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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. **X** New Applicator	B. Change of Information: No existing WDID# 2 21AP00012
	C. ☐ Change of ownership or responsibility: WDID#	

II. DISCHARGER INFORMATION

A. Name: Belvedere Lagoon Property Owners Association			
B. Mailing Address: PO Box 465			
C. City: Belvedere	D. County: Marin County	E. State: CA	F. Zip: 94920
G. Contact Person: Peter Ruppert	H. E-mail address: prblpoa@gmail.com	I. Title: Maintenance Facilities Coordinator	J. Phone: 415-435-0285; Cell: 415-722-3101

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

A. Name			
B. Mailing Address: As Above			
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: Belvedere Lagoon
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: _____

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

V. ALGAECIDE AND AQUATIC HERBICIDE APPLICATION INFORMATION

A. Target Organisms: filamentous algae; widgeongrass; wireweed (either Kappaphycus sp. [red algae] or Sargassum sp. [brown algae])

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

Cutrine Plus granular (chelated copper)
Reward (diquat)
Sonar (fluridone)
Captain (chelated copper)
Nautique (copper)
Komeen (copper)
Littora (diquat)

C. Period of Application: Start Date April 1 End Date October 1

D. Types of Adjuvants Used: None

VI. AQUATIC PESTICIDE APPLICATION PLAN

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

If not, when will it be prepared? The APAP has been prepared and is with this submittal.

VII. NOTIFICATION

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

VIII. FEE

Have you included payment of the filing fee (for first-time enrollees only) with this submittal?
☐ **X** 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: Peter Ruppert

B. Signature: _____ **Date:** 3/11/14

C. Title: Maintenance Facilities Coordinator

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** _____

Belvedere Lagoon
Belvedere, California

Aquatic Pesticide Application Plan
for
NPDES General Permit for Discharges of Aquatic Pesticides to Waters of the United States

Submitted to:

State Water Resources Control Board
Attention: Russell Norman
1001 I Street, 15th Floor
Sacramento, CA 95814

Submitted by:

Belvedere Lagoon Property Owners Association
PO Box 465
Belvedere, CA 94920

March 10, 2014

PREFACE

The following Aquatic Pesticide Application Plan was prepared by Scott Cressey of Cressey & Associates (510-525-4389) under contract to the Belvedere Lagoon Property Owners Association. Belvedere Lagoon is located in Belvedere, California in Marin County. The Aquatic Pesticide Application Plan is a requirement of the State Water Resources Control Board for a NPDES General Permit for aquatic pesticide application. This Aquatic Pesticide Application Plan is modeled on the requirements presented in Water Quality Order No. 2013-0002-DWQ for regulations effective December 1, 2013.

Note that the "APAP Review Check List for Order No. 2013-0002-DWQ, Aquatic Weed Control Permit", is provided on the two pages following the Table of Contents with the APAP page numbers shown for the various permit requirements. This check list, used by the State Water Board reviewers of the submitted APAP, should facilitate review by directing the reviewer to the appropriate page number in the APAP.

BELVEDERE LAGOON AQUATIC PESTICIDE APPLICATION PLAN, 2014

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

ATTACHMENTS

APAP Review Check List for
Order 2013-0002-DWQ
Aquatic Weed Control Permit

No.[1]	Permit requirements	√[3]	Found on Page No.
C .1.	Describe the water system where the pesticide[2] will be applied.		Page 2
C . 2	Describe the treatment area.		Page 5
C . 3	Types of weeds to be controlled and why		Page 2
C . 4	- Pesticide products to be used.		Page 6
	- Degradation byproducts of pesticide used if known.		Page 6
	- Method of application.		Page 6
	- Surfactant and adjuvants to be used		Page 6
C . 5	Discuss factors influencing the decision of using pesticide for weed control.		Pages 6
C.6	- List of gates or control structures to be used in receiving water.		Page 7
	- Inspection schedule of the gates and control structures.		Page 8
C.7	For those with SIP exception:		N/A
	- exception period (begging date to ending dates)		N/A
	- justification for exception period		N/A
	- describe plans to ensure compliance if applying pesticide outside the exception period.		N/A
C.8	Describe monitoring program		Pages 9-13
C.9	How to prevent sample contamination.		Pages 14

No.	Permit requirements			AP[3]	Found on Page No.
	Minimum content of BMPs:				
C.10	a. How to prevent pesticide spill and spill contamination;				Page 21-22
	b. Ensure only minimum and consistent amount of pesticide used for targeted weeds;				Page 21
	c. Plan for educating applicators on avoiding adverse effect from pesticide application;				Page 21-22
	d. Plan on informing the farmers and agencies who have water rights on the receiving water:				Page 8
	e. Plan on preventing fish kill from pesticide application;				Page 22
C.11	a. Evaluation of alternatives:	i.	no action.		Pages 6-7, 24-25
		ii.	Prevention.		Pages 6-7
		iii.	Mechanical method.		Pages 18
		iv.	Cultural method.		Page 19
		v.	Biological control.		Page 19
		vi.	Pesticide control.		Pages 2, 5, 20-21
	b. Use least intrusive method of weed control;				Pages 18-19, 24-25
	c. Apply decision matrix concept for choosing the most appropriate formulation				Page 24-25

Notes:
1. Item in the permit.
2. Pesticides refer to algaecides and aquatic herbicides.
3. Check *4* if APAP contains the required information.

AQUATIC PESTICIDES APPLICATION PLAN (APAP)
for
BELVEDERE LAGOON
BELVEDERE, CALIFORNIA

In partial fulfillment of requirements for coverage under the STATEWIDE GENERAL NPDES PERMIT FOR THE DISCHARGE OF AQUATIC PESTICIDES FOR AQUATIC WEED CONTROL IN WATERS OF THE UNITED STATES

GENERAL PERMIT NO. CAG990005

Belvedere Lagoon Property Owners Association
PO Box 465
Belvedere, CA 94920

March 10, 2014

1.0 INTRODUCTION

In March of this year, the State Water Resources Control Board (State Water Board) adopted the Statewide General National Pollutant Discharge Elimination System (NPDES) Permit (General Permit) for residual aquatic pesticide discharges to Waters of the United States from applications of aquatic pesticides (algaecides and aquatic herbicides) for algae and aquatic weed control. This General Permit covers only those aquatic pesticides that are currently registered with the State of California or that become registered for use in California. To obtain permit coverage, the General Permit requires Dischargers submit to the Water Board an application consisting of a Notice of Intent (NOI) and an Aquatics Pesticide Application Plan (APAP). This application will be posted for 30 days for public review and comment. Within 90 days of the receipt of the permit application, State Water Board's Deputy Director of the Division of Water Quality (Deputy Director) will either issue a Notice of Applicability (NOA) or deny the application. The Discharger is authorized to begin discharging waters treated with aquatic pesticides starting on the date of the NOA. Alternatively, the Deputy Director may issue a Notice of Exclusion (NOE) denying the permit and justifying why the proposed Discharger is not eligible for coverage under this General Permit and stating the reason why.

The APAP describes the methods and procedures that will be used to:

- Determine the need for aquatic pesticide use;
- Evaluate and use alternatives to pesticides when feasible;
- Identify the pesticides proposed for use;
- Describe application methods and application rate determination;
- Assess treatment effectiveness;
- Describe the self-monitoring procedures and annual reporting, and;
- Generally describe how compliance with the permit requirements will be documented.

Should methods and procedures change significantly during the 5-year term of the permit (change in pesticide or quantity), the Belvedere Lagoon Property Owners Association (BLPOA) will submit these proposed amendments to the APAP to the Deputy Director of the State Water Board for review and approval as required by the General Permit. Following is the BLPOA's APAP for Belvedere Lagoon.

2.0 BELVEDERE LAGOON DESCRIPTION

Belvedere Lagoon is located within the City of Belvedere, in the County of Marin (Figure 1), but is adjacent to the City of Tiburon and receives stormwater runoff from both cities. The lagoon is a remnant of a natural tidal lagoon that was impounded and dredged in 1947 to form an enclosed lagoon to receive local stormwater runoff from the cities of Belvedere and Tiburon. The surface acreage of Belvedere Lagoon is 68 acres. It has a maximum depth of 12 feet and an average depth of 6 feet. The lagoon serves as a flood control basin, recreation area (swimming, boating, and fishing), aesthetic amenity, and ecological resource and is managed to optimize these benefits. The lagoon is bordered by residential homes, the majority with private docks. The BLPOA supports a small boat house and boat launch ramp on the northeast side of the lagoon off of Lagoon Road near Maybridge Road. Called "the Boat House", it is located at 50 Lagoon Road. Peter Ruppert is the Maintenance Facilities Coordinator who manages the boat house for the BLPOA and typically conducts all the aquatic weed harvesting and aquatic pesticide applications during past years.

