended matter:				**Fungi, slimes, objectionable growths:**		
Discoloration:				**Potential nuisance conditions:**		
Bottom deposits:						
Aquadic life:						
Weather Conditions/observations:						

AQUATIC PESTICIDE APPLICATION LOG

Date of Application: _____

Location: _____

Application Start Time: _____

Application End Time: _____

Applicator Name: _____

APPLICATION AREA

Surface area _____

Volume _____

TREATMENT AREA

Surface area _____

Volume _____

Discharge Gates or Control Structures

Name _____

Date Closed _____

Time Closed _____

Date Opened _____

Time Opened _____

**Attach a map showing application area, treatment area, immediately adjacent untreated area, and other information used to calculate dosage and quantity of each pesticide at each application site

Calculations to Determine Opening and Closures: _____

Dosage and Quantity Information for Each Pesticide Used

Application Details

Plot #	Area	Depth	Product	Quantity	Rate

APAP CERTIFICATION

I, _____ (print name) certify that the APAP has been followed.

sign here x _____