Submission for SIP Section 5.3 Exception for Use of Copper to Control Aquatic Weeds in the San Dieguito Reservoir

Water Quality Order No. 2013-002-DWQ

Santa Fe Irrigation District
P.O. Box 409
Rancho Santa Fe, CA 92067

October 30, 2015

Table of Contents

1. Description of Proposed Action

The proposed project consists of the occasional application of a copper-based algaecide at the transfer pump station at Cielo to control and prevent degradation of water quality in the San Dieguito Reservoir resulting from algae blooms in Lake Hodges. The application of algaecide will occur periodically, as needed to address algae blooms, if the San Dieguito Reservoir is required to meet water supply needs. The application of algaecide may require temporary exceedance of the permitted levels of dissolved copper.

2. Schedule

The seasonal exemption would cover intermittent, periodic discharges that may occur throughout the year. These treatment events generally would be a continuous low level dosage that would dissipate at the termination of the treatment event within one week. The frequency of discharge, based on water supply needs and occurrence or algae blooms, is not expected to be more than 4 times annually.

3. Water Quality Monitoring Plan

The Santa Fe Irrigation District will conduct water quality monitoring in accordance with our approved Aquatic Pesticide Application Plan and the requirements of the Statewide General National Pollutant Discharge Elimination System Permit for the Discharge of Aquatic Pesticides for Aquatic Weed Control in Water of the United States General Permit No. CAG990005 (Water Quality Order No. 2013-0002-DWQ (as amended by Order No. 2014-0078-DWQ)).

4. CEQA Documentation

The required CEQA documentation is contained in the attachments. The Mitigated Negative Declaration was publically adopted by the Santa Fe Irrigation District Board of Directors, and is posted on the District's website.

5. Contingency Plan

If an exception is not granted, the Santa Fe Irrigation District's ability to deliver a reliable water supply to its member agencies would be impacted. Water stored within the San Dieguito Reservoir serves as a primary supply for the communities served. The presence of untreated algae blooms could result in significant taste and odor sources, impacting the potential use as a supply. In the event that an exemption is not granted, additional alternative supplies would have to be identified to maintain an adequate supply of water, if available.

Attachments

Attachment 1 - Notice of Intent to Adopt a Mitigated Negative Declaration

Attachment 2 - Mitigated Negative Declaration and Initial Study/Environmental Checklist

Attachment 3 - Notice of Determination

Attachment 4 – San Dieguito Reservoir Aquatic Pesticide Application Plan

Attachment 1

Notice of Intent to Adopt a Mitigated Negative Declaration

Submission for SIP Section 5.3 Exception for Use of Copper to Control Aquatic Weeds in the San Dieguito Reservoir

Water Quality Order No. 2013-002-DWQ

W. Russell Norman, P.E.

State Water Resources Control Board
Division of Water Quality
1001 I St, 15th Floor
Sacramento, CA 95814

This letter is to provide the Notice of Intent by the Santa Fe Irrigation District's Board of Directors to adopt a Mitigated Negative Declaration for the application of copper based algaecides at the San Dieguito Reservoir under the California Environmental Quality Act. The board action below authorizes the filing of a Notice of Determination.

19. Adopt Resolution No. 15-18, Considering the Final Mitigated Negative Declaration for the Application of Copper-Based Algaecides at Five Reservoirs in San Diego County under the California Environmental Quality Act, Adopting the Mitigation Monitoring and Reporting Program, Approving the Application of Copper-Based Algaecides at San Dieguito Reservoir, and Authorizing the Filing of a Notice of Determination

President Hogan introduced the item, noting it was considered by the Water Resources Committee at their July meeting and the Committee supported staff's recommendation for approval.

Upon a motion by Director King and second by President Hogan, the Board voted unanimously to adopt Resolution No. 15-18, Considering the Final Mitigated Negative Declaration for the Application of Copper-Based Algaecides at Five Reservoirs in San Diego County under the California Environmental Quality Act, Adopting the Mitigation Monitoring and Reporting Program, Approving the Application of Copper-Based Algaecides at San Dieguito Reservoir, and Authorizing the Filing of a Notice of Determination. Roll call vote was taken as follows:

Ayes:	Daddi, Gruzdowich, King, Smerican and Hogan
Noes:	None
Abstain:	None
Absent:	None

Timothy Bailey
Santa Fe Irrigation District
P.O. Box 409
Rancho Santa Fe, Ca 92067

Attachment 2

Mitigated Negative Declaration and Initial Study/Environmental Checklist

FINAL MITIGATED NEGATIVE DECLARATION AND INITIAL STUDY/ENVIRONMENTAL CHECKLIST

APPLICATION OF COPPER-BASED ALGAECIDES AT FIVE RESERVOIRS SAN DIEGO COUNTY CALIFORNIA

SCH No. 2015031045

Prepared for:

San Diego County Water Authority
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May 2015

TABLE OF CONTENTS

LIST OF FIGURES

Figure **Page**

LIST OF TABLES

Table **Page**

SECTION 1.0
INTRODUCTION

1.1 PROJECT BACKGROUND

The San Diego County Water Authority (Water Authority) and four of its member agencies—Helix Water District (HWD), City of Poway (Poway), Santa Fe Irrigation District (SFID), and Sweetwater Authority (Sweetwater)—have identified the need to occasionally apply copper-based algaecides to their respective surface water reservoirs to control algae blooms. Algae blooms can lead to degradation of drinking water quality through presence of taste and odor compounds and production of algal toxins, and can clog filters in water treatment plants. The subject reservoirs are:

- Olivenhain Reservoir (Water Authority)
- Lake Jennings (HWD)
- Lake Poway (Poway)
- San Dieguito Reservoir (SFID)
- Sweetwater Reservoir (Sweetwater)

These five agencies plan to individually obtain permission from the State Water Resources Control Board (State Board) to apply copper-based algaecide at their reservoirs by qualifying for Water Quality Order No. 2013-0002-DWQ (as amended by Order No. 2014-0078-DWQ), *Statewide General Permit for Residual Aquatic Pesticide Discharges to Waters of the U.S. from Algae and Aquatic Weed Control* (General Permit).[1] All five of the referenced agencies have prepared an Aquatic Pesticide Application Plan (APAP) and submitted a Notice of Intent to the State Board to initiate the permit process. To date, the Water Authority, HWD, Poway, and Sweetwater have received a Notice of Applicability from the State Board approving their APAP; SFID has responded to comments from the State Board and resubmitted their APAP for review.

The General Permit identifies a maximum allowable concentration of certain aquatic pesticide constituents, including copper. Public water agencies may apply to the State Board to obtain a short-term or seasonal exception to the limitations on copper concentration established in the General Permit, pursuant to Section 5.3 of the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries in California* (the State Implementation Plan, or SIP). Exceptions to the limitations are allowed if deemed necessary for drinking water sources to meet statutory requirements under the federal Safe Drinking Water Act or the California Health and Safety Code. Section 5.3 of the SIP states that to be considered for an exception, a water agency must provide the following information to the State Board:

1. A detailed description of the proposed action, including the proposed method of completing the action;
2. A time schedule;

[1] A draft order further amending the General Permit was prepared in December 2014, and a public hearing for the order was held on March 3, 2015. The revision proposes to add calcium hypochlorite and sodium hypochlorite as active ingredients; add State Water Board delegation that allows the Executive Director to add (1) active ingredients to the General Permit and (2) agencies to the SIP exception list; add three agencies to the SIP exception list; and modify the SIP exception for the Department of Water Resources.

3. A discharge and receiving water quality monitoring plan (before project initiation, during the project, and after project completion, with the appropriate quality assurance and quality control procedures);
4. California Environmental Quality Act (CEQA) documentation;
5. Contingency plans;
6. Identification of alternate water supply (if needed); and
7. Residual waste disposal plans.

Upon completion of an application, the agency is required provide certification by a qualified biologist that the receiving water beneficial uses have been restored.

Under the current version of the General Permit, 28 agencies statewide are approved for the exception to the receiving water limitations established in the General Permit, as listed in Appendix G of the permit; the amendment proposed in December 2014 would increase that number to 31 agencies. As additional agencies are approved for the exception, the General Permit would be subsequently amended to add them to the list in Appendix G of the permit.

The five water agencies listed above have indicated the current limitation on dissolved copper levels in the General Permit and the resultant allowable amount of the copper-based algaecide they are able to apply has the potential to constrain the effectiveness of algae control at their facilities and lead to diminished drinking water quality that is delivered to consumers. Therefore, the agencies will be submitting the required documentation to the State Board to be considered for approval of the General Permit exemption. This Mitigated Negative Declaration (MND) has been prepared for purposes of the agencies obtaining CEQA documentation compliance, as listed above.

The CEQA "project" addressed in this MND is the application of copper-based algaecides at each of the five listed reservoirs, as implemented by the respective agencies, which may include periodic exceedances of the limitations stated in the General Permit. The Water Authority is the lead agency for CEQA administrative purposes, but does not have discretionary authority over project activities at the other reservoirs; the other four agencies' decision-making bodies, as Responsible Agencies under CEQA, will separately consider adopting the MND and implementing the project and the mitigation program identified specific to their activities. Aside from this combined MND, each participating agency will be individually responsible for complying with the terms and conditions specified in Section 5.3 of the SIP and in the General Permit as they seek coverage under the General Permit and State Board approval of the SIP limitation exceptions for copper.

The State Board will be a responsible agency under CEQA for this MND, and will be using the document in its review process for considering the agencies' respective exceptions to the receiving-water limitations stated in the General Permit.

1.2 PROJECT LOCATION AND ENVIRONMENTAL SETTING

The five subject reservoirs are located in the western portion of San Diego County, as shown in Figure 1. Specific discussions of the location of and environmental setting at each reservoir are provided below.