The initial source water to fill Belvedere Lagoon was from Richardson Bay via slide gates with flap valves located at the northwest edge of the lagoon. Currently, the only times Richardson Bay water is allowed to enter Belvedere Lagoon is approximately April 1 of each year when the lagoon water level is raised from the winter operating level (WOL) to the summer operating level (SOL) and approximately every two weeks during the summer months when make-up water is needed to keep the lagoon full. On November 1 of each year, the two main gates at the northwest end of the lagoon discharge enough water from Belvedere Lagoon to lower its water level about 15 inches in anticipation of winter stormwater runoff entering the lagoon (Figure 2). During the winter months, excess water in the lagoon from runoff is released into Richardson Bay through a flap gate and 18-inch culvert in the northeast corner of the lagoon and also the main and vault gates as needed. On April 1, outflow gates are closed and Belvedere Lagoon is typically allowed to fill to its full level needed for the summer through October 31.

3.0 WEEDS AND ALGAE SUBJECT TO CONTROL

Nuisance species needing removal or chemical treatment have typically been widgeongrass (*ruppia maritima*) and filamentous algae (*cladophora).* In the past few years, a red or brown marine algae locally referred to as wireweed (likely either *Kappaphycus* sp. or *Sargasssum* sp.) has become prolific in the lagoon and is periodically removed by scraping the cutting head (without the blades) of the harvester along the bottom of the lagoon to remove the wireweed with its roots or holdfasts. Left unchecked, these species proliferate to the point of interfering with motor boating and swimming, and pose odor and visual impacts to recreational users and adjacent residents.

Figure 1. Belvedere Lagoon Regional Location, Marin County, California

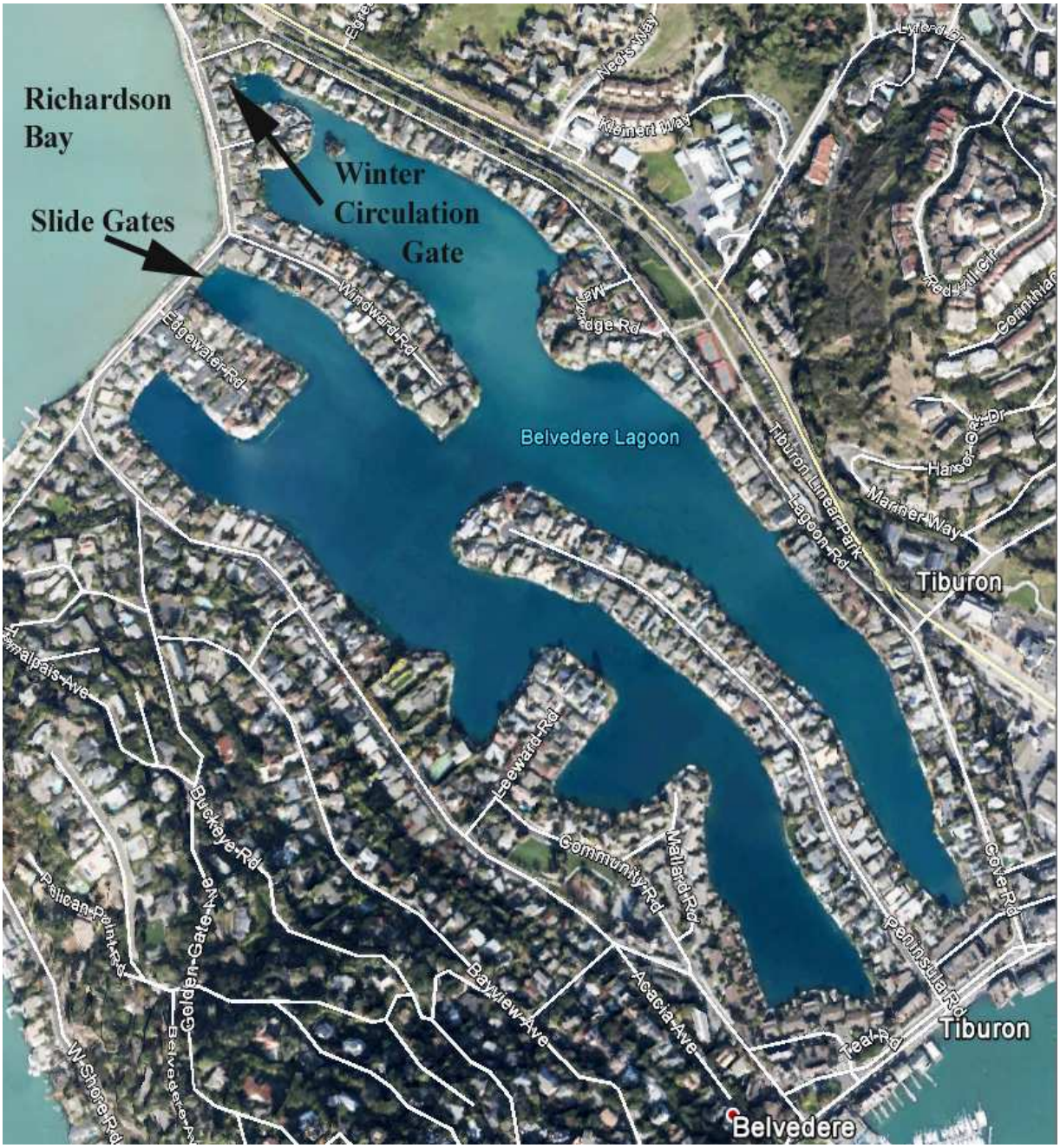

Figure 2. Belvedere Lagoon features and control structures, Belvedere, California

In January of 2014, living samples of the wireweed were sent to SePro in Indiana for testing to determine which aquatic pesticide, of those approved for use in California, are most effective at killing the wireweed. Pesticides included in this study were: Captain XTR with Hydrothol 191; Nautique; Komeen; and Komeen with Littora. All these pesticides are copper-based except for the Hydrothol 191 (endothall) and Littora (diquat dibromide). SePro's study concluded that:

- *Of the treatments tested, Komeen with Littora was the most effective at controlling wireweed.*

- *A treatment of 0.8 ppm copper as Komeen (2.7 gal/AF) combined with 368 ppb Littora (0.5 gal/AF) is recommended to target and control wireweed in Belvedere Lagoon.*

- *Multiple applications may be required with high biomass levels.*

4.0 TREATMENT AREA DESCRIPTION

Most of the area of Belvedere Lagoon needing occasional to regular treatment with aquatic pesticides is along the shoreline where mechanical harvesting of aquatic weeds can't occur because of shallow water depth and piers sticking out into the lagoon. Small embayments and shallow channels entering the lagoon also tend to be prime areas for treatment with aquatic pesticides. More limited water circulation in these locations favors algae and aquatic weeds, and being relatively small, it is difficult or impossible to operate a mechanical harvester in these locations.

The NPDES Permit defines the "application area" as the area to which aquatic pesticides are applied, and defines "treatment area" as the area (including drift from the application area) that is treated (affected) by aquatic pesticide to control the target pest. Treatment of nuisance growth in Belvedere Lagoon is not intended to be accomplished by employing "drift" within the water body; rather, applications are made at the point that control is desired. Therefore, the application area and treatment area is the same. "Application area" is the term used in this document. An application area may be located anywhere within the lagoon where an action level has been reached. These are typically specific isolated locations or shorelines and not the entire lagoon.

The NPDES Permit defines "application event" as the time that introduction of the aquatic pesticide to the application area takes place; that is, the time that the product is applied, not the length of time that it releases to the environment. The surface area of the lagoon is large enough that action levels may vary throughout the lagoon at a given time, and a given nuisance condition may call for a particular aquatic pesticide. Therefore, there may be more than one application area and more than one application event on a given day.

