Lake of the Pines Association

Aquatic Pesticide Application Plan (APAP)

For coverage under

WATER QUALITY ORDER NO. 2013-0002-DWQ

GENERAL PERMIT NO. CAG990005

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

Prepared for:
Lake of the Pines Association
11665 Lakeshore North
Auburn, CA 95602

Prepared by:
SOLitude Lake Management, LLC
345 Industrial Way
Benicia, CA 94501

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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 manage the system or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment."

Signed and Agreed,

X_____
Sean Bothelio, General Manager, Lake of the Pines Association

X_____
Benjamin Chen, Aquatic Biologist, SOLitude Lake Management, LLC

INTRODUCTION

In March of 2013, 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 Lake of the Pines Association (hereby known as "Association") 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 Lake of the Pines Association APAP for the Main Lake, Hazel Lake, Entrance Lake and Huck Finn Pond.

LOCATION DESCRIPTION

Lake of the Pines (LOP) is a 232-acre lake created in 1967 is regarded as the centerpiece of a planned community that includes golf courses, a marina, clubhouse and nearly 2000 private residences. The lake is located in southern Nevada County, approximately 10 miles north of the City of Auburn, California.

The primary tributary of LOP is Magnolia Creek, entering the lake at Park 2 with additional tributaries entering at Parks 3 and 4. All water bodies discharge to waters of the United States and are located within the Sacramento River Basin.

The Association owns and maintains four bodies of water; Main Lake, Hazel Lake, Huck Finn Pond and Entrance Pond (Figure 1). Beneficial uses of these water bodies include: water contact recreation, flood

control, fish and wildlife habitat and irrigation. Golfing, although not directly adjacent to the lake, is dependent on the lake for irrigation water throughout much of the year and generates stormwater runoff that drains to the lake.

Main Lake

The Main Lake in Lake of the Pines is a reservoir formed by Magnolia Dam installed across Magnolia Creek in 1967 by Boise Cascade Corporation. At spillway elevation of 1,507-feet the lake covers 232-acres with five-miles of shoreline. Maximum depth is 60-feet near the dam at spillway level. Magnolia Dam, owned by LOP Association, is 68-feet high, earth-fill with 165,000-cubic yards, its crest is 620-feet long, 16-feet wide, at elevation 1,515-feet above sea level. Maximum useable water storage is 2,583 acre-feet (AF); unusable (dead) storage is 1,567-AF, for a total reservoir storage capacity of 4,150-AF. A 24-inch sliding gate valve at the dam is located 45-feet below spillway level at elevation 1,462.

Huck Finn Pond

Huck Finn Pond is a three-acre pond inside LOP formed by a 15-foot high earthen dam (175-feet long, crest width of 10-feet) across intermittent Ragsdale Creek north of the main entrance to LOP. The dam was built to provide a stock-watering source for the ranch that preceded LOP. The pond has a shoreline of 673-yards (0.4-miles) with a maximum depth of eight-feet. The major tributary, Ragsdale Creek, drains a small area around Bear River High School and nearby Cottage Hill and Magnolia schools and is usually dry from April through October.

Hazel Lake

Hazel Lake's four-acres are maintained about 10-feet above the main lake level by a 15- to 20-foot high earthen dam at the end of a cove on the north shore of the Main Lake of the Pines. Maximum depth is 17-feet. The dam (250-feet long and crest width of 20-feet) was constructed to provide a stock watering supply for the ranch that preceded LOP. The north shore of Hazel Lake fronts Hazel Lake Park which is accessed by Lakeshore North. Two 18-inch diameter culverts (no valve, gate or screen) at the west end of the dam allow Hazel Lake water to flow into the Main Lake. Thus, aquatic animal and plant life in Hazel Lake are able to find access to the Main Lake.

Entrance Lake

The Entrance Pond (a k a, Gate Pond) is on association land outside of LOP fencing, just west of the main entrance. The pond approximates one-half acre (108-feet wide x 228-feet long) with a maximum depth of eight-feet impounded by a three-foot high dam on Ragsdale Creek. The pond contains about two-acre-feet (AF) of water.