1.2.1 Olivenhain Reservoir

Olivenhain Reservoir is a surface water storage reservoir owned by the Water Authority and located in northern unincorporated San Diego County, near the southwestern boundary of the City of Escondido,

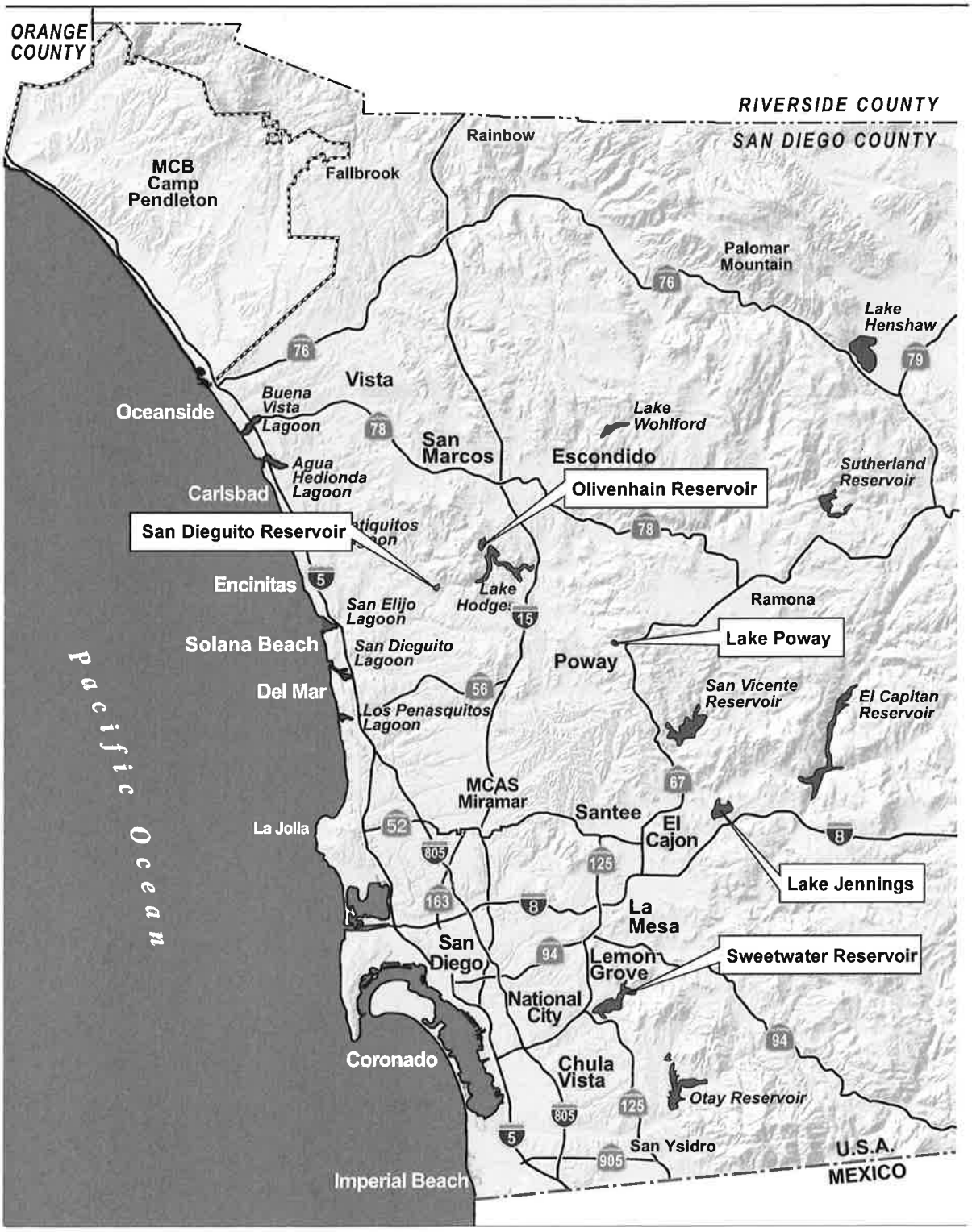

Figure 1
Regional Map

and the far northern reaches of the City of San Diego's incorporated boundaries. The City of Encinitas is approximately 2 miles to the west. Elfin Forest Road provides access to the reservoir and its operations facilities, which are located on the reservoir's southwestern end. Olivenhain Reservoir is approximately 1 mile west of the City of San Diego's Hodges Reservoir, also known as Lake Hodges, which is connected to Olivenhain Reservoir and provides some of the water stored in Olivenhain Reservoir. With storage of approximately 24,400 acre-feet, water in Olivenhain Reservoir is reserved for emergency use throughout the Water Authority's service area (San Diego County Water Authority 2014a). Water stored in Olivenhain Reservoir must be treated before distribution to consumers. Olivenhain Reservoir and the surrounding area are depicted in Figure 2.

Olivenhain Reservoir is surrounded by undeveloped open space of the Elfin Forest Recreational Reserve (Reserve), a 784-acre open space park and recreational area developed by the Water Authority and Olivenhain Municipal Water District (OMWD) in partnership with the U.S. Department of the Interior, Bureau of Land Management, as an element of the Olivenhain Water Storage Project and the Water Authority's Emergency Storage Project biological resources mitigation. The Reserve is owned by the Water Authority and managed by OMWD. A few rural residences are scattered southeast of the reservoir on Mount Israel, and additional residences are located farther east, on the western side of Lake Hodges. Denser residential development in the City of Escondido and unincorporated county begins at a radius of between 2 and 3 miles from the reservoir.

Olivenhain Reservoir is not open for recreational use (San Diego County Water Authority 2014b). However, the Reserve features public picnic areas and approximately 11 miles of trails for hiking, mountain biking, and equestrian use.

1.2.2 Lake Jennings

Lake Jennings is a surface water storage reservoir owned by HWD and located in the unincorporated community of Lakeside, in the central portion of San Diego County, east of the City of Santee. Regional access to the reservoir is provided by Lake Jennings Park Road from Interstate 8. Lake Jennings serves as a short-term storage reservoir for HWD's R. M. Levy Water Treatment Plant, which is on the reservoir's southwest corner. Lake Jennings holds roughly 9,790 acre-feet of water, of which approximately 95% is untreated imported water purchased from the Water Authority. The remaining water comes from ephemeral, unnamed drainages (Helix Water District 2014a). The San Diego River is located approximately 2,000 feet north of Lake Jennings. The reservoir and surrounding area are shown in Figure 3.

Lake Jennings is surrounded by a combination of open space and residential neighborhoods of varying densities, including the Lake Jennings Park Estates mobile home park located on the southern edge of the lake and other single-family residential developments in Lakeside on the west, north, south, and east of the reservoir. Open space is located directly adjacent to the reservoir on the north and east.

Lake Jennings is open to the public year-round for fishing and boating. Swimming and other body contact uses are not allowed. HWD stocks the reservoir with catfish between May and September, and with trout during varying periods depending on water temperature. Stocking schedules are typically every 2 or 3 weeks (Helix Water District 2014b).

1.2.3 Lake Poway

Lake Poway is a surface water storage reservoir owned by Poway and located in the northern portion of the incorporated area. Regional access to the reservoir is provided by Lake Poway Road. The facility is

Source: SANDAG 2012

0.25 0.125 0 0.25 Miles

Scale: 1:15,840; 1 inch = 0.25 miles

Figure 2
Olivenhain Reservoir

San Diego Reservoirs Copper-Based Algaecide MND

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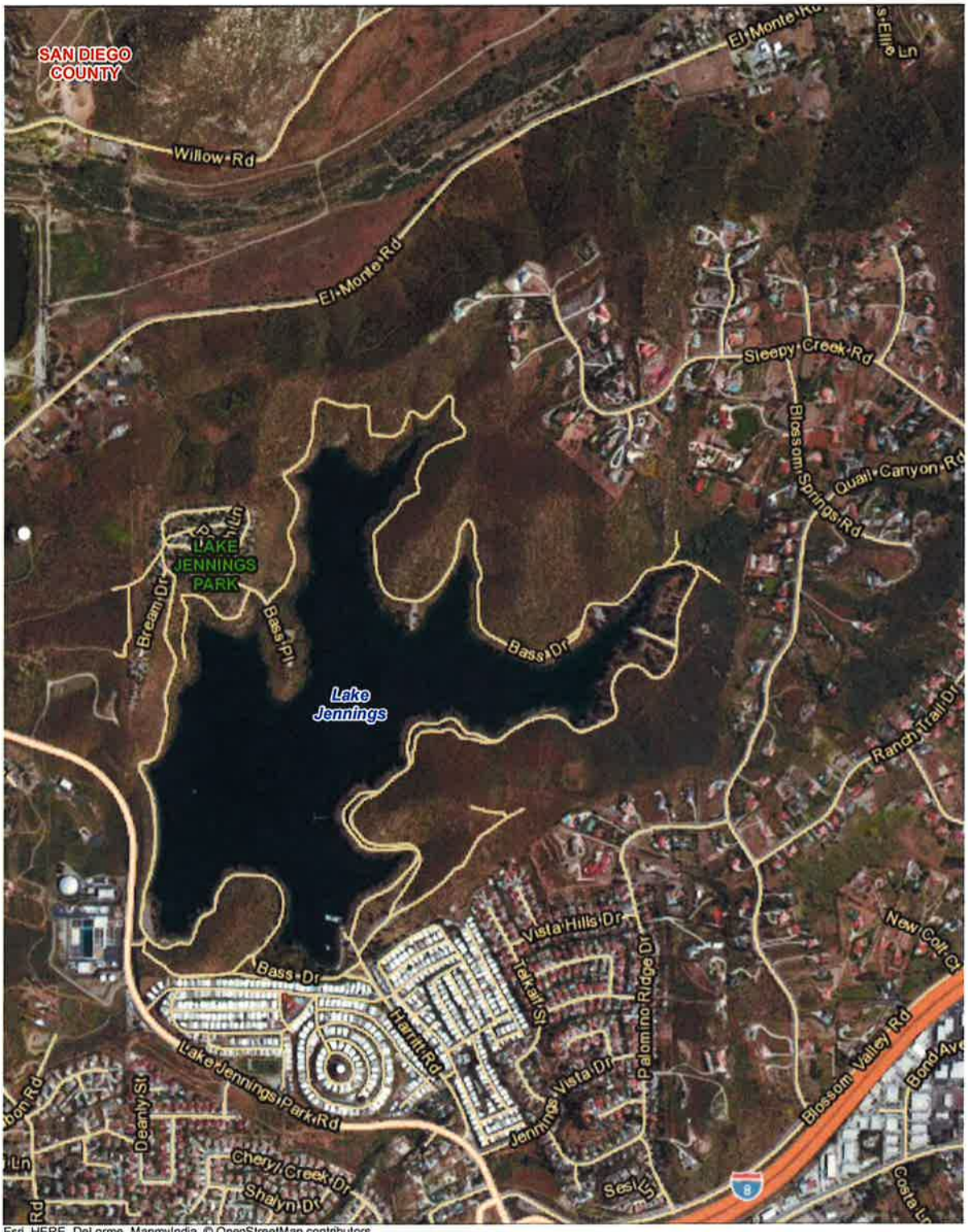