For the purpose of establishing the total number of application events, "application event" is further defined as a contiguous area of treatment using the same pesticide. If two pesticides were combined for a single application to treat two different target species (e.g. widgeongrass and filamentous algae) in the same location, this would be one application event for <u>each</u> of the two pesticides. Combining two pesticides as the most effective means of controlling a single aquatic

weed such as the wireweed in Belvedere Lagoon (SePro recommends a mix of Kommen [copper] and Littora [diquat] for controlling wireweed) would also be counted as a single application event for each pesticide. Use of a different pesticide or pesticide combination immediately adjacent to an application area is a separate application event.

5.0 AQUATIC PESTICIDES USED AND APPLICATION METHODS

The following Table 1 describes the aquatic pesticides likely to be used to control algae, widgeongrass and wireweed in Belvedere Lagoon and their application methods.

Table 1. Aquatic Pesticides Expected to be Used on Belvedere Lagoon

Pesticide	Active Ingredient	Degradation By-Product	Adjuvant or Surfactant	Application Method
Cutrine Plus	Chelated copper	None	None	Subsurface injection into water column or surface sprayed
Captain XTR	Copper Ethanolamine complex	None	None	Subsurface injection into water column or surface sprayed
Kommen	Copper Ethanolamine complex	None	None	Subsurface injection into water column
Nautique	Copper Ethanolamine complex	None	None	Subsurface injection into water column
Sonar	Fluridone	None	None	Subsurface injection into water column
Reward	Diquat dibromide	None	None	Subsurface injection into water column
Littora	Diquat	None	None	Subsurface injection into water column

6.0 DECISION FACTORS FOR USING AQUATIC PESTICIDES

Nuisance conditions are established by the sensibilities of the community. Primary impacts resulting from nuisance growth include impairment of recreational uses (e.g. sail boating and swimming), visual aesthetics and odors.

Nuisance conditions are defined as an accumulation of algae on the water surface, and/or widgeongrass at a height in the water column that interferes with sailboat centerboards and rudders or swimming. Growth at these levels also has potential to fragment and wash ashore to form aesthetic and odor nuisances.

Action levels are established to ensure that community values are protected while containing costs and minimizing pesticide use. The action level, or threshold, is the point in the nuisance

plant growth cycle where a control action should be taken in order to head off a probable nuisance condition. An appropriate threshold ensures that aquatic pesticides will not be used prior to there being evidence of an impending nuisance condition, but at the same time ensuring that action is taken early enough so that projected growth does not result in routine development of a nuisance condition.

Influential Factors

The factors influencing the decision to use aquatic pesticides are based on the experience of many years of management such that seasonal nuisance growth is predictable, and a recognition that nuisance conditions negatively impact the recreational and aesthetic amenities of the lagoon. Left unchecked, widgeongrass and algae each have the propensity to proliferate to a level that can result in entanglement of sailboat centerboards and rudders and swimmers in the growth, as well as result in visual and odor nuisances. A characteristic of each nuisance species is a high growth rate that occurs each mid-to late spring. This rate of growth has the ability to render control efforts ineffective if not initiated at the proper time in anticipation of the growth acceleration.

Wireweed is a relatively new nuisance species in Belvedere Lagoon. It appeared in Belvedere Lagoon 7 years ago, and for the first 2 years would die back in summer so it wasn't much of a nuisance. However, the past few years have seen the wireweed occupy 90 percent of the shoreline to a depth of 6 feet. It grows 3 feet high or greater and fowls sailboat centerboards and rudders and makes swimming unpleasant plus runs the risk of entangling a swimmer. An additional nuisance of wireweed is that a sufficient amount of this brown algae break off that it clogs the trash racks on the discharge gates.

Years of experience also conclude that effective nuisance control is not attainable by the use of non-chemical methods alone. Control methods are initiated in a sequence that utilizes aquatic pesticides as the initial control action to inhibit growth rates and to spot treat problem areas, followed by mechanical harvesting for control of aquatic plant growth within tolerances and cleanup of biomass. Harvesting also removes the biomass from the lagoon, thereby helping to reduce a nutrient source. This integrated approach to nuisance management helps minimize potential adverse environmental impacts from pesticide use.

7.0 GATES, CONTROL STRUCTURES, AND INSPECTION SCHEDULE

All gates and water level control structures for Belvedere Lagoon are located at the northwest end of the lagoon along San Rafael Avenue which is located between the lagoon and Richardson Bay (see Figure 2). The primary gates used for both inflow and outflow are at 100 San Rafael Avenue. This location has two slide gates (one 4-ft round and one 2 ft by 6 ft rectangular) with flap valves that are used mostly for releasing water from Belvedere Lagoon on November 1 in anticipation of winter rains. At this time the water level in the lagoon is lowered about 15 inches to provide storage capacity for stormwater runoff. During the summer months, the flap valves of these gates are propped open slightly (0.2 feet) during high tide to allow make-up water to flow from Richardson Bay into Belvedere Lagoon. This is typically done every 2 weeks to maintain

lagoon water levels until November when lowering the lagoon is necessary for retention of winter stormwater runoff.

A third flap gate on an 18 inch diameter culvert is located at 40 San Rafael Avenue (see Figure 2). This gate is referred to as the "circulation gate" and is used only during the winter months when the lagoon is full of stormwater runoff and must be lowered in anticipation of the next storm event. It is located in this northern corner of Belvedere Lagoon which typically has poor water circulation. However, by periodically releasing excess water through this gate during the rainy season, water circulation in this cove is greatly improved. This outflow gate is opened only when Richardson Bay is at low tide during the winter and early spring.

These three gates are inspected semi-monthly. The automatic over-rides on the two large gates are also tested at the time of inspection.

8.0 CATEGORICAL EXCEPTION

The BLPOA has not applied for a Categorical Exception per Section 5.3 of the *Policy for Implementation of Toxic Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California*.

9.0 PUBLIC NOTIFICATION OF AQUATIC PESTICIDE APPLICATION

The General Permit requires that every calendar year, at least 15 days prior to the first application of algaecide or aquatic herbicides, dischargers notify potentially affected public agencies. However, there are no public agencies or farmers that are potentially affected by Belvedere Lagoon's pesticide applications, so no notice is needed at this time.

In early March of each year, the BLPOA has and will continue to notify Belvedere Lagoon residents of the type and names of the aquatic pesticides that will be applied to the lagoon that year if needed . The mailed notification letters also provide a phone number where interested residents can get on a list for those residents who'd like to be telephoned 24 hours prior to pesticide applications in the lagoon and told where in the lagoon the application if occurring and what pesticides are being applied. The telephone calls include the following information:

- A statement of the BLPOA's intent to apply algaecide or aquatic herbicide(s);
- Name of algaecide and aquatic herbicide(s);
- Purpose of use;
- General time period and locations of expected use;
- Any water use restrictions or precautions during treatment; and
- A phone number that interested persons may call to obtain additional information.

10.0 AQUATIC PESTICIDE APPLICATION LOG

The BLPOA pesticide applicator will maintain a log for each application of aquatic pesticide in Belvedere Lagoon. The application log contains the following information:

- Date of application;
- Location of application;
- Name of applicator;
- Type and amount of each pesticide used;
- Application details, such as the water level of Belvedere Lagoon, time the application started and stopped, pesticide application rate and concentration;
- Visual monitoring assessment; and
- Certification that applicator followed the APAP.

11.0 MONITORING AND REPORTING PROGRAM

The BLPOA's Monitoring and Reporting Program (MRP) is structured to meet the requirements described in Attachment C of the General Permit. As such, the MRP is designed to answer two key questions.

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

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

For a monitoring program to satisfactorily answer the above two questions, its sampling locations must be representative of the discharge characteristics for all treatment areas, and its sampling schedule must encompass the time periods of interest appropriate to each active ingredient in the environment to which it has been applied. Factors that can determine the answers to the questions stated above include:

- Application practices (application method and ensuring that the manufacturer's recommended application rate of the pesticide is not exceeded);

- Transport, fate, and effects understanding for each pesticides active ingredient (copper ultimately binds to the sediment and is no longer bioavailable; fluridone photo-degrades and has a half-life of 20 days in water and is rapidly adsorbed to sediment particles).