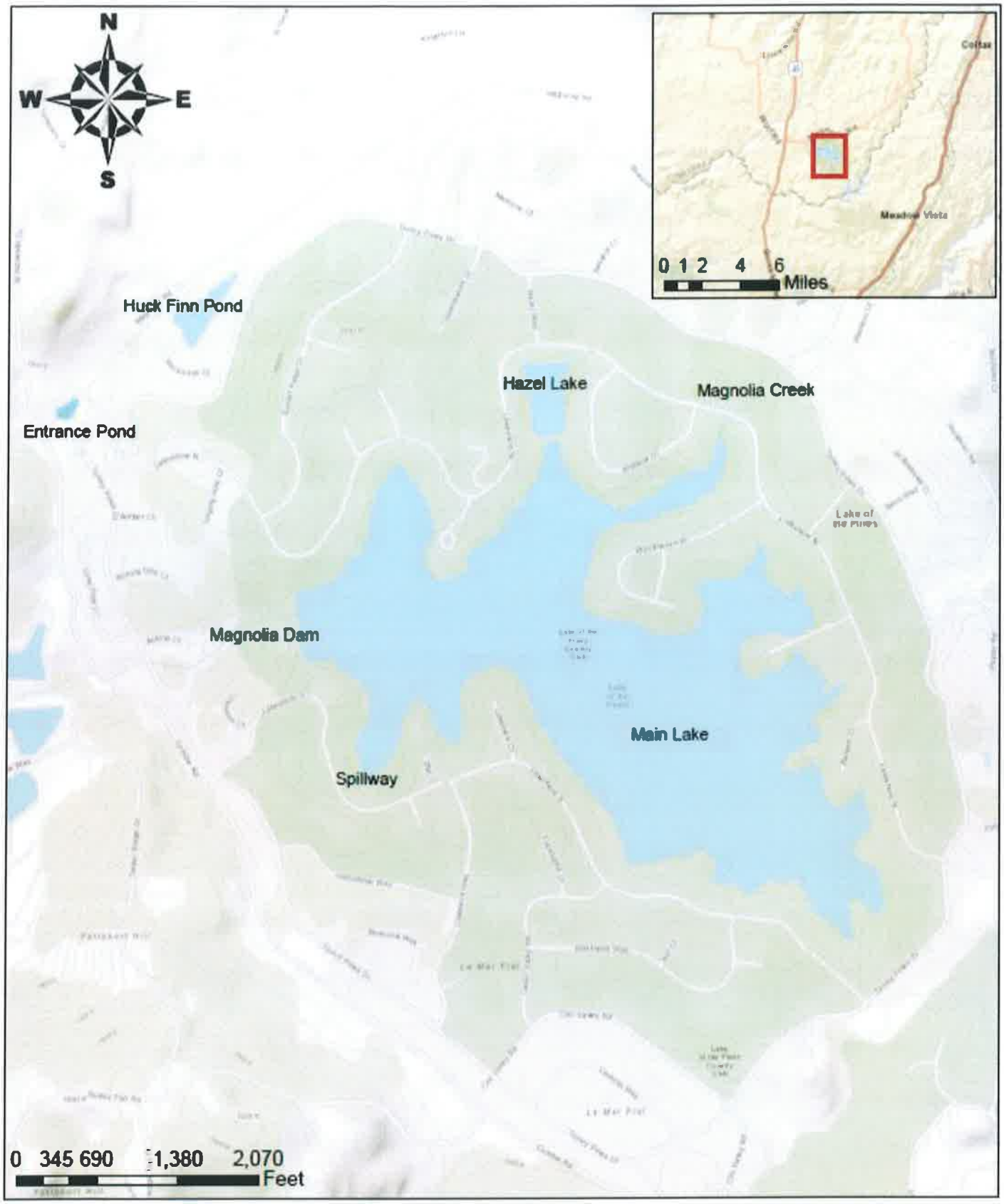

Figure 1: Lake of the Pines Location Map

WEEDS AND ALGAE SUBJECT TO CONTROL

1.Planktonic Algae

a. Typical genera are: *Microcystis, Anabaena, Chlorella and Oocystis*. Microscopic plants, usually suspended in the upper few feet of water, that often reach bloom proportions. This causes the water to appear pea-soup-green or brownish. Planktonic algae are at the mercy of wave/wind action and often accumulate along windward shores. Certain genera of planktonic algae are capable of creating toxic Harmful Algal Blooms (HABs) which are detrimental towards the environment and human health. Nuisance planktonic algal conditions typically occur at Huck Finn Pond and Hazel Lake.