Esri, HERE, DeLorme, MapmyIndia, © OpenStreetMap contributors
Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community; SANDAG 2012

0.25 0.125 0 0.25 Miles

Scale: 1:15,840; 1 inch = 0.25 miles

Figure 3
Lake Jennings

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maintained to hold approximately 3,150 acre-feet of water, with an approximately 60-acre surface area. The majority of the water stored in the reservoir is untreated imported water purchased from the Water Authority, although seasonal runoff can also enter the lake through the Boulder Bay stream within Warren Canyon, located east of the reservoir. Water from the reservoir is treated at the Lester J. Berglund Water Treatment Plant, which is located west of the reservoir (City of Poway 2014a). Lake Poway and the surrounding area are depicted in Figure 4.

The Blue Sky Ecological Reserve, a 700-acre open space preserve owned by Poway, is located north and east of Lake Poway. The reservoir directly adjoins to Lake Poway Recreational Area to the east. High-density residential is located to the east of Lake Poway, with lower density housing to the south. Poway High School is located approximately 1 mile southwest of Lake Poway.

Lake Poway is open year-round for fishing Wednesdays through Sundays, sunrise to sunset. Night fishing is available on select nights during the summer. The reservoir is stocked with rainbow trout weekly during the winter, and with channel catfish weekly during the summer. Public rental of rowboats, motorboats, sailboats, and paddle boats is available from a concessionaire, but private boats are not permitted. Swimming and other body contact is not allowed (City of Poway 2014b).

1.2.4 San Dieguito Reservoir

San Dieguito Reservoir is a surface water storage reservoir owned by SFID and located in the northern part of the unincorporated community of Rancho Santa Fe, in the northern part of San Diego County. Access is provided by El Camino del Norte, which runs along the northern side of the reservoir, and El Montevideo and Lago Lindo which runs along the south side of the reservoir. The City of Encinitas is located approximately 1 mile northwest of the reservoir. The facility is an 800-acre-foot terminal reservoir that receives its water from Lake Hodges via the Cielo Pump Station, which is located on Del Dios Highway approximately 2 miles east of the reservoir. San Dieguito Reservoir water is pumped to the R.E. Badger Filtration Plant, which is jointly owned by SFID and the San Dieguito Water District and provides drinking water to both districts (Santa Fe Irrigation District 2014a).

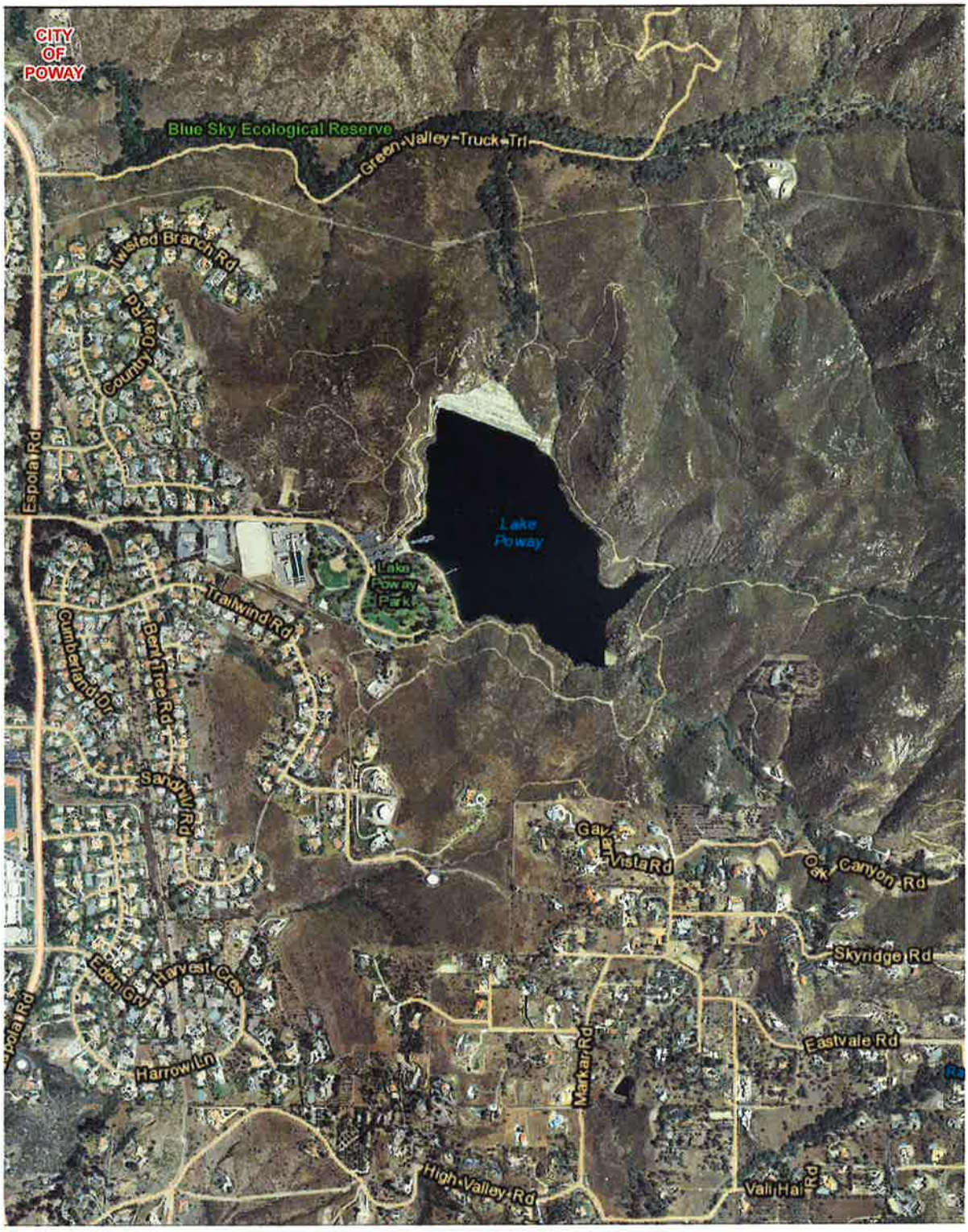
The surrounding areas are composed of rural residential development in the communities of Rancho Santa Fe and Fairbanks Ranch, many with associated agricultural uses. Figure 5 shows the reservoir and its surrounding area.

The reservoir is not open to the public (Santa Fe Irrigation District 2014b).

1.2.5 Sweetwater Reservoir

Sweetwater Reservoir is a surface water storage reservoir owned by Sweetwater and located along the Sweetwater River in southwestern San Diego County, near the unincorporated communities of La Presa to the north and Bonita to the west. The incorporated boundary of the City of Chula Vista is located to the south. The reservoir is directly east of the State Route 54 and State Route 125 interchange. Sweetwater Reservoir has a capacity of approximately 28,100 acre-feet and a maximum surface area of 1,027 acres (Sweetwater Authority 2013).

Sweetwater Summit Regional Park abuts the reservoir's southern bank, and the U.S. Fish and Wildlife Service's (USFWS) 11,152-acre San Diego National Wildlife Refuge is located immediately east of the reservoir. The Sweetwater Summit Regional Park offers trails, picnic areas, and a campground. Additional surrounding uses include single-family residential development to the north and west. The Bonita Golf Club's golf course and the County's Sweetwater Sports Complex are located southwest of the



Source: SANDAG 2012

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Scale: 1:15,840; 1 inch = 0.25 miles