Potential Impacts. Potential adverse impacts of an aquatic pesticide are both direct and indirect. Exceedance of an active ingredient's chronic or acute criterion for receiving water limitations is assumed to cause stress, illness, or death to sensitive aquatic biota. Copper added to a water body will cause a temporary reduction in dissolved oxygen levels in the treatment area. Treating too large a portion of a water body at one time may result in the decomposition of large amounts of aquatic plant biomass sufficient to severely lower dissolved oxygen levels and cause a fish kill. The premature use of fluridone-treated fresh water for irrigation can stress or kill sensitive crops or landscaping.

To answer Question No. 1, the following receiving water limitations, expressed as instantaneous maximum concentrations, for the active ingredients of the aquatic pesticides planned for use in Belvedere Lagoon are shown in Table 2 below.

Table 2. Criteria for Pesticides used in Belvedere Lagoon

Active Ingredient	Instantaneous Maximum Concentration[1]
Copper (dissolved)	Saltwater (salinity ≥ 10 ppt 95% of time) 3.1 ug/L[2]
Diquat	20 ug/L
Fluridone	560 ug/L

[1] From the *General NPDES Permit Order No. 2013-0002-DWQ* Section VI.A Table 3.
[2] As stated in the California Toxic Rule (40 CFR 131.38)

Should the Post-Application monitoring result for the active ingredient in the aquatic pesticide be found at a concentration higher than the standard shown in Table 2, then the State Water Board and Regional Water Board will be notified by phone within 24 hours. A written report to these agencies must follow within 5 days of being aware of the "non-compliance" (criterion exceeded).On occasions when the Pre-Application monitoring sample finds dissolved copper in excess of the 3.1 ug/L criterion the Post-Application sample (taken within 7 days of the application) can be compared to the background (Pre-Application) sample results to determine compliance or non-compliance. More details on reporting requirements are provided in Section 11.2

The determination of an answer to Question No. 2 is based partly on the results of the general water quality parameters measured at the sampling locations at the time of the aquatic pesticide residue monitoring, plus visual observation of the surrounding aquatic conditions. The Basin Plan states that receiving waters should contain a minimum of 5 mg/L dissolved oxygen. As such, any reading less than the 5 mg/L Basin Plan objective is considered to be non-compliant with the General Permit and must be reported to regulatory agencies as described above. However, should the dissolved oxygen for the Post-Application reading be greater than the dissolved oxygen level for the Pre-Application (background) sample, then it is in compliance even though it may be less than the 5 mg/L Basin Plan objective. Otherwise this evaluation largely depends on a subjective assessment of the following (include summarized notes on water conditions in the monitoring report):

- Floating or suspended matter;
- Discoloration;
- Bottom deposits;
- Aquatic life;
- Visible films, sheens, or coatings;
- Fungi, slimes, or objectionable growths; and
- Potential nuisance conditions.

An understanding of the aquatic biota and ecosystem of an area are essential in subjectively assessing if the environmental conditions described above violate the narrative descriptions of

the Basin Plan by harming aquatic biota. Furthermore, this evaluation must take into consideration the following considerations:

- The basic geographic and hydrographic features of the area, particularly application points and the logical pathway(s) of residue flow;
- Algaecides and aquatic herbicide application practices and how they are distributed in time and space;
- Relevant knowledge about the transport, fates, and effects of aquatic pesticides, including best- and worst-case scenarios;
- The designated beneficial uses of the water body;
- Relevant knowledge of the action of cumulative and indirect effects;
- Mechanisms through which aquatic pesticide applications could lead to designated use impacts, given the basic features of the area;
- Known and potential impacts of aquatic pesticide applications on water quality, ranked in terms of relative risk based on factors such as magnitude, frequency and duration;
- Sufficient numbers of sampling areas to assess the entire area of influence; and
- An understanding of the sampling methods and sampling schedule.

11.1 MONITORING PROGRAM REQUIREMENTS

Monitoring requirements in regard to constituents/parameters monitoring and sampling depths are provided in Attachment C of the General Permit and reproduced below as Table 3. There are two items from the notes of Table 3 to which particular attention should be paid, plus one note of caution in regard to copper sampling. Be aware of the following:

- Samples shall be collected at 3 feet below the surface of the water or at mid-water column depth if the water depth is less than 3 feet.
- The minimum number of aquatic pesticide application monitoring is six events, unless the total number of pesticide application events are less than six, in which case all application events must be monitoring (more details on this are provided under "Sampling Frequency").
- Because the applicable copper criterion (see Table 2) is expressed as "dissolved copper", the analysis of the water sample must be for dissolved copper, not total copper. As such, the water sample should be filter through a 0.45 micron filter within 15 minutes of collection. Therefore the water sample must be filtered in the field at the time of

collection. This is best accomplished with a peristaltic pump with a disposable 0.45 micron filter on the end of the sampling tube incorporated into the sampling procedure.

Table 3. Monitoring Requirements

Sample Type	Constituent/Parameter	Units	Sample Method	Minimum Sampling Frequency	Sample Type Requirement	Required Analytical Test Method
Visual	1. Monitoring area description (pond, lake, open waterway, channel, etc.) 2. Appearance of waterway (sheen, color, clarity, etc.) 3. Weather conditions (fog, rain, wind, etc.)	Not applicable	Visual Observation	[1]	Background, Event and Post-event Monitoring	Not applicable
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[3] @ 25°C	umhos/cm				
Chemical	1. Active Ingredient[7]	ug/L	Grab[4]	[5]	Background, Event and Post-event Monitoring	[6]
	2. Nonylphenol[8]	ug/L				
	3. Hardness (if copper is monitored; freshwater only)	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 water and non-flowing water) 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 in each environmental setting (flowing water and non-flowing water). If the results from six consecutive sampling 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 for that active ingredient in that environmental setting. If the yearly sampling event shows exceedance of the receiving water limitation/trigger for an active ingredient in an environmental setting, then sampling shall return to six application events for that active ingredient in each environmental setting. For glyphosate, collect samples from one application event 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, dissolved copper, diquat, endothall, fluridone, glyphosate, imazamox, imazapyr, penoxsulam, and triclopyr.

[8] It is required only when a surfactant is used.

Monitoring Frequency. The number of aquatic pesticide application events required to be monitored each year is six events for each pesticide. If the total number of aquatic pesticide application events is less than six events for the year, then all of these events must be monitored. Should six consecutive monitoring show that the active ingredient of concern is within the stated criterion concentration (see Table 2), then monitoring for that particular pesticide can be reduced to one application event per year for the remaining years of the permit. However, if a

following year's initial monitoring shows that the criterion is exceeded, then the discharger must resume with monitoring up to six application events per year.

Monitoring Locations and Number of Samples per Monitoring Event. Each monitored application event results in the collection of three water samples for laboratory analysis for the pesticide's active ingredient. This occurs over two visits to the sampling site within 7 days of the application event. The three collected samples are as follows:

Pre-Application (background) Sample – This sample is taken within the treatment area up to 24 hours in advance of the pesticide application event.

Event Sample – In Belvedere Lagoon, this consists of locating oneself 50-70 feet outside of the treatment boundary, waiting 5 minutes after the pesticide application has occurred along this boundary, and collecting the "Event" sample at this location outside the treatment area. (?)

Post-Application Sample – Within 7 days of the pesticide application event, return to the same area within the treatment area and collect one post-application event water sample for laboratory analysis.

Recording of Field Data. During the collection of each water sample for pesticide residue analysis, field measurements of general water quality constituents are recorded on the field form along with visual observations of water quality conditions. Listed in Table 3, these field measurements are for: air and water temperature; dissolved oxygen; pH; salinity; and turbidity.

In addition to recording all field measurements and observations on the field sheet, the following information shall also be on the field sheet:

- The date, exact place (GPS coord., plus narrative description), and time of the sampling or measurements;
- The individual(s) who performed the sampling or measurements;
- Date of the application event being monitored (on the Post-Event sample sheet).

Field Instrument Calibration. All field instruments used to monitor water quality shall be properly maintained and calibrated as necessary to ensure their accuracy. The dissolved oxygen meter and the turbidity meter should be calibrated each morning just prior to the first sampling. The pH meter should be calibrated weekly. A refractometer type of salinity meter is relatively stable, but placing distilled water on a well rinsed lens and checking for a 0 salinity reading serves as a calibration check. Be sure and rinse the lens off with distilled water three times after its use, and dry the lens before putting it away.