2. Filamentous Algae

a. Horse hair clump (*Pithophora spp.*). Filamentous alga that grows quickly in shallow water in warm weather. Initially it grows attached, but later as dense growth occurs, gases are captured forming floating mats that resemble masses of wet wool. Strands are as narrow as a thread and coarse. The mat is yellow on the surface and dark green below. It can occur in Entrance Pond, Huck Finn Pond and Hazel Lake, but has not been observed in the main lake.

b. Water silk (*Spirogyra spp.*). Filamentous alga that grows rapidly in shallow, warm water. Long, unbranched filaments form huge floating, yellow-green to bright-green mats. Appears cottony but is slimy to touch. Water silk can give water a "grassy" taste. It can occur in Entrance Pond, Huck Finn Pond and Hazel Lake, but has not been observed in the main lake.

3. Attached-Erect Algae

a. Muskgrass (*Chara spp.*). A stonewort common to upper mountain lakes. *Chara* is entirely submersed and attaches to the bottom (no roots), usually in less than 6-9 feet. It is gray-green, gritty to touch, and its odor is strong and musky. *Chara* is often mistaken for higher vascular plants as it grows bushy and dense. It is a common "plant" in LOP, and also in Entrance Pond, Huck Finn Pond and Hazel Lake.

PONDWEEDS

"Pondweeds" as used here applies to all aquatic plants other than algae. Several pondweeds carry the common names "American pondweed" "Sago Pondweed" and "curlyleaf pondweed", while other pondweeds are "coontail", "southern naiad", and "waterweed".

1. American pondweed (*Potamogeton americanus*). Perennial common to temperate regions. This rooted aquatic spreads by vegetative winter-buds, produced in chains on terminals of horizontal stems below the bottom soil surface. Stems up to six-feet long and floating leaves are flat, green, and resemble Eucalyptus leaves. Lightly distributed in Main Lake but not in the other ponds.

2. Curlyleaf pondweed (*Potamogeton crispus*). Perennial common to temperate regions. This rooted aquatic spreads similar to American pondweed, as well as by seed and fragmentation. Upper leaves have waxy, crispy and wavy (curly) edges. Grows profusely early in the season, often shading and inhibiting other weed growth. Species was once present in the Main Lake, but has not been found in recent years.

3. Coontail (*Ceratophyllum demersum*). A common hornwort widespread in California. Usually rootless, coontail is anchored in mud early in the season. Later, however, it floats near the surface. Leaves are in whorls, submersed, olive to dark green. Compact shoot tips form late in the season, break off, sink to the bottom and overwinter in the bottom soil. It grows to depths of 15 feet and may be the second most abundant plant in LOP although it is not found in the other ponds.

4. Southern naiad *(Najas guadalupensis*). An annual common in California. Stems are red-brown and leaves usually purple-brown. Plants often grow in thick clumps/beds. Leaves are much smaller than the two pondweeds. Reproduces by seed and fragmentation. Common in the Main Lake. Not present in the other ponds.

5. Waterweed or American Elodea (*Elodea nuttallii or E. Canadensis. A scientific name change).* A perennial, submerged, rooted plant native to the Sierra Nevada area. Bright green with dense leaf whorls on stems. Shiny appearance. Grows to depths of nine-feet. Not common in LOP and absent from the other ponds.

6. Sago Pondweed (*Stuckenia pectinata).* A cosmopolitan, perennial, submerged aquatic plant that grows in fresh and brackish water. This plant has long narrow linear leaves and stems appear to in a zig-zag form. Common in the Main Lake.

Emergent Vegetation

1. Cattails (*Typha spp.*) Perennial rhizome water plant common to temperate regions. These species generally grow in flooded areas where the water depth does not exceed 2.6 feet, although it has been growing in floating mats in slightly deeper water.

2. Bulrush (*Schoenoplectus spp.)* Perennial rhizome water plant common to temperate regions. Common plant in freshwater marshes, leaves are greatly reduced, and a plant consists of tall green stems, topped with brown tassels of flowers and seeds.