Figure 4
Lake Poway

San Diego Reservoirs Copper-Based Algaecide MND

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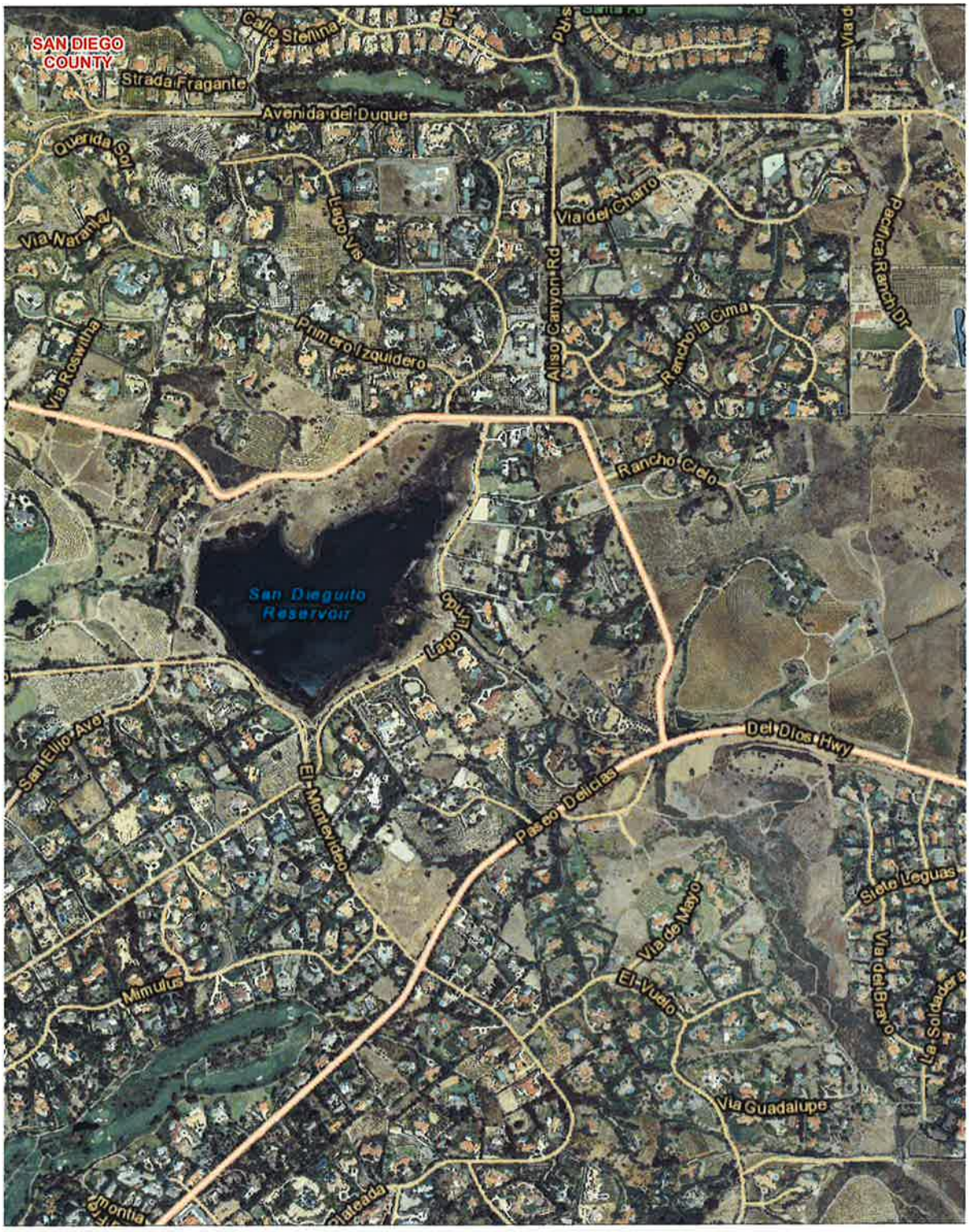

Source: SANDAG 2012

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Scale: 1:15,840; 1 inch = 0.25 miles

Figure 5
San Dieguito Reservoir

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reservoir, across State Route 125. The Sweetwater Dam, the Robert A. Perdue Water Treatment Plant (PWTP), and Sweetwater's operations building are on the western side of the reservoir. The reservoir and surrounding area are shown in Figure 6.

Sweetwater Reservoir is open to the public 3 days a week year-round for shoreline fishing from a limited area on the reservoir's southern end; no boats or body contact recreational activities are allowed. Sweetwater does not stock the reservoir with fish. A 5-mile riding and hiking trail is also located on the southern border of the lake for pedestrians, bikes, and horses (Sweetwater Authority 2014).

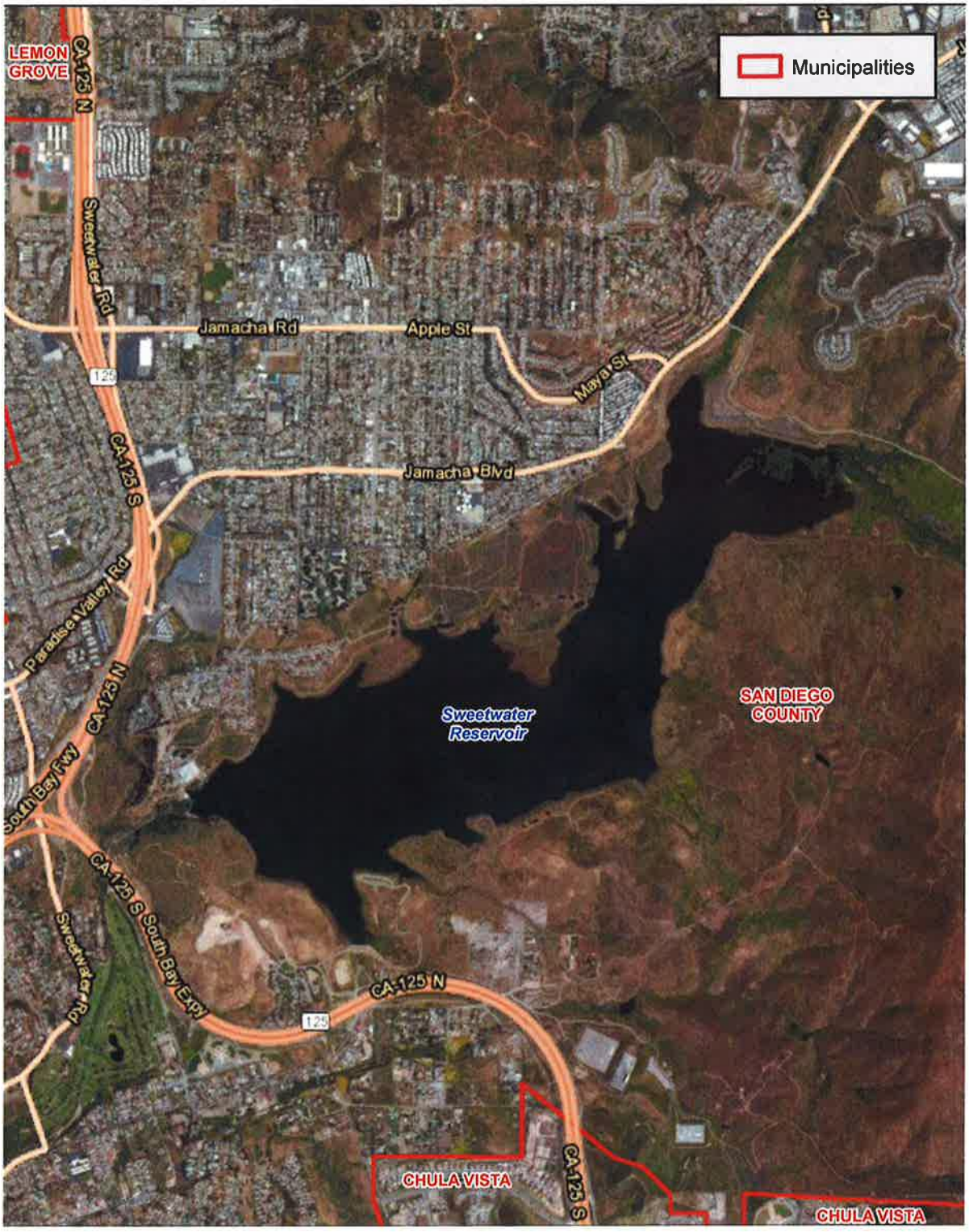
1.3 PROJECT DESCRIPTION

The project entails occasional application of copper-based algaecides at five surface water reservoirs in San Diego County to control and prevent degradation of water quality at those facilities resulting from algae blooms. The five reservoirs are Olivenhain Reservoir, Lake Jennings, Lake Poway, San Dieguito Reservoir, and Sweetwater Reservoir. Algae cause a multitude of water-quality concerns, including the potential to produce taste- and odor-causing compounds and toxins that are potent enough to poison animals and humans. Taste-and-odor compounds cause malodorous or unpalatable drinking water, resulting in increased treatment costs and consumer complaints. In addition, if great masses of algae enter the water treatment plant, the algae can cause operational problems by increasing the amount of suspended material that must be settled out of the water, and excessive algae can lead to water filter clogging. Filter clogging leads to shortened filter run times; this in turn leads to increased electricity and chemical use in the water treatment plant.

The algaecides would be applied at the subject reservoirs pursuant to methods stated in the respective agencies' APAPs, which have been submitted to the State Board for approval of coverage under the General Permit. To date, the Water Authority, HWD, Poway, and Sweetwater have received a Notice of Applicability from the State Board approving their APAP; SFID has responded to comments from the State Board and resubmitted their APAP for review. Each of the five subject agencies has indicated that their periodic treatment of algae may require temporary exceedance of the permitted levels of dissolved copper stated in the General Permit, and the agencies are applying to the State Board for an exception from those copper levels.

The project-related APAPs are included in this MND as Appendix A1 through A5. The requirement to prepare APAPs is described in Section VIII.C of the General Permit, which identifies the following mandatory information:

1. Description of the water system to which algaecides and aquatic herbicides are being applied;
2. Description of the treatment area in the water system;
3. Description of types of weed(s) and algae that are being controlled and why;
4. Algaecide and aquatic herbicide products to be used, the method in which they are applied, and the adjuvants and surfactants used;
5. Discussion of the factors influencing the decision to select algaecide and aquatic herbicide applications for algae and weed control;
6. Description of the control structure to be used to control the extent of receiving waters potentially affected by algaecide and aquatic herbicide application and the inspection schedule of the control structure to ensure that it is not leaking (if applicable);



Source: SANDAG 2012

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Figure 6
Sweetwater Reservoir

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7. If the Discharger has been granted a short-term or seasonal exception under State Water Board *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, * and Estuaries of California* (Policy) section 5.3 from meeting acrolein and copper receiving water limitations, provide the beginning and ending dates of the exception period, and justification for the needed time for the exception. If algaecide and aquatic herbicide applications occur outside of the exception period, describe plans to ensure that receiving water criteria are not exceeded because the Dischargers must comply with the acrolein and copper receiving water limitations for all applications that occur outside of the exception period
8. Description of a monitoring program demonstrating compliance with the receiving water limitations, discharge specifications, and other requirements in the General Permit;
9. Description of procedures used to prevent sample contamination from persons, equipment, and vehicles associated with algaecide and aquatic herbicide application;
10. Description of the best management practices (BMPs) to be implemented.
11. Examination of possible alternatives to algaecide and aquatic herbicide use to reduce the need for applying algaecides and herbicides.

The individual project descriptions for each subject reservoir provided below summarize the respective APAPs, augmented with additional information obtained from personal communications with representatives of the participating agencies, if needed.