It is important to note that calibration fluids for the turbidimeter and pH meter should be replaced annually or at least every 2 years. The membrane fluid used when replacing the membrane on the probe for the dissolved oxygen meter should also be replaced every 2 years.

The BLPOA and its contractor(s) must follow a Quality Assurance–Quality Control Program for any onsite field measurements such as salinity, pH, turbidity, temperature, and dissolved oxygen.

A manual containing the steps followed in this program is kept in the BLPOA offices and is available for inspection by the State Water Board and the appropriate Regional Water Board staff. The Quality Assurance–Quality Control Program must conform to U.S. EPA guidelines or to procedures approved by the State Water Board and the appropriate Regional Water Board.

Sampling Procedures and Contamination Avoidance. Measurements of dissolved oxygen, temperature, pH, turbidity, and salinity are conducted in the field. These parameters, and water samples for laboratory testing, shall be taken from 3 feet below the surface of the water. If the water depth is less than 3 feet, then the sample is taken from the mid-depth of the water column.

If sample collection is achieved using a discrete–depth sampling bottle such as a Kemmerer bottle. The Kemmerer bottle or equivalent shall be rinsed three times in the water to be sampled prior to collecting the water samples from that site.

Samples for dissolved copper testing shall be collected using a length of silicone tubing sufficient to reach 3 feet deep in the water column, a peristaltic pump, and a 0.45 micron disposable filter the end feeding into a plastic sampling bottle. The sampling bottles for dissolved copper should contain an acid preservative provided by the analytical laboratory. Should a peristaltic pump and filter be unavailable, the sample should <u>not</u> be acidified but merely put on ice in a cooler for delivery to the analytical laboratory.

All samples shall be stored in a cooler with ice packs until delivery to a certified laboratory for analyses. All sample containers shall be labeled before storing them in the cooler.

Sampling will be conducted using sampling procedures which minimize loss of monitored constituents during sample collection and analysis and maintain sample integrity. To minimize the risk of contamination during sampling, the following protocols are followed:

- Water sample collection will <u>not</u> be conducted out of the "treatment" boat (residue risk);
- Latex gloves will be worn during sampling;
- Sample container labels will be filled out with permanent ink prior to attachment to the container;
- Sample labels will include: location, date, and time of sample collection.
- The discrete-depth sampling device will be rinsed three times with water from the sampling site before retaining the sample;
- Silicon tubing and the 0.45 micron disposable filter for the peristaltic pump will be used for one application event for that day only, then replaced or thoroughly decontaminated before future use;
- Samples will be kept out of the sun and stored in a cooler with ice packs;
- The analytical laboratory's chain-of-custody form will be used at all stages of sample transfer;
- Following the day's sampling event, the Kemmerer bottle (or equivalent) will be washed inside and out with an Alconox solution (a detergent used to wash lab glassware), rinsed twice, then given a final rinse with distilled water. During this process, the spigots on the instrument will be open and both soapy water and rinse water passed through the spigots.

Laboratory Analysis for Pesticide Residue. All laboratory analyses shall be conducted at a laboratory certified for such analyses by the California Department of Public Health in accordance with California Water Code section 13176. Laboratories that perform sample analyses shall be identified in all monitoring reports.

All laboratory analyses for the pesticide's active ingredient shall be conducted in accordance with the latest edition of "Guideline Establishing Test Procedures for Analysis of Pollutants" promulgated by the U.S. EPA in title 40 Code Federal Regulation (40 C.F.R.) 136 or equivalent methods that are commercially and reasonably available and that provide quantification of sampling parameters and constituents sufficient to evaluate compliance with applicable effluent limits and to perform reasonable potential analysis. Equivalent methods must be more sensitive than those specified in 40 C.F.R.136 and must be approved for use by the Regional Water Board Executive Officer.

11.2 REPORTING PROGRAM REQUIREMENTS

There are three types of reporting to the State Water Board: 1) Annual Reporting (due March 1 describing the results of the previous year's monitoring); 2) 24 hour Reporting (provided orally); and 3) Five Day Reporting (a written report following up the oral report). There is also a fourth type of reporting that involves reporting an adverse incident to a threatened or endangered species to the National Marine Fisheries Service (NMFS) and/or the U.S. Fish and Wildlife Service. The requirements and purpose of each of these types of reports are explained in the following sections.

Annual Report. The BLPOA will submit to the State Water Board and San Francisco Bay (Region 2) Regional Water Board Executive Officer an annual report consisting of a summary of the past year's activities, and will certify compliance with all requirements of the General Permit. If there is no discharge of algaecides and aquatic herbicides, their residues, or their degradation byproducts, the BLPOA will provide a certification that algaecide and aquatic herbicide application activities did not result in a discharge to any water body. The annual report shall contain the following information:

- An executive summary discussing compliance or violation of the General Permit and the effectiveness of the APAP; and

- A summary of monitoring data, including the identification of water quality improvements or degradation as a result of the algaecide or aquatic pesticide application.

The annual report will be submitted according to the following schedule in Table 4:

Table 4. Annual Reporting Schedule

Reporting Frequency	Reporting Period	Annual Report Due
Annual	January 1 through December 31	March 1

Annual Report Protocols. The BLPOA shall adhere to the following protocols when preparing an Annual Report.

- Each sample result will include the applicable reported Minimum Level (ML) and the current Minimum Detection Limit, as determined by the procedure in 40 C.F.R. part 136.

- The results of analytical determinations for the presence of the pesticide's active ingredient will use reporting protocols listed on page C-9 of Order No. 2013-0002-DWQ. These protocols describe the reporting procedures to follow regarding Method Detection Limits and Reporting Limits.

- All reported data will be arranged in a tabular format. The data will be summarized to clearly illustrate whether the algaecide and aquatic herbicide applications are conducted in compliance with effluent and receiving water limitations.

- The BLPOA will attach a cover letter to the annual report that clearly identifies violations of the permit; discusses corrective actions taken or planned; and provides a time schedule for corrective actions. Identified violations will include a description of the requirement that was violated and a description of the violation.

- The annual report will be submitted to the State Water Board and the San Francisco Bay (Region 2) Regional Water Board, signed and certified as required by the Standard Provisions (Attachment B, Standard Provision, of the Order No. 2013-0002-DWQ).

- A Water Board email dated February 27, 2014 states the Annual Report should be sent to the following:

If an electronic report
Address to: Victoria A. Whitney, Deputy Director, Division of Water Quality
Email to: NPDES_Wastewater@waterboards.ca.gov

If a paper report
Send to: Victoria A. Whitney, Deputy Director
Division of Water Quality
c/o NPDES Wastewater Unit
State Water Resources Control Board
1001 I Street, 15th Floor
Sacramento, CA 95814

Electronic Submittal of the Annual Report. Note that at any time during the term of the General Permit, the California State Water Board or the Regional Water Board may notify dischargers of the requirement to submit electronically Self-Monitoring Reports (SMRs) using the State Water Board's California Integrated Water Quality System (CIWQS) Program (http://www.waterboards.ca.gov/ciwqs/index.html). Until such notification is given, the BLPOA

will submit hardcopy SMRs. The CIWQS website will provide additional directions for SMR submittal in the event there will be service interruption for electronic submittal.

Dischargers are not required to duplicate the submittal of data that are entered in a tabular format within CIWQS. When electronic submittal of data is required and CIWQS does not provide for entry into a tabular format within the system, dischargers shall submit electronically the data in a tabular format as an attachment.

Dischargers will report the results for all monitoring specified in the General Permit MRP in the SMR. Dischargers will submit annual SMRs including the results of all required monitoring using U.S. EPA-approved test methods or other test methods specified in the General Permit. If dischargers monitor any pollutant more frequently than required by the General Permit, the results of this monitoring shall be included in the calculations and reporting of the data submitted in the SMR.