TABLE 1. TREATMENT AREA DESCRIPTION

Water Body	Target Organism	Treatment Area
Main Lake	Coontail	Littoral Zone
	Sago Pondweed	Littoral Zone
	Southern Naiad	Littoral Zone
	Sago Pondweed	Littoral Zone
	Cattails	Shoreline
	Bulrush	Shoreline
Huck Finn Pond	Cyanobacteria	Whole pond
	Cattails	Shoreline
	Bulrush	Shoreline
Hazel Lake	Cyanobacteria	Whole Pond
	Sago pondweed	Whole pond or spot treatment
	Cattails	Shoreline
	Bulrush	Shoreline
Entrance Pond	Planktonic and filamentous algae	Whole lake

Most of the area of Lake of the Pines 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 docks sticking out into the lake. Small embayments and shallow channels enter the lake 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 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 are the same. "Application area" is the term used in this document. An application area may be located anywhere within the lake or ponds where an action level has been reached.

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 Main Lake is large enough that action levels may vary throughout the lake 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 or pesticide combination. Use of a different pesticide or pesticide combination immediately adjacent to an application area is a separate application event.

AQUATIC PESTICIDES USED AND APPLICATION METHODS

The following Table 2 describes the aquatic pesticides likely to be used to control algae and weeds in Lake of the Pines and their application methods.

Table 2. Aquatic Pesticides Expected to be Used at Lake of the Pines

Active Ingredient	Degradation by-products	Application Method
Copper Formulations	Copper is an element and is not broken down like other herbicides into byproducts	Drop hose boom system/surface spray/granular spreader
Diquat Dibromide	Diquat binds with organic matter in the sediment indefinitely. It does not degrade and will accumulate in sediments	Drop hose boom system/surface spray
Endothall	Glutamic Acid	Drop hose boom system/surface spray
Fluridone	n -methyl formamide (NMF) 3-trifluoromthyl benzoic acid	Drop hose boom system/granular spreader

Active Ingredient	Degradation by-products	Application Method
Flumioxazin	APF (6 -amino - 7fluoro - 4 -(2 - propynyl) - 1,4, - benzoxazin - 3(2H)one) and THPA (3,4,5,6 - tetrahydrophthali c acid	Drop hose boom system/surface spray
Glyphosate	Aminomethyl phosphonic acid, carbon dioxide	Backpack or electric Sprayer
Hydrogen Dioxide	Water and Oxygen	Drop hose boom system/surface spray
Imazamox	nicotinic acid and di - and tricarboxylic acids	Backpack or electric Sprayer
Penoxsulam	BSTCA (half-life 67 -770 days), 2 -amino - TCA, 5 -OH - penoxsulam, SFA, sulfonamide, and 5,8 -di -OH	Drop hose boom system/surface spray
Peroxyacetic Acid	Water, oxygen and carbon dioxide	Drop hose boom system/surface spray
Sodium Carbonate Peroxyhydrate	Breaks down to sodium carbonate and hydrogen peroxide in water. Hydrogen Peroxide breaks down into water and oxygen.	Granular spreader

DECISION FACTORS FOR USING AQUATIC PESTICIDES

The decision to use aquatic algaecides and herbicides is based on: visual inspection of the pest species and its developmental stage, history of the pest species, water levels, short- and long-term weather forecasts, geology, topography, regulatory requirements (California Division of Safety of Dams) and tolerance. Alternative control methods are always considered when practical. This is discussed more in detail under section titled, "EXAMINATION OF POSSIBLE ALTERNATIVES".

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

Nuisance conditions are defined as an accumulation of algae on the water surface, and/or weeds at a height in the water column that interferes with recreation. 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 which the nuisance plant growth cycle where a control action should be taken in order to head off a probably 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 ensuring that action is taken early enough so that projected growth does not result in routine development of a nuisance condition.

GATES, CONTROL STRUCTURES AND INSPECTION SCHEDULE

The Main Lake is equipped with a 24-inch sliding gate valve at the dam is located 45-feet below spillway level to allow for releases of water to the downstream Bear River. The outlet valves can be opened during periods of excessive runoffs and spills, to lower lake levels for performing any needed repairs or

maintenance below the spillway elevation, and/or as part of routine Dam inspections involving exercising of the outlet valves. Dam inspections occur annually in December and the lake level is lowered 3' for maintenance.