1.3.1 Olivenhain Reservoir

The Water Authority's APAP, provided as Appendix A1 in this MND, proposes application of copper sulfate if necessary to control nuisance algae blooms. Since the reservoir became operational in 2003, it has not experienced significant algal growth and the Water Authority has not needed to apply chemicals to the reservoir to control algae. However, reservoir staff has started to recognize increased algal growth in recent years, which originates from Lake Hodges water transfers, and the Water Authority is seeking General Permit coverage for algaecide application in case the need arises. If nuisance algae blooms occur at Olivenhain Reservoir, in-situ treatment would be required to ensure the Water Authority's deliveries from the reservoir to its member agencies meet appropriate water quality specifications, primarily to prevent taste- and odor-causing compounds and algal toxins from reaching consumers. The Water Authority's primary response to algae blooms at Olivenhain Reservoir is to select a lower withdrawal elevation on the reservoir's outlet tower to avoid algae blooms that form on the surface. If that option is not available, then the secondary response would be isolating Olivenhain Reservoir from the Water Authority's system and transferring water to its member agencies from another storage point. If regional demands or operational constraints do not allow for the termination of flow from Olivenhain Reservoir, then the Water Authority would consider applying copper-based algaecide.

Pursuant to their APAP, the Water Authority would apply a mixture of copper sulfate pentahydrate crystals and granular citric acid (for chelation purposes) at Olivenhain Reservoir from side hoppers attached to a powerboat. Applications are proposed to occur in the surface water on the reservoir's southwestern side. Application would be performed in a manner consistent with product labeling and would be the minimum amount necessary to be effective; the APAP proposes a rate of approximately 2 pounds of copper sulfate and 1 pound of citric acid per surface acre of treated area. The Water Authority estimates up to 80 pounds of the solid crystalline product would be delivered for a single application.

Three monitoring locations are proposed in the Water Authority's APAP. Prior to an application event (24 hours in advance), background monitoring would be conducted near the application area. Event monitoring samples would be collected immediately after the application from two locations outside of

the treatment area—one near the reservoir's outlet tower and another near the Lake Hodges inlet/outlet structure. Post-event monitoring samples would be collected inside the treatment area within a week after application. This post-treatment monitoring would also include visual inspection of the treatment area for evidence of fish kills. The Water Authority will post a notification on its website and/or notify impacted member agencies by email, as appropriate, at least 7 days prior to the first algaecide application every calendar year. The notification will conform to the procedures described in Section VIII.B of the General Permit.

1.3.2 Lake Jennings

HWD's APAP, provided as Appendix A2 in this MND, covers treatment of Lake Jennings for algae with the copper-based algaecide Cutrine Plus, a liquid chelated copper product applied using a boat-mounted spray rig.[2] Algaecide would be applied to the water in an area adjacent to Chet Harritt Dam and the intake tower to the water treatment plant.

HWD normally prevents and controls algae blooms in Lake Jennings by conventional methods, using a mechanical system that aerates and circulates water. The aeration system consists of an air compressor located on the dam, an air diffuser grid that is located on the lake bottom adjacent to the dam, and an air line that connects the air compressor & diffuser grid. HWD places the aeration system in operation at the beginning of the season when algae blooms commonly occur (typically the summer) and operates the system throughout the season. Algaecide was used infrequently at Lake Jennings in the years before HWD installed and activated the aeration system but has not been used in the past 20 years due to the effectiveness of treatment through aeration. Because Lake Jennings is a water source for HWD's water treatment plant that produces potable water for its customers, HWD is seeking approval to use algaecide in case a severe algae bloom occurs that is beyond the capability of the aeration system to control. HWD would use algaecide consistent with the product label requirements and apply the minimum amount of product that is necessary to be effective- an estimated range of 2.75 to 11 gallons of the liquid product.

The HWD APAP establishes two monitoring locations—one at an anchored buoy located within the algaecide application area near the dam, and another at an anchored buoy located outside of the treatment area where prevailing winds tend to push surface water at the reservoir. HWD's monitoring program includes background monitoring within 24 hours before an application event, event monitoring of samples just outside the treatment area immediately after the application event, and post-event monitoring of samples taken within the treatment area up to a week after the application. No public agencies need to be notified of algaecide application at Lake Jennings because HWD is both the discharger and the affected public agency.

1.3.3 Lake Poway

Poway's APAP, provided as Appendix A3 in this MND, covers treatment of Lake Poway for algae blooms to prevent development of nuisance conditions. Poway has used copper sulfate for algae control since the 1970s, with the frequency depending on when algae blooms occur, typically once per year, between April 1 and October 30. The copper sulfate product is ordered by the pallet and then used as needed. Copper sulfate is applied as needed to Lake Poway in the form of large crystals, which are typically applied by boat as a surface application, at various locations as necessary to prevent blooms from spreading. Citric acid is used in the application as a chelating agent. The need for treatment is based

[2] The HWD APAP also covers treatment of aquatic weeds such as tamarix, cattails, and tules by spraying herbicides along the edges of Lake Jennings. However, this MND covers only the application of algaecide, as that is the subject of the exception from the permit limitations that HWD is seeking along with the other participating agencies.

on physical inspections, water quality monitoring, and potential and existing impacts on drinking water quality. Poway uses algaecide consistent with the product label requirements and applies the minimum amount of product that is necessary to be effective. During a single application process roughly five pounds of pesticide per acre foot of water is used, which averages about 300 pounds of solid crystalline product for each application.

Poway does not implement any conventional, non-chemical algae treatment at Lake Poway; however, a Poway representative reported that nuisance algae blooms did not occur when they employed methods for controlling invasive quagga mussels and milfoil plants, which were treated by reducing the reservoir's water level and drying out the shoreline for 30 to 40 days (City of Poway 2014b).

Because copper application within Lake Poway is not performed at any specific location within the reservoir, the copper-application monitoring locations will also vary depending on actual application sites. For each application, a treatment map will be developed showing the application area, treatment area, and adjacent untreated area (if applicable), which will be used throughout the monitoring period for each application. Post-application monitoring includes visual monitoring for fish kills. No agencies will be notified of Poway's algaecide application because no other public agencies are expected to be affected.

1.3.4 San Dieguito Reservoir

SFID's APAP, provided as Appendix A4 in this MND, covers treatment of San Dieguito Reservoir for algae blooms that originate at Lake Hodges and that are transferred into the reservoir along with water deliveries via the Cielo Pump Station. SFID implements a Lake Management Program to control algae at San Dieguito Reservoir, with preferred methods being nonchemical solutions such as aeration, water level manipulation, nutrient control, and selective withdrawals from Lake Hodges's three outlets, pulling water from variable depths to minimize algae intake. These strategies are effective at minimizing algae blooms in the reservoir, but SFID often needs to apply algaecide to control major blooms and prevent adverse effects on water quality.

The Cielo Pump Station is equipped with a closed-feed injection system that can release algaecides directly into the water while being pumped from Lake Hodges to San Dieguito Reservoir as necessary. SFID applies a liquid non-chelated copper sulfate product through this method. The injection system allows for safe and effective application of precise amounts and minimizes the potential for worker exposure and spills. The rate of feed for any treatment event is limited to the recommendations on the product label to ensure effectiveness and minimize any unintended effects on non-targeted organisms. Chelated copper application is not necessary at San Dieguito Reservoir because SFID does not apply directly to the reservoir, so the product does not need to remain suspended in reservoir water in order to effectively treat the targeted algae. The volume of liquid algaecide used for an application would depend on the severity of the algal bloom. SFID estimates between 100 to 500 gallons are used per application. The product is ordered in quantities large enough for roughly one year of application events, and is stored on site until it is used. At the end of a treatment event, the system is flushed with water to eliminate any algaecides remaining in the system. This protects the feed system from corrosion and leaks. The liquid copper sulfate containers are stored within a spill catchment that can capture 100% of the chemical available for feed.

The SFID APAP establishes two representative monitoring locations within San Dieguito Reservoir. One location, at the receiving water pipeline on the reservoir's eastern shore, is used for baseline monitoring, conducted within 24 hours before the treatment, and event monitoring, starting immediately after treatment begins. The second location is the San Dieguito Reservoir pump station inlet on the opposite side of the reservoir, which is used for post-event monitoring conducted within a week after treatment

begins. SFID does not notify other agencies of algaecide application at San Dieguito Reservoir because no other public agencies are expected to be affected by this activity.

1.3.5 Sweetwater Reservoir

Sweetwater's APAP, provided as Appendix A5 in this MND, proposes application of copper sulfate when necessary to control nuisance algae blooms for control of taste and odor in their drinking water, and to prevent filter impairment at the PWTP. Sweetwater has been applying copper sulfate for algae control at least since 1986, averaging approximately one treatment per year during the summer, though the frequency and timing of application varies depending on the number of algae blooms per year, the length of the bloom, and the severity of the taste and odor problem that arises. The need for copper application at Sweetwater Reservoir has not arisen since 2009.

Sweetwater prefers to initially handle algae blooms without the use of an algaecide. Alternative methods employed at Sweetwater Reservoir include obtaining water from different levels of the reservoir that are not inhibited by an algae bloom, adding powdered activated carbon to the water treatment process at PWTP, increasing the duration of free chlorine contact with treated water at PWTP, blending treated water with imported water, and waiting for a bloom to die off naturally. The decision to apply copper to the reservoir is made when nuisance algae indicators increase significantly over a short period of time and when other preferred mitigation strategies have not been successful.

The Sweetwater APAP proposes application of a mixture of copper sulfate crystals and granular citric acid (for chelation purposes) at the reservoir from side hoppers attached to a powerboat. Applications are proposed to occur in an even manner throughout the surface of the western side of the reservoir, depending on the location of the bloom, though no more than one-half of the surface of the reservoir would be treated per application. If an additional treatment is necessary, a minimum of 2 weeks would elapse between applications. Application would be performed in a manner consistent with product labeling and would be the minimum amount necessary to be effective; the APAP proposes a rate of approximately 2 pounds of copper sulfate and 1 pound of citric acid per surface acre of treated area. In the past, the average amount of solid crystalline product used has been approximately 1,250 pounds per application.