Twenty-Four Hour Report. The BLPOA will report to the State Water Board (Russell Norman, 916-323-5598) and the Regional Water Board (Farhad Azimzadeh, 510-622-2310) any noncompliance, including any unexpected or unintended effect of an algaecide or aquatic herbicide use that may endanger health or the environment. Information will be provided orally within 24 hours from the time the BLPOA becomes aware of the circumstances and will include the following information:

- The caller's name and telephone number;
- Applicator name and mailing address;
- Waste Discharge Identification (WDID) number (WDID#241AP00007);
- The name and telephone number of a contact person;
- How and when the BLPOA become aware of the noncompliance;
- Description of the location of the noncompliance;
- Description of the noncompliance identified and the U.S. EPA pesticide registration number for each product applied in the area of the noncompliance; and
- Description of any steps that the BLPOA has taken or will take to correct, repair, remedy, cleanup, or otherwise address any adverse effects.

A log form for a Twenty-Four Hour Report is provided in this document as Attachment A. In the event that the BLPOA or its contractor(s) are unable to notify the State and Regional Water Boards within 24 hours, the BLPOA will do so as soon as possible and also provide the rationale for why it was unable to provide such notification within 24 hours.

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

- Date and time the BLPOA contacted the State Water Board and the Regional Water Board notifying of the noncompliance and any instructions received from the State and/or Regional Water Board; information required to be provided in Section D.1 (24-Hour Reporting);

- 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);
- Location of incident, including the names of any waters affected and appearance of those waters (sheen, color, clarity, etc.);
- Magnitude and scope of the affected area (e.g. aquatic square area or total stream distance affected);
- 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;
- 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);
- Laboratory tests performed, if any, and timing of tests. Provide a summary of the test results within five days after they become available;
- If applicable, explain why the BLPOA believes the noncompliance could not have been caused by exposure to the algaecides or aquatic herbicides from the Discharger's application; and
- Actions to be taken to prevent recurrence of adverse incidents.

The State Water Board staff or Regional Water Board 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. A Five-Day Written Report Outline (with mailing addresses) is provided in this document as Attachment B.

Adverse Incident Notification. During aquatic pesticide operation, if an adverse incident should occur to a federally designated threatened or endangered anadromous or marine species or their critical habitat, the NMFS in Santa Rosa should be contacted by phone (707-575-6050) within 24 hours. Should the adverse incident occur to a threatened or endangered terrestrial or freshwater species, the FWS (916-414-6600) should be verbally contacted within 24 hours.

12.0 EVALUATION OF OTHER MEANS OF AQUATIC WEED CONTROL

Mechanical Harvesting. At Belvedere Lagoon, mechanical harvesting of aquatic weeds is accomplished with a mechanical weed rake used as needed throughout the late spring and summer. Mechanical harvesting works best on widgeongrass or wireweed as filamentous algae is not sufficiently firm for effective harvesting; however, filamentous algae often is harvested incidentally with the widgeongrass. While a mechanical harvester works best in the open waters of the lagoon, as near-shore areas are often too shallow or have frequent docks or other obstructions for a harvester to function properly, the 6-foot mechanical weed rake can more effectively be used in these conditions. The mechanical weed rake is attached to the arm of a backhoe on a floating barge, then maneuvered about the lagoon to areas with aquatic weed problems for weed removal.

Rotovation. Mechanical rotovation can be used as a measure to discourage widgeongrass infestation. Rotovators use underwater rototiller-like blades that churn up to a foot into the

bottom of the water body to disrupt a seed bed and young rooting plants. Rotovation would be deployed in the early spring when the season's growth is only beginning to emerge. As no significant biomass exists at this stage of growth, there is no biomass generated and no resulting biomass removal needs. Depending on plant density and sediment type, two to three acres per day can be rotovated.

The BLPOA's uses a form of rotavation each spring in Belvedere Lagoon. A 200 pound block of steel with inserted blades is towed back and forth across the lagoon in areas that have had dense growths of widgeongrass or wireweed algae the previous season. This devise disrupts the lagoon bottom to a depth of 6 inches and can be used at all depths, just not along the shoreline where docks and concrete aprons occur.

Aquatic Dyes. Aquatic dye has potential to discourage widgeongrass and algae growth in a water body by limiting light penetration. Aquatic dyes have been used regularly for several years in Belvedere Lagoon with success. Turbidity in Belvedere Lagoon is monitored with a Secchi disk during the spring and summer. When the Secchi disk is visable at a depth of 2 feet, the lagoon is considered to need applications of aquatic dye to diminish sunlight penetration. A Signet Select organic blue dye is the product currently used in Belvedere Lagoon. When water clarity is high, the blue dye is applied every two weeks. Aquatic dyes are non-toxic and don't need to be monitored when applied.

Changing the Salinity Characteristics. Because the wireweed is a marine algae, it is possible that its failure to die back in Belvedere Lagoon the past few years is due to less stormwater runoff and a higher salinity in the lagoon since drought conditions have occurred. However, as the source of Belvedere Lagoon make-up water in the summer is Richardson Bay, there are minimal options for extending the winter rainy season conditions of low salinity. With a more normal weather pattern it may be possible to hold freshwater runoff to the lagoon for a longer period into the summer. To explore the link between the wireweed proliferation and salinity, and to develop a record of seasonal salinity levels in the lagoon, it is recommended that the BLPOA increase their monitoring of salinity levels in Belvedere Lagoon.

Beneficial Bacteria. Beneficial bacteria may have potential to reduce bioavailability of nutrients in the lagoon's substrate. Beneficial bacteria consume the same nutrients that are available to nuisance plants. In effect, beneficial bacteria deprives aquatic nuisance growth of a ready food source, thereby inhibiting growth. Like dyes, use of beneficial bacteria would require that the lagoon remain static for the application season. Additionally, applications of beneficial bacteria work best in relatively small pockets with high organic material content, not on a larger water body. Therefore, this option is considered only with more isolated coves with accumulated organic matter in the sediment. The BLPOA has also noted that the copper in algaecides used in Belvedere Lagoon tended to kill the beneficial bacteria whenever they tried it.

Biological Control. Aquatic beetles that consume aquatic plants have been used in freshwater impoundments for aquatic weed control with mixed success. Belvedere Lagoon is brackish to saltwater, not fresh, and would not support aquatic beetles.

Cultural Control. Each spring, homeowners located on Belvedere Lagoon receive a newsletter describing the do's and do not's of landscape and lawn fertilizing, overwatering, and proper grass clipping disposal. Education of homeowners regarding measures to prevent nutrients and pesticides from entering Belvedere Lagoon from rainfall, bird droppings and irrigation runoff is discussed in each newsletter.

13.0 BEST MANAGEMENT PRACTICES

The following best management practices (BMPs) will be implemented to minimize the amount of aquatic pesticides used in an area, to minimize the extent and duration of impacts caused by the discharge of aquatic pesticides to Belvedere Lagoon, and to allow for restoration of water quality and protection of beneficial uses of the lagoon waters to pre-application quality following completion of a treatment event.

Licenses and Permits.

- The BLPOA will obtain all necessary regulatory permits prior to application of aquatic pesticides.
- Aquatic pesticide applications by the BLPOA and its contractors will be conducted in conformance with licensing and other requirements of the Cal-EPA Department of Pesticide Regulation.

Inspection and Assessment. The BLPOA or its contractors will conduct visual observations of the entire lagoon at a frequency deemed prudent to identify emerging nuisance conditions, need for treatment, and type of treatment (see the following Decision Matrix, Figure 3). The following actions will be employed:

- Initiate inspections in March; conduct weekly inspections, April through July, or as the nuisance growth season dictates.
- Observe for indicators of nuisance growth, such as accumulation of bottom or floating algae, and spot "raking" for evidence of weed growth if not otherwise visible.
- Utilize predetermined "action levels" to qualify treatment decision making.
- Measure and record ambient environmental conditions and physical water quality characteristics that may provide clues to impending nuisance conditions.
- Record the inspection event on daily work report.
- Schedule subsequent inspection and/or application event, as applicable.

Action Levels. The BLPOA has established action levels for nuisance control that protects community values while ensuring that use of aquatic pesticides is minimized. An appropriate threshold ensures that herbicides will not be used prior to visual evidence of growth, while at the same time ensuring that projected growth rates do not result in routine exceedance of the threshold. Action levels are defined as follows and illustrated in a decision matrix (Figures 3 and 4):

- *Algae*: Dots of floating algae begin to accumulate on the surface, or the algae is at a life stage when, in the opinion of the qualified applicator (a holder of a Department of Pesticide Regulation Qualified Applicator License), a detachment is probably imminent.
- *Widgeongrass*: Rake samples of bottom growth indicate a grass length of 6 to 12 inches and a life stage when, in the opinion of the qualified applicator (a holder of a Department

of Pesticide Regulation Qualified Applicator License), the typical acceleration in growth rate is probably imminent.