Following precautions will be implemented to minimize downstream impacts:

- Aquatic Pesticide applications will not be performed when the Main Lake is spilling or likely to spill due to projected near-term precipitation/runoff conditions.
- The Dam outlet valves will remain closed during algaecide applications and for minimum of 3 days after applications.

There are no gates or control structures for the Entrance Lake, Huck Finn Pond, and Hazel Lake.

CATEGORICAL EXCEPTION

LOP 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.*

PUBLIC NOTIFICATION OF AQUATIC PESTICIDE APPLICATIONS

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. Among the public agencies, notification will be provided with the Nevada County Sanitation District in accordance to the General Permit conditions.

The Association and the Golf Course utilize the Main Lake for irrigation, and thus will be notified prior to any treatments being made.

The Association has and will continue to notify Association residents of aquatic pesticide applications at the start of the application season via email. The email notification will provide the Association phone number where interested residents could obtain information on application locations for a particular day. The Association will also continue posting signs at public beaches prior to and immediately nearby applications. As the decision to apply aquatic pesticides to a specific area is decided 1 to 3 days prior to the actual application, the Association is restricted to posting public beaches 24-48 hours prior to the application. The email notifications and beach postings include the following information:

- A statement of the Association'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.

The Association will provide a phone number or other specific contact information to all persons who request the Association's application schedule. The Association will provide the requester with the most current application schedule and inform the requester if the schedule is subject to change.

AQUATIC PESTICIDE APPLICATION LOG

The Association, or the Association's contractor, will maintain a log for each application of aquatic pesticide on Association property. 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, time the application started and stopped, pesticide application rate and concentration;
- Visual monitoring assessment; and
- Certification that applicator followed the APAP.

MONITORING AND REPORTING PROGRAM

The Association'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; sodium carbonate peroxhydrate breaks down into sodium carbonate and hydrogen peroxide which oxidizes the target pest and then breaks down into water and oxygen; 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 Lake of the Pines are shown in Table 3 below.

Table 3. Receiving Water Limitations for Pesticides used in Lake of the Pines

Active Ingredient	Instantaneous Maximum Concentration[1]
Copper (dissolved)	Dissolved Freshwater[2] Copper Chronic = $0.960\exp\{0.8545\ [\ln(\text{hardness}^3)] - 1.702\}^4$
Diquat	20 ug/L
Endothall	100 ug/L
Fluridone	560 ug/L
Glyphosate	700 ug/L

1 From the General NPDES Permit Order No. 2013-0002-DWQ Section VI.A Table 3.
2 For waters in which the salinity is equal to or less than 1 part per thousand 95% or more of the time, the freshwater criteria apply. For waters in which the salinity is equal to or greater than 10 parts per thousand 95% or more of the time, saltwater criteria apply. For waters in which the salinity is between 1 and 10 parts per thousand, the applicable criteria are the more stringent of the freshwater or saltwater criteria.
3 For freshwater aquatic life criteria, waters with a hardness 400 mg/L or less as calcium carbonate, the actual ambient hardness of surface water shall be used. For waters with a hardness of over 400 mg/L as calcium carbonate, a hardness of 400 mg/L as calcium carbonate shall be used with a default Water-Effect Ratio of 1.
4. Values should be rounded to two significant figures.

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 3, 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). More details on reporting requirements are provided in "MONITORING PROGRAM REQUIREMENTS"

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.

MONITORING PRORGRAM 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 4. There are two items from the notes of Table 4 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 3) 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 4. 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[3]	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 3), 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 monitoring shows that the criterion is exceeded, then the Association must resume with monitoring six application events per year. Note that this requirement is for six consecutive "monitoring" events annually, not six consecutive "application" events annually.

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 the Main Lake, 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.

In Huck Finn Pond, Entrance Lake and Hazel Lake, aquatic pesticide applications are typically for the whole lake, not partial. As a result, there is no possibility of collecting an Event sample as it is supposed to be 50 feet outside the pesticide application boundary a few minutes after the application has begun, except in cases in which water is leaving the treatment area through a control structure. In these instances, event monitoring samples shall be collected immediately downstream of the treatment area in flowing waters after sufficient time has elapsed such that treated water would have exited the treatment area. If water is not flowing and the whole lake is being treated, then an event sample will not be collected and the conditions providing justification for this will be documented in the annual report.

Post-Application Sample – Within 7 days of the pesticide application event, return to the same area within the treatment area and collect one post-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 4, 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 coordinates, 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.

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 for the dissolved oxygen meter should also be replaced every 2 years.

The Association and its contractor(s) institute 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 Association 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 not 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 not 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;
- A chain-of-custody form will be used at all stages of sample transfer;

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.

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 Association will submit to the Deputy Director and the Regional Water Board Executive Officer an annual report consisting of a summary of the past year's activities, and 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 Association 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 5:

Table 5. Annual Reporting Schedule

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

Annual Report Protocols. The Association 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 swill be summarized to clearly illustrate whether the algaecide and aquatic herbicide applications are conducted in compliance with effluent and receiving water limitations.

• The Association 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 Central Valley (Region 5) Regional Water Board, signed and certified as required by the Standard Provisions (Attachment B, Standard Provision, of the Order No. 2013-0002-DWQ).

Electronic Submittal of the Annual Report. The Association will submit electronic copies of the certified Annual Report to NPDES_Wastewater@waterboards.ca.gov.

Twenty-Four Hour Report. The Association will report to the State Water Board (Gurgagn Chand; Gurgagn.Chand@waterboards.ca.gov, 916-341-5780) and the Central Valley Regional Water Board (Sacramento Office, 916-464-3291) 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 Association 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;
• The name and telephone number of a contact person;
• How and when the Association 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 Association has taken or will take to correct, repair, remedy, cleanup, or otherwise address any adverse effects.

In the event that the Association or its contractor(s) are unable to notify the State and Regional Water Boards within 24 hours, the Association 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 Association 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 Association 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 Coalition or Discharger believes the noncompliance could not have been caused by exposure to the algaecides or aquatic herbicides from the Coalition's or 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.

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 Sacramento should be contacted by phone (916-930-3600) within 24 hours. Should the adverse incident occur to a threatened or endangered terrestrial or freshwater species, the FWS (916-414-6464) should be verbally contacted within 24 hours.

EVALUATION OF OTHER MEANS OF WEED CONTROL

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
•Mechanical or physical methods
•Biological control agents
•Cultural methods
•Chemical control through algaecides and aquatic herbicides

No Action

Whenever possible, this is the preferred BMP. The "less is more" approach is optimal in regard to cost as well as environmental impact. If pre-determined nuisance levels have not been reached, then this may be a feasible approach.

Prevention

Beneficial Bacteria Beneficial bacteria has the potential to reduce the bioavailability of nutrients in the Lake substrate. In the past two years application of beneficial bacteria have been shown to successfully reduce the organic sediment at Lake of the Pines. Beneficial bacteria consume the same nutrients that are available to algae and nuisance plants. In effect, beneficial bacteria deprive aquatic nuisance growth of a ready food source, thereby inhibiting growth. Lake of the Pines will continue trialing the use of beneficial bacteria.

Bottom Barriers Bottom or benthic barriers are materials that come in sheets and are negatively buoyant. They can be attached to the bottom and rolled over the top of existing plants beds, they are then weighted or pinned to the lake bottom. These systems provide immediate and long-term control of all aquatic vegetation where they are placed. The drawbacks are generally the high costs of materials. These barriers cost from $1.50 to $2.00 per square foot installed. At this rate they can be cost effective for small application such as along a dock line or private swim beach, but the per acre cost is calculated using the 43,560 square feet in an acre. In addition, barriers can trap gases between the lake sediment and the barrier causing them to lift into propellers or create areas that might be a threat to swimmers diving under the water line. Regular maintenance and inspections are required.

Aquatic Dyes Aquatic dye has the potential to discourage aquatic plants and algae growth in a water by limiting light penetration. However, due to the significant water volume, this option is determined to be cost-prohibitive.

Mechanical or Physical Removal

Mechanical Harvesting At Lake of the Pines, mechanical harvesting of aquatic weeds occurs when plant height is tall enough to be reached. The mechanical harvester works best in open waters of the Main Lake, as near-shore areas are often too shallow or have frequent docks or other obstructions for a harvester to function properly.

Rotovation Mechanical rotovation can be used as a measure to discourage aquatic weed growth. 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 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 the plant density and sediment type, two to three acres per day can be rotovated.

Use of Divers Diver hand removal can be a very effective method of controlling aquatic plants under certain conditions. Pioneering infestations of this weed are generally targeted in this fashion. Divers will swim through the littoral area of the lake, note and often map the locations of pioneering stands of weeds, and hand remove and bag the plant material and roots. This system is effective in waters where visibility is good. The method provides rapid removal and clears the plants from the water column. One of the drawbacks of this method is the expense of deploying divers. Many states require prevailing wages for this activity that can cost upwards of $150.00 per hour for a dive team. For safety purposes, at least two divers must be working together underwater with a tender/safety diver on the support boat monitoring these operations.

Diver dredging is also used in this type of application. Using this technology dive teams use a hose system to pump the vegetation to a barge where it is captured for removal from the lake. While this system is more productive than diver hand removal, the same potential drawbacks apply.

Biological Control Biological control methods for aquatic plants are somewhat limited. The White Amur or Grass Carp is the most widely used biological aquatic plant management tool. These fish consume aquatic plants throughout the day. If stocking rates are sufficient, they can put significant pressure on the aquatic plant populations in a lake. Management of aquatic vegetation with this species can be challenging. In order to suppress aquatic weed growth in high use areas, enough fish need to be stock to control plants lake wide. Complete removal of vegetation is not often desirable in multi-purpose lake systems. Fish need to be added on a regular basis to make up for mortality and predation. With respect to Lake of the Pines, this tool is not practical, as the Department of Fish and Game will not approve placing these fish into a non-terminal water body for fear that a post storm event discharge might transfer fish into an unwanted aquatic area.

Cultural Control Each spring, homeowners located in Lake of the Pines receive a newsletter describing the do's and don'ts of landscape and lawn fertilizing, overwatering, and proper grass clipping and disposal. Education of homeowners regarding measures to prevent nutrients and pesticides from entering lake from rainfall, bird droppings and irrigation runoff is discussed in each newsletter.

Chemical Control Algaecides and aquatic herbicides are most applicable as other methods have been deemed impractical, harmful, expensive or inefficient. Algaecides or aquatic herbicides application rates will be based on minimum amounts necessary for effective control as per product label requirements.

DECISION MATRIX FOR THE MOST APPROPRIATE FORMULATION

Deciding the most appropriate formulation will be based on the inspection and assessment program, set action thresholds, and the Pest Control Advisor's recommendations. The Pest Control Advisor will advise based on the nuisance species, water quality parameters, non-target organisms, and which formulation will have the least impact on the surrounding environment.

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, and to allow for restoration of water quality and protection of beneficial uses of the waters to pre-application quality following completion of a treatment event.

- Licenses and Permits.
    - The Association will obtain all necessary regulatory permits prior to application of aquatic pesticides.
    - Aquatic pesticide applications by the Association 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 Association or its contractors will conduct visual observations of the entire lake and ponds at a frequency deemed prudent to identify emerging nuisance conditions, need for treatment, and type of treatment. The following actions will be employed:

- Initiate inspections in March; conduct weekly, April through August, 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 Association 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:
    - Algae: Dots of floating algae begin to accumulate on the surface, or the alga 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.
    - Aquatic Weeds: Rake samples of bottom growth indicate a 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.

- Integrated Control Strategy. Once action levels have been reached, the Association 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 using harvesters.
    - Aquatic Weeds. Initiate applications for aquatic weeds to suppress potential rate of growth. Roughly concurrent with the initial chemical application, put on-site harvester on standby. Begin harvesting when height of plants allows for efficient cutting and biomass removal (approximately 2-3 feet in length).

- Pesticide Application Protocols.
    - Always apply product in accordance with 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 ensure 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 Association will contract only with California licensed aquatic pesticide applicators. 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 contracted licensed applicator at least 30 days prior to aquatic pesticide application, and require that all primary applicators used on Lake of the Pines sign an affidavit that they have reviewed the contents and are familiar with all requirements.
  - The Association's licensed applicator will be made aware of the need to request the irrigation pumps be shut down for a minimum of 3 days when aquatic pesticides are applied to the Main Lake and treatments have the potential to harm irrigated ornamentals and turf.

- 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.
  - Although the Main Lake is too large to be treated by a single pesticide application, water bodies and embayments should 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.

Annual Information Collection

The Association 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 Association 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.

-END OF AQUATIC PESTICIDE APPLICATION PLAN-