Monitoring before, during, and after a copper application is proposed to occur at three numbered buoys in the reservoir, to ensure consistency. Buoy #1 is located at the west end of the reservoir, near the Sweetwater Dam and PWTP; Buoy #2 is located in the center of the reservoir's minimum pool area, in the center of the potential application area; Buoy #7 is located near the opening to Gum Tree Cove on the reservoir's northern shore. Prior to an application event (up to 24 hours in advance), background monitoring would be conducted at Buoy #1 and Buoy #2. Event monitoring samples would be collected at Buoy #7 immediately after the application. Post-event monitoring samples would be collected at Buoy #1 and Buoy #2 within a week after application. Post-treatment monitoring would also include visual inspection of the treatment area by a qualified biologist to ensure beneficial uses have not been impacted. Every calendar year, at least 15 days prior to the first algaecide application (if any), Sweetwater will post a notification on its website and/or provide on-site signage (as appropriate) at the fishing program area. The notification will conform to the procedures described in Section VIII.B of the General Permit. No other agencies have rights to the water in the reservoir, and therefore no public agencies need to be notified.

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SECTION 2.0
INITIAL STUDY/ENVIRONMENTAL CHECKLIST FORM

1.	Project Title:	Application of Copper-Based Algaecides at Five Reservoirs, San Diego County
2.	Lead Agency Name and Address:	San Diego County Water Authority 4677 Overland Avenue San Diego, CA 92123
3.	Contact Person and Phone Number:	Larry Purcell Water Resources Manager (858) 522-6752
4.	Project Location:	Olivenhain Reservoir, Lake Jennings, Lake Poway, San Dieguito Reservoir, Sweetwater Reservoir
5.	Project Sponsor's Name and Address:	San Diego County Water Authority 4677 Overland Avenue San Diego, CA 92123 Sweetwater Authority 505 Garrett Avenue Chula Vista, California 91910 Helix Water District 7811 University Avenue La Mesa, California 91942 City of Poway, Public Works Department 13325 Civic Center Drive Poway, California 92064 Santa Fe Irrigation District 5920 Linea del Cielo Rancho Santa Fe, California 92067
6.	General Plan Designation:	NA
7.	Zoning:	NA

8. Description of Project:

Please refer to Section 1.3 for a detailed description of the proposed project at each of the subject reservoirs.

9. Surrounding Land Uses and Setting:

Please refer to Section 1.2 for a detailed discussion of the project setting and surrounding land uses.

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED:

The environmental factors checked below will be potentially affected by this project, involving at least one impact that is "Less Than Significant with Mitigation Incorporated" or a "Potentially Significant Impact" as indicated by the checklist on the following pages.

- □ Aesthetics
- □ Agriculture and Forestry Resources
- □ Air Quality
- □ Biological Resources
- □ Cultural Resources
- □ Geology and Soils
- □ Greenhouse Gas Emissions
- ■ Hazards and Hazardous Materials
- ■ Hydrology and Water Quality
- □ Land Use and Planning
- □ Mineral Resources
- □ Noise
- □ Population and Housing
- □ Public Services
- □ Recreation
- □ Transportation/Traffic
- □ Utilities and Service Systems
- □ Mandatory Findings of Significance

DETERMINATION:

On the basis of this initial evaluation:

□ I find that the proposed project COULD NOT have a significant effect on the environment, and a Categorical Exemption (Class 2, Section 15302) is the appropriate CEQA documentation.

□ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

■ I find that although the proposed project could have a significant effect on the environment, there WILL NOT be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.

□ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

□ I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated impact" on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

□ I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

March 10, 2015
Date

Ken Weinberg
Director of Water Resources
San Diego County Water Authority

Environmental Impact Evaluation	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

EVALUATION OF ENVIRONMENTAL IMPACTS:

I. Aesthetics

I. AESTHETICS. Would the project:

a) Have a substantial adverse effect on a scenic vista?				X

Olivenhain Reservoir, Lake Jennings, Lake Poway, San Dieguito Reservoir, Sweetwater Reservoir

Visible components of the project include occasional operation of boats on existing reservoirs for infrequent algaecide application and monitoring. This activity would not have an aesthetic effect, and would not cause an impact at any scenic vistas that may exist at the subject reservoirs; therefore, no impact would occur.

b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?				X

Olivenhain Reservoir, Lake Jennings, Lake Poway, San Dieguito Reservoir, Sweetwater Reservoir

See the response to I.a) None of the reservoirs are visible from a scenic highway. No impact would result from this project.

c) Substantially degrade the existing visual character or quality of the site and its surroundings?				X

Olivenhain Reservoir, Lake Jennings, Lake Poway, San Dieguito Reservoir, Sweetwater Reservoir

See the response to I.a) The use of boats for infrequent application and/or monitoring would not lead to a significant divergence from normal views at the reservoirs, especially for those that allow recreational boating, and the visible components of this project would have no impact. The application of the algaecides would result in the reduction or removal of algae blooms, which typically occur below the water surface, so their removal generally would not be visible to reservoir users. Therefore, the project would have no impact.

d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?				X

Olivenhain Reservoir, Lake Jennings, Lake Poway, San Dieguito Reservoir, Sweetwater Reservoir

The proposed project would not introduce any new source of light to the project area. Additionally, project activities would occur only during daylight hours and would not require any nighttime lighting in order to be carried out. Therefore, no impact would occur.

Environmental Impact Evaluation	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

II. AGRICULTURE AND FORESTRY RESOURCES.

II. Agriculture and Forestry Resources

Would the project:

a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?				X

Olivenhain Reservoir, Lake Jennings, Lake Poway, San Dieguito Reservoir, Sweetwater Reservoir

The proposed project activities would not convert or alter Prime Farmland, Unique Farmland, or Farmland of Statewide Importance. All activities would occur within the reservoir and have no impact on agricultural resources.

b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?				X

Olivenhain Reservoir, Lake Jennings, Lake Poway, San Dieguito Reservoir, Sweetwater Reservoir

No Williamson Act contract lands occur within the project area and no agricultural uses would be displaced as a result of the project. Therefore, no related impact would occur.

c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section (4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?				X

Olivenhain Reservoir, Lake Jennings, Lake Poway, San Dieguito Reservoir, Sweetwater Reservoir

No forest land, timberland, or Timberland Production lands occur within the project area. Therefore, no related impact would occur.

d) Result in the loss of forest land or conversion of forest land to non-forest use?				X

Olivenhain Reservoir, Lake Jennings, Lake Poway, San Dieguito Reservoir, Sweetwater Reservoir

See II.c) above. Because no forest land exists in the project area, no related impact would occur.

Environmental Impact Evaluation	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?				X

Olivenhain Reservoir, Lake Jennings, Lake Poway, San Dieguito Reservoir, Sweetwater Reservoir

Application of algaecides to the reservoirs would not lead to changes in the environment that would convert Farmland to non-agricultural use or forest-land to non-forest use. The algaecides would be applied directly to the water and would affect only the algae in the water. Therefore there is no impact.

III. AIR QUALITY.
III. Air Quality
Would the project:

a) Conflict with or obstruct implementation of the applicable air quality plan?			X	

Olivenhain Reservoir, Lake Jennings, Lake Poway, San Dieguito Reservoir, Sweetwater Reservoir

The proposed project would involve the infrequent use of delivery trucks for transportation of algaecides to the subject reservoirs and the use of boats for application and monitoring. Applications would entail a single delivery truck trip to the respective reservoir's operations facility, and operation of a single boat to apply the product, except at San Dieguito Reservoir, where copper is applied through an in-line injection system, and operation of a single boat for pre- and post-application monitoring. The use of this equipment would be sporadic and last for a short duration of time. Any emissions release from the project equipment would be negligible. Therefore, project implementation would not conflict with or obstruct implementation of the applicable air quality plan. This impact is less than significant.

b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?			X	

Olivenhain Reservoir, Lake Jennings, Lake Poway, San Dieguito Reservoir, Sweetwater Reservoir

See III.a) above. Project activities would result in minimal vehicle emissions from trucks and boats for the transportation and application of the algaecide and monitoring in the reservoirs. Application events would not occur often, and would not result in long-term emissions. Therefore, this impact would be less than significant.

Environmental Impact Evaluation	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?			X	

Olivenhain Reservoir, Lake Jennings, Lake Poway, San Dieguito Reservoir, Sweetwater Reservoir

See III.a) and III.b) above. Project-related emissions would be negligible and would not contribute considerably to a net increase for any criteria pollutants in the San Diego region. This impact is less than significant.

d) Expose sensitive receptors to substantial pollutant concentrations?				X

Olivenhain Reservoir, Lake Jennings, Lake Poway, San Dieguito Reservoir, Sweetwater Reservoir

Sensitive receptors include residences, schools, playgrounds, child care centers, athletic facilities, long-term health care facilities, rehabilitation centers, convalescent centers, and retirement homes. The nearest sensitive receptors to the proposed project are residential properties scattered around the reservoirs and park uses adjacent to certain reservoirs. The algaecides would be applied directly to the reservoirs in either a solid or liquid form, and would not contribute to air contaminants. Spray application at Lake Jennings are not conducted when winds exceed 10 miles per hour in order to ensure maximum control of the Cutrine Plus application and prevent any spray clouds from escaping the treatment zone. Minimal amounts of exhaust would be created by trucks and boats during the application and monitoring process at the reservoirs, but this would not create a substantial amount of pollutants in the area that would be received by these receptors. Therefore, no impact would occur.

e) Create objectionable odors affecting a substantial number of people?				X

Olivenhain Reservoir, Lake Jennings, Lake Poway, San Dieguito Reservoir, Sweetwater Reservoir

Exhaust odors would be emitted by trucks and boats during algaecide application. However, the exhaust is highly diffusive and would be created only in minimal amounts in isolated incidents, so nearby receptors would not be significantly affected. Copper sulfate and citric acid are odorless substances. Furthermore, the algaecides are being applied to reduce or remove algae in the reservoirs, which would also reduce the objectionable odors created by nuisance algae. Therefore, no impact would occur.

Environmental Impact Evaluation	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
IV. BIOLOGICAL RESOURCES. Would the project:				
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?			X	

To assess the potential for the project to result in a significant impact on sensitive plant or wildlife species, AECOM first conducted a search of the California Department of Fish and Wildlife (CDFW) California Natural Diversity Database (CNDDB), generating a separate list for each subject reservoir and a surrounding 1-mile radius around the edge of respective reservoir. Sensitive species identified in the database include species listed as endangered or threatened pursuant to the federal Endangered Species Act or California Endangered Species Act, rare plant species identified by the California Native Plant Society, and species listed as State Species of Special Concern by CDFW. AECOM reviewed the search results and then considered the potential for each of the identified species to be present within or adjacent to the reservoir such that they would be likely to come into contact with reservoir water, based on a review of SANDAG regional vegetation mapping to characterize the actual habitats present on-site. For those species that were considered to have potential to occur at the reservoirs based on habitat presence, AECOM considered the potential for these species to be significantly affected by copper application activities, including the temporary increase in copper concentrations in reservoir water. The analysis focused on species that would have the potential to reside or forage in the reservoirs or in wetland habitat on the edges of the reservoirs, because those would be the species that would have the most potential to come into contact with elevated copper levels during and after application. Upland species that are not known to be active in these wetland habitats or to forage in open water were removed from consideration because they would be unlikely to come into contact with elevated copper levels. The analysis concluded that while several special-status species may occur at or adjacent to the reservoirs, the project's impact would be less than significant because these species would not have the potential come into contact with harmful concentrations of copper. The results are summarized below for each subject reservoir.

Copper treatments at the subject reservoirs would result in short-term increases in dissolved copper in the reservoir water. Copper would not be applied directly to land or at the edges of reservoirs. As stated in the General Permit, the registration process for pesticides in California includes evaluation of a product's chemical data by EPA and the California Department of Pesticide Regulation "to ensure that a product used according to label instructions will cause no harm or adverse impact on non-target organisms that cannot be reduced or mitigated with protective measures or use restrictions." The copper-based products discussed in this MND are algaecides with approved registration labels that explicitly allow direct application to water bodies.

According to the U.S. Environmental Protection Agency's (EPA) "Copper Facts" sheet (EPA 2008), copper can be toxic in high concentrations, but it is also an important essential trace element for terrestrial animals, and many terrestrial animals have the ability to cope with some amount of excess copper exposure by storing it in the liver and bone marrow. The factsheet states that copper is highly toxic to most aquatic species, with the main cause of copper toxicity to fish and aquatic invertebrates being

through rapid binding of copper to the gill membranes, which causes damage and interferes with osmoregulatory processes. However, the long-term biological impacts when copper is applied to reservoirs in the amounts needed to control algae are lessened, because the applied copper settles out of the water as it is taken up by the targeted algae and becomes bound to the bottom sediments, where it is biologically unavailable to organisms that are active within the reservoir water. Settlement rates for copper are dependent on several different factors, including water temperature, turbidity, pH, dissolved solids in the water, and oxidation reduction potential. The EPA states that copper strongly absorbs to organic matter, carbonates, and clay, thereby reducing the bioavailability of copper (EPA 2015). While copper has the ability to bioconcentrate in certain fish organs, the EPA considers this to have a low potential to occur in the quantities applied for algaecide purposes. Bioavailability of copper in bottom sediments is highly variable, and appears to be correlated with sediment characteristics, including pH, sediment particle size, cation exchange capacity, and other factors (Willis 2012). The three participating agencies that allow fishing at their reservoirs for recreational purposes—HWD, Poway, and Sweetwater—have not observed fish kill incidents after copper application and have no records that such fish kills have occurred in the past (Helix Water District 2015; City of Poway 2015; Sweetwater Authority 2015).

Olivenhain Reservoir

The CNDDB search conducted for Olivenhain Reservoir identified eight special-status plant species and 12 special-status wildlife species based on the species' regional distribution, as shown in Table 1.

Table 1: CNDDB Search Results at Olivenhain Reservoir

Common Name	Scientific Name	Status	Habitat	Habitat is not Present in Project Area; Species Eliminated from Further Consideration	Habitat is Present in Project Area
PLANTS					
Encinitas baccharis	*Baccharis vanessae*	CNPS-1, SE, FT	Low-growing chaparral dominated by chamise; in Encinitas region, grows nearby Del Mar manzanita, Mojave yucca, and mission manzanita	X	
felt-leaved monardella	*Monardella hypoleuca ssp. lanata*	CNPS-1	Chaparral understory, beneath mature strands of Chamise in xeric conditions	X	
Orcutt's brodiaea	*Brodiaea orcuttii*	CNPS-1	Vernally moist grasslands, mima mound topography, and periphery of vernal pools	X	

Common Name	Scientific Name	Status	Habitat	Habitat is not Present in Project Area; Species Eliminated from Further Consideration	Habitat is Present in Project Area
Robinson's pepper-grass	*Lepidium virginicum var. robinsonii*	CNPS-1	Openings in chaparral and sage scrub, away from coast in foothill elevations; typical sites are relatively dry and exposed	X	
San Diego sagewort	*Artemisia palmeri*	CNPS-4	Coastal sage scrub, riparian scrub or woodland communities, and chaparral below 1970 feet, also along drainages	X	
sea dahlia	*Leptosyne maritima*	CNPS-2	coastal sage scrub, within coastal bluffs	X	
summer holly	*Comarostaphylis diversifolia ssp. diversifolia*	CNPS-1	Southern mixed chaparral, on mesic north-facing slopes	X	
wart-stemmed ceanothus	*Ceanothus verrucosus*	CNPS-2	Coastal chaparral with chamise and Mission Manzanita	X	
REPTILES					
coast horned lizard	*Phrynosoma blainvillii*	CSSC	Lowlands along sandy washes with scattered low bushes	X	
coast patch-nosed snake	*Salvadora hexalepis virgultea*	CSSC	Coastal slope with coastal sage scrub, chaparral, riparian, grasslands, and agricultural fields, but with open habitat with friable or sandy soils, but with some cover	X	
coastal whiptail	*Aspidoscelis tigris stejnegeri*		Deserts and semiarid habitats from sea-level to 7000 feet, often associated with dense vegetation like chaparral and sage scrub around sandy washes and streambeds	X	
orange-throated whiptail	*Aspidoscelis hyperythra*	CSSC	Coastal chaparral and thornscrub, within washes, streams, terraces, and other sandy areas associated with some perennial plants	X	
red-diamond rattlesnake	*Crotalus ruber*	CSSC	Chaparral, coastal sage scrub, along creek banks, and in granite rock outcrops or piles of debris	X	

Common Name	Scientific Name	Status	Habitat	Habitat is not Present in Project Area; Species Eliminated from Further Consideration	Habitat is Present in Project Area
western pond turtle	*Emys marmorata*	CSSC	Slow moving rivers, streams, and ponds with emergent marsh vegetation without dense canopy, with protruding rocks, vegetation mats, or submerged logs for sunning	X	
BIRDS					
coastal California gnatcatcher	*Polioptila californica californica*	FT, CSSC	Diegan coastal sage scrub, dominated by California sagebrush and flat-top buckwheat	X	
southern California rufous-crowned sparrow	*Aimophila ruficeps canescens*	CSSC	Grassy or rocky slopes with open scrub at elevations from sea level to 2000 feet; most populations occur in coastal sage scrub	X	
MAMMALS					
Dulzura pocket mouse	*Chaetodipus californicus femoralis*	CSSC	Coastal sage scrub, chaparral, woodlands, and grasslands, often at the scrub-grassland interface	X	
northwestern San Diego pocket mouse	*Chaetodipus fallax fallax*	CSSC	Open habitats of coastal sage scrub, sage scrub/grassland ecotones,	X	
San Diego desert woodrat	*Neotoma lepida intermedia*	CSSC	Habitats with patches of prickly pear or cholla, or with rock outcrops or low shrubs	X	
western mastiff bat	*Eumops perotis californicus*	CSSC	Areas with caves, rock crevices, or abandoned buildings		X

FE = Federally Listed as Endangered
FT = Federally Listed as Threatened
SE = State Listed as Endangered
ST = State Listed as Threatened
SCSC = State Listed Species of Concern
CNPS-1 = California Native Plant Society Listed Rare, Threatened, or Endangered in CA only
CNPS-2 = California Native Plant Society Listed Rare, Threatened, or Endangered
CNPS-4 = California Native Plant Society Listed as Limited Distribution

Of these species identified in the CNDDB search, AECOM concluded that none of the plant species has the potential to exist in or adjacent to the reservoir because these species are found in sage scrub and chaparral habitat, which would not be affected by copper application at Olivenhain Reservoir. Therefore,

the project would not have a significant impact on any of the special-status plant species identified for Olivenhain Reservoir.

One of the 12 CNDDB wildlife species for Olivenhain Reservoir—the western mastiff bat (*Eumops perotis californicus*)—was identified as having potential to use the reservoir as a drinking water source. Western mastiff bat is a CDFW State Species of Special Concern, though it is not a covered species under the Water Authority's Natural Communities Conservation Plan/Habitat Conservation Plan (NCCP/HCP). This bat species typically inhabits areas featuring caves, rock crevices, or even abandoned buildings, but is also known to forage over 15 miles from its roost sites and drink from large water impoundments. Western mastiff bat's preferred prey consists of terrestrial invertebrates, so this species is not likely to forage for food on Olivenhain Reservoir, but western mastiff bat has the potential to drink from Olivenhain Reservoir. However, this species is not likely to be affected by increased copper concentrations at Olivenhain Reservoir. If western mastiff bat drinks from the reservoir, it would do so from the reservoir's immediate surface, which would only experience high concentrations of copper immediately following an application, before the chemical would start sinking and mixing with subsurface water. Since algaecide applications at Olivenhain Reservoir would be performed during the day, when western mastiff bat is inactive, the species would not be present to experience an extended exposure to high concentrations of the chemical. Therefore, the western mastiff bat is not likely to ingest large concentrations of copper, and the project would not have a significant impact on this species.

No other special-status species would have the potential to be affected by algaecide application at Olivenhain Reservoir. Therefore, the project would have a less than significant impact at Olivenhain Reservoir.

Lake Jennings

The CNDDB search conducted for Lake Jennings identified four special-status plant species and 16 special-status wildlife species based on the species' regional distribution, as shown in Table 2.

Table 2: CNDDB Search Results at Lake Jennings

Common Name	Scientific Name	Status	Habitat	Habitat is not Present in Project Area; Species Eliminated from Further Consideration	Habitat is Present in Project Area
PLANTS					
Abrams' spurge	*Chamaesyce abramsiana*	CNPS-2	Creosote Bush Scrub, sandy flats and open areas	X	
decumbent goldenbush	*Isocoma menziesii var. decumbens*	CNPS-1	Coastal Sage Scrub, intermixed with grassland, wetland-riparian, more partial to clay soils	X	

Common Name	Scientific Name	Status	Habitat	Habitat is not Present in Project Area; Species Eliminated from Further Consideration	Habitat is Present in Project Area
delicate clarkia	*Clarkia delicata*	CNPS-1	Periphery of oak woodlands and cismontane Chaparral haunts, partially shaded by tree canopy or large shrubs, and typically mesic situations	X	
Ramona horkelia	*Horkelia truncata*	CNPS-1	Chamise Chaparral, Foothill Woodland	X	
REPTILES					
coast horned lizard	*Phrynosoma blainvillii*	CSSC	Lowlands along sandy washes with scattered low bushes	X	
Coronado Island skink	*Plestiodon skiltonianus interparietalis*	CSSC	Wide variety ranging from coastal sage, chaparral, oak woodlands, pinon-juniper, riparian woodlands, and pine forests, restricted to more mesic micro-habitats	X	
orange-throated whiptail	*Aspidoscelis hyperythra beldingi*	CSSC	Coastal chaparral and thornscrub, within washes, streams, terraces, and other sandy areas associated with some perennial plants	X	
rosy boa	*Charina trivirgata*		Dry rocky brushlands and arid habitats, usually near intermittent streams, also needs vegetation or rock outcrops for shelter	X	
silvery legless lizard	*Anniella pulchra pulchra*	CSSC	Veg communities include coastal dunes, chaparral, pine-oak woodland, and streamside growth of sycamores, cottonwoods, or oaks, with loose, moist, warm soil for burrowing, underneath leaf litter for cover	X	
BIRDS					
coastal cactus wren	*Campylorhynchus brunneicapillus sandiegensis*	CSSC	Coastal sage scrub with extensive stands of prickly pear or cholla cacti	X	
coastal California gnatcatcher	*Polioptila californica californica*	FT, CSSC	Diegan coastal sage scrub, dominated by California sagebrush and flat-top buckwheat	X	

Common Name	Scientific Name	Status	Habitat	Habitat is not Present in Project Area; Species Eliminated from Further Consideration	Habitat is Present in Project Area
southern California rufous-crowned sparrow	*Aimophila ruficeps canescens*	CSSC	Grassy or rocky slopes with open scrub at elevations from sea level to 2000 feet; most populations occur in coastal sage scrub	X	
yellow-breasted chat	*Icteria virens*	CSSC	Riparian woodland with dense undergrowth	X	
MAMMALS					
American badger	*Taxidea taxus*	CSSC	Level and open areas in grasslands, agricultural areas, and open shrub habitats	X	
big free-tailed bat	*Nyctinomops macrotis*	CSSC	Pinyon-juniper and Douglas fir forests, chaparral and oak forests in the mountains and foothills where rocky cliffs and crevices are present	X	
pallid bat	*Antrozous pallidus*	CSSC	Caves, mines, crevices, and abandoned buildings as roost sites	X	
San Diego black-tailed jackrabbit	*Lepus californicus bennettii*	CSSC	Typical habitats include early stages of chaparral, open coastal sage scrub, and grasslands near the edges of brush; needs some open land with some shrubs for cover	X	

FE = Federally Listed as Endangered
FT = Federally Listed as Threatened
SE = State Listed as Endangered
ST = State Listed as Threatened
SCSC = State Listed Species of Concern
CNPS-1 = California Native Plant Society Listed Rare, Threatened, or Endangered in CA only
CNPS-2 = California Native Plant Society Listed Rare, Threatened, or Endangered
CNPS-4 = California Native Plant Society Listed as Limited Distribution

Of the four plant species identified in the CNDDB search, AECOM concluded that none of the species have the potential to exist in or adjacent to the reservoir because these species are found in creosote scrub, sage scrub, woodlands, and chaparral habitat, which would not be affected by copper application at Lake Jennings. Therefore, the project would not have a significant impact on any of the special-status plant species identified for Lake Jennings.

Of the 16 wildlife species identified in the CNDDB search for Lake Jennings, AECOM concluded that none of the species have potential to be present in or adjacent to the reservoir such that they could be exposed to elevated copper levels during or after algaecide application. Two State Species of Special Concern bat species—big free-tailed bat (*Nyctinomops macrotis*) and pallid bat (*Antrozous pallidus*)—

were identified in the CNDDB search, but unlike the western mastiff bat mentioned above in the Olivenhain Reservoir discussion, these species do not have high potential to use Lake Jennings as a water source, and they are not likely to forage on the reservoir. Therefore, the project would not result in a significant impact on sensitive species.

No other special-status species would have the potential to be affected by algaecide application at Lake Jennings. Therefore, the project would have a less than significant impact at Lake Jennings.

Lake Poway

The CNDDB search conducted for Lake Poway identified three special-status plant species and three special-status wildlife species based on the species' regional distribution, as shown in Table 3.

Table 3: CNDDB Search Results at Lake Poway

Common Name	Scientific Name	Status	Habitat	Habitat is not Present in Project Area; Species Eliminated from Further Consideration	Habitat is Present in Project Area
PLANTS					
delicate clarkia	*Clarkia delicate*	CNPS-1	Periphery of oak woodlands and cismontane Chaparral haunts, partially shaded by tree canopy or large shrubs, and typically mesic situations	X	
Robinson's pepper-grass	*Lepidium virginicum var. robinsonii*	CNPS-1	Openings in chaparral and sage scrub, away from coast in foothill elevations; typical sites are relatively dry and exposed	X	
San Diego sagewort	*Artemisia palmeri*	CNPS-4	Coastal sage scrub, riparian scrub or woodland communities, and chaparral below 2000 feet, also along drainages	X	
BIRDS					
coastal California gnatcatcher	*Polioptila californica californica*	FT, CSSC	Diegan coastal sage scrub, dominated by California sagebrush and flat-top buckwheat	X	
southern California rufous-crowned sparrow	*Aimophila ruficeps canescens*	CSSC	Grassy or rocky slopes with open scrub at elevations from sea level to 2000 feet; most populations occur in coastal sage scrub	X	
MAMMALS					
San Diego desert woodrat	*Neotoma lepida intermedia*	CSSC	Habitats with patches of prickly pear or cholla, or with rock outcrops or low shrubs	X	

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ST = State Listed as Threatened
SCSC = State Listed Species of Concern
CNPS-1 = California Native Plant Society Listed Rare, Threatened, or Endangered in CA only
CNPS-2 = California Native Plant Society Listed Rare, Threatened, or Endangered
CNPS-4 = California Native Plant Society Listed as Limited Distribution

Of these species identified in the CNDDB search, AECOM concluded that none of the plant species has the potential to exist in or adjacent to the reservoir because these species are found in sage scrub and chaparral habitat and at the edges of oak woodland habitat, none of which would be affected by copper application at Lake Poway. Therefore, the project would not have a significant impact on any of the special-status plant species identified for Lake Poway.

Similarly, none of the three wildlife species identified in the Lake Poway CNDDB search were considered to have potential to be present in or adjacent to the reservoir such that they could be exposed to elevated copper levels during or after algaecide application. Therefore, the project would not result in a significant impact on sensitive species.

No other special-status species would have the potential to be affected by algaecide application at Lake Poway. Therefore, the project would have a less than significant impact at Lake Poway.

San Dieguito Reservoir

The CNDDB search conducted for San Dieguito Reservoir identified 11 special-status plant species and three special-status wildlife species based on the species' regional distribution, as shown in Table 4.

Table 4: CNDDB Search Results at San Dieguito Reservoir

Common Name	Scientific Name	Status	Habitat	Habitat is not Present in Project Area; Species Eliminated from Further Consideration	Habitat is Present in Project Area
PLANTS					
California adolphia	*Adolphia californica*	CNPS-2	Within Diegan Sage scrub, also peripheral of chaparral habitats on hillsides near creeks	X	
Nuttall's scrub oak	*Quercus dumosa*	CNPS-1	Lowlands from sea level to 1000 feet in open chaparral and coastal sage scrub,	X	
Orcutt's brodiaea	*Brodiaea orcuttii*	CNPS-1	Vernally moist grasslands, mima mound topography, and periphery of vernal pools	X	

Common Name	Scientific Name	Status	Habitat	Habitat is not Present in Project Area; Species Eliminated from Further Consideration	Habitat is Present in Project Area
Orcutt's spineflower	*Chorizanthe orcuttiana*	CNPS-1, SE, FE	Coastal sage scrub and coastal chaparral openings and mesas in chamise, with loose sandy substrate	X	
Palmer's grapplinghook	*Harpagonella palmeri*	CNPS-4	clay soils and bums below 3260 feet as well as open grassy slopes or open Diegan Sage Scrub	X	
San Diego goldenstar	*Bloomeria clevelandii*	CNPS-1	Valley grasslands coastal sage scrub, and chaparral, near Mima mound topography or vicinity of vernal pools	X	
San Diego marsh-elder	*Iva hayesiana*	CNPS-2	Creeks or intermittent streambeds, open riparian canopy to allow sunlight, sandy alluvial embankments with cobbles		X
San Diego sagewort	*Artemisia palmeri*	CNPS-4	Coastal sage scrub, riparian scrub or woodland communities, and chaparral below 2000 feet, also along drainages		X
sticky dudleya	*Dudleya viscida*	CNPS-1	Shallow soils and cracks on vertical rock faces, steep canyon slopes	X	
summer holly	*Comarostaphylis diversifolia ssp. Diversifolia*	CNPS-1	Southern mixed chaparral, on mesic north-facing slopes	X	
wart-stemmed ceanothus	*Ceanothus verrucosus*	CNPS-2	Coastal chaparral with chamise and