- *Wireweed*: Hand raking of the lagoon bottom is done regularly as summer progresses to provide an indication of high density of wireweed (brown algae). When the density of wireweed is 25-50 individual plants per square yard, the area has the wireweed density reduced by hand raking and removal,then aquatic pesticides are applied to the area to kill or impair the remaining plants

Integrated Control Strategy. Once action levels have been reached, the BLPOA will implement the following sequence of chemical and mechanical controls action:

- *Algae*: Initiate applications for algae control. If and when rate of algal accumulations on water surface result in formation of substantial biomass, augment chemical applications with mechanical skimming.
- *Widgeongrass*: Initiate applications for widgeongrass to suppress potential rate of growth. Roughly concurrent with the initial chemical application, put on-site harvester on standby. Begin harvesting when height of widgeongrass allows for efficient cutting and biomass removal (approximately 2-3 feet in length).
- *Wireweed*: Wireweed management initially uses hand raking and removal to reduce wireweed biomass. Once biomass is reduced, pesticides are then applied to control the remaining plants and minimize the quanitity of wireweed growing to nuisance lengths.

Pesticide Application Protocols.

- Always apply product in accordance with it product labeling.
- Apply aquatic pesticides only to infested areas.
- Apply herbicides at the optimal time and conditions to maximize their effectiveness and minimize amount applied. (e.g. when plants are succulent and actively growing, and water column is not turbid.) Avoid applying under conditions of high wind, water flow, or wave action.)
- Calibrate application equipment as needed to assure the desired application rate. Check tank mix level frequently to insure proper dosage rates are being applied.
- Close chemical intake valve when pump is not in use.
- Upon completion, flush the tank and pump system with water for a minimum of three minutes in the application area.
- Ensure that applicators practice herbicide use safety and that applicator equipment is properly inspected to prevent accidental leaks, spills, and hazards to applicators and the environment.
- When copper-based herbicides are called for, a chelated form of copper that offers the greatest affinity for adherence to the target and least likelihood of settling to the bottom shall be used.

Applicator Education on Avoiding Adverse Environmental Impacts.

- The BLPOA will use only California licensed aquatic pesticide applicators to apply pesticides in Belvedere Lagoon. Licensed applicators are required to take periodic training on spill avoidance, proper application techniques, and avoiding environmental impacts.

- A copy of this APAP will be provided to the licensed applicator at least 30 days prior to aquatic pesticide application, and require that all primary applicators used on Belvedere Lagoon sign an affidavit that they have reviewed the contents and are familiar with all requirements.

Preventing Fish Kills.

- Experienced, licensed, and trained applicators have had training on avoiding potential fish kills; however,
- This section is to remind applicators that they should avoid treating all of a relatively enclosed embayment or side channel at once in a manner that leaves no escape route for fish seeking higher levels of dissolved oxygen.
- Pesticide applications in an embayment should begin at the shore furthest from the opening to the embayment and apply the pesticide outward toward this opening. Never begin pesticide applications at the mouth of the embayment and work inward as fish can be trapped by zones of low levels of dissolved oxygen.
- Belvedere Lagoon should never be treated in its entirety by a single pesticide application. Water bodies and embayments should also never be treated in their entirety with a single treatment. By treating half or less of the water body at one time, fish are left with a refugium with higher levels of dissolved oxygen should it be needed.
- An exception to the above rule is Sonar (fluridone), as it is a systemic pesticide that settles into the sediment and enters the root system of the aquatic weeds over time, so there is no danger of fish kills, particularly at the 40 ug/L concentration at which it is typically applied.

General Handling, Storage and Disposal of Pesticides.

- Always handle, store, and dispose of product in accordance with label instructions
- Mix or load herbicides in a safe and prudent manner so as to minimize potential for spillage of raw or mixed product.
- Mix only as much material as is necessary for treatment.
- When changing pesticides or cleaning spray tanks, use tank rinse water as product within the application area.
- Triple rinse empty pesticide containers and dispose in accordance with label instructions recommendations of the County Agricultural Commissioner and the manufacturer.
- Provide spill kits, store the kits near pesticides, and train employees to use them.
- Keep raw product in original container. Mix and use pesticides only in labeled containers and in accordance with local law.

Try to find a qualified user for any unwanted pesticides, or return to the manufacturer if unopened.

14.0 ANNUAL INFORMATION COLLECTION

The BLPOA will complete and retain all information on the previous reporting year beginning January 1 and ending December 31. When requested by the Deputy Director or Executive Officer of the Regional Water Board, the BLPOA will submit the annual information including:

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 algaecide and aquatic herbicide applications;
2. A summary of monitoring data, including the identification of water quality improvements or degradation as a result of the algaecide or aquatic pesticide application, if appropriate, and recommendations for improvements to the APAP (including proposed BMPs) and monitoring program based on the monitoring results. All receiving water monitoring data will be compared to receiving water limitations and receiving water monitoring triggers;
3. Identification of BMPs currently in use and a discussion of their effectiveness in meeting the requirements in the General Permit;
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 algaecides and aquatic herbicides used at each application event;
7. Information on surface area and/or volume of treatment areas and any other information used to calculate dosage, concentration, and quantity of each algaecide and 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 QA/quality control plan. Sampling results shall be tabulated so that they are readily discernible; and
9. Summary of algaecide and aquatic herbicide application log.

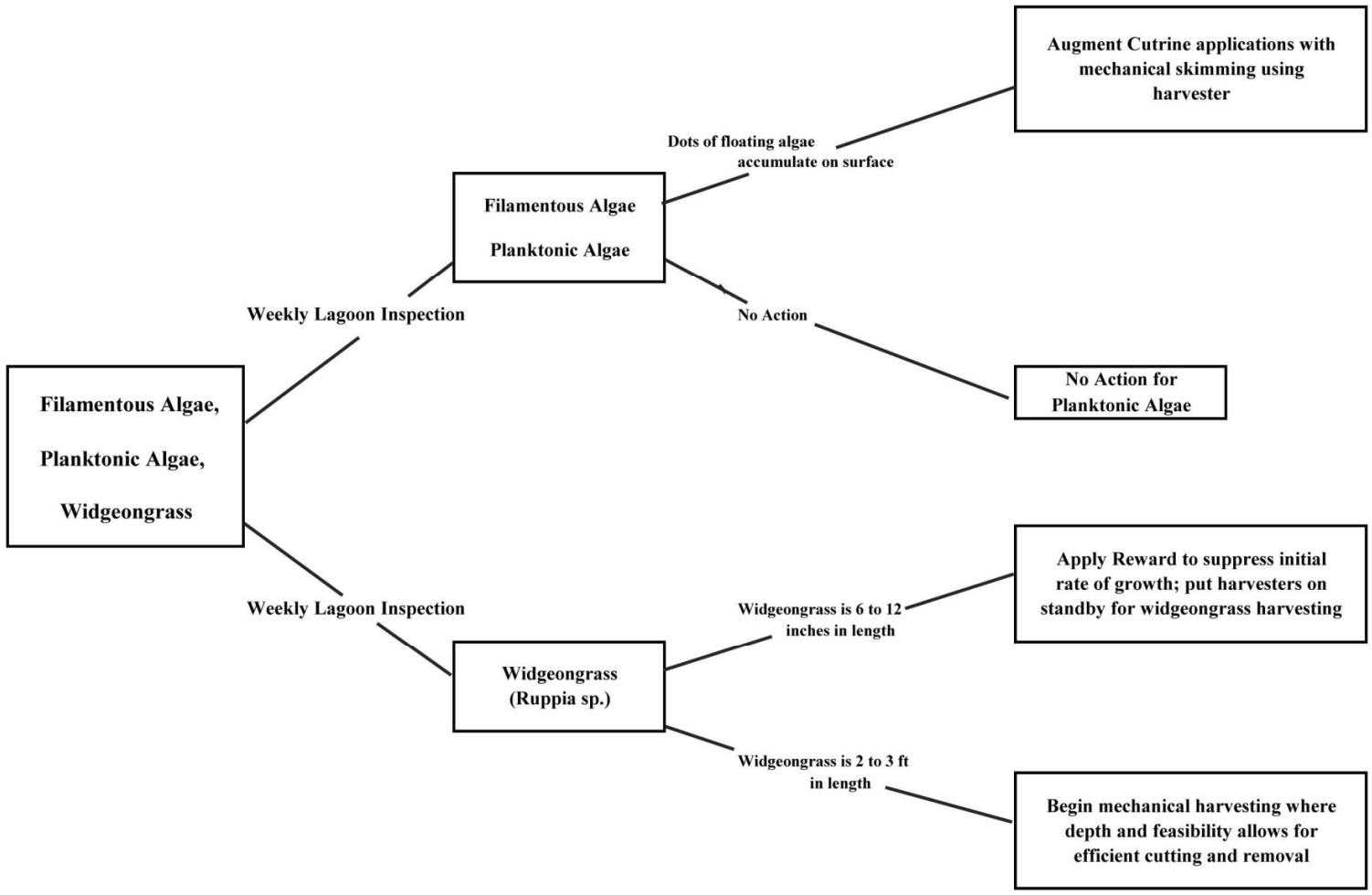

Figure 3. Decision Matrix for Algae and Aquatic Weed Control Program, Belvedere Lagoon, Marin County

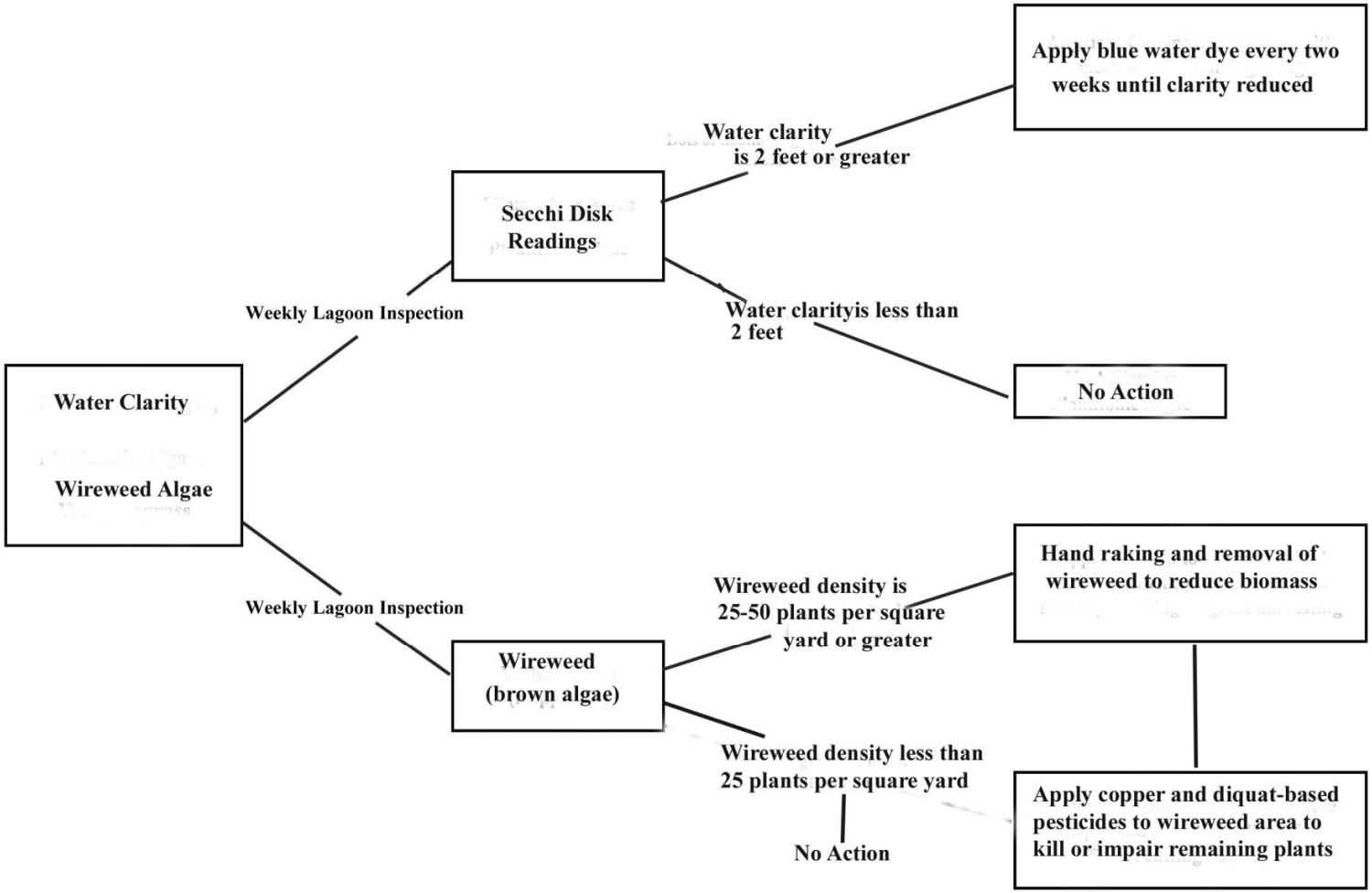

Figure 4. Decision Matrix for Water Clarity Reduction and Wireweed Control Programs, Belvedere Lagoon, Marin County

ATTACHMENT A

TWENTY-FOUR HOUR REPORT LOG FORM

Purpose: This verbal report must be provided to the appropriate San Francisco Bay Regional Water Quality Control Board and the State Water Board in the event that there is any noncompliance with the General NPDES Permit for Residual Aquatic Pesticide Discharges from Algae and Aquatic Weed Control Applications (General Permit), including any unexpected or unintended effect of an algaecide or aquatic herbicide use that may endanger health or the environment. Requirements for this report are found on page 17 of the APAP for Belvedere Lagoon.

The report must be provided within 24 hours from the time the BLPOA or its contractors become aware of the circumstances.

State Board Contact Phone Number: _____
Name of State Board Employee Contacted:

SFRWQCB Contact Phone Number: _____
Name of Regional Board Employee Contacted

The following information shall be provided:

a. Caller's name and phone number

Name _____

Telephone Number _____

b. Applicator name and mailing address

Belvedere Lagoon Property Owners Association
PO Box 465
Belvedere, CA 94920

c, Waste Discharge Identification (WDID) number

WDID #

d. Name and Telephone Number of Contact Person

Peter Ruppert
Maintenance Facilities Coordinator
(415-435-0285; cell: 415-722-3101)
prblpoa@gmail.com

e. How and when the BLPOA or its contractor became aware of the

Noncompliance how:

_____

_____

_____

When: _____

f. Description of the location of the noncompliance:

_____

_____

g. Description of the noncompliance identified and the U.S. EPA pesticide registration number for each product the Discharger applied in the area of noncompliance.

Description of Noncompliance:

_____

_____

_____

Products applied including USEPA pesticide registration numbers

_____

_____

h. Description of any steps that the BLPOA or its contractor has taken or will take to correct, repair, remedy, cleanup, or otherwise address any adverse effect.

_____

_____

_____

Other comments provided to or received from State Board or CVRWQCB during phone call:

ATTACHMENT B

FIVE-DAY WRITTEN REPORT OUTLINE

Following submission of a twenty-four report, a written report must also be provided to the San Francisco Bay Regional Water Quality Control (SFRWQCB) Board and the State Water Board in the event that there is any noncompliance with the General NPDES Permit for Residual Aquatic Pesticide Discharges from Algae and Aquatic Weed Control Applications (General Permit), including any unexpected or unintended effect of an algaecide or aquatic herbicide use that may endanger health or the environment. Requirements for this report are found on pages 17 and 18 of the APAP for Belvedere Lagoon.

The written report must be provided within 5 days from the time the City(?) or its contractor becomes aware of the circumstances. The State Water Board staff or Regional Water Board staff may waive the written report required under this provision on a case-by-case basis if an oral report has been received within 24 hours.

The report should contain the following information:

a. Date and time the BLPOA contacted the State Water Board and the appropriate Regional Water Board notifying of the noncompliance and any instructions received from the State and/or Regional Water Board (24-Hour Reporting);

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 Discharger believes the noncompliance could not have been caused by exposure to the algaecides or aquatic herbicides from the Discharger's application; and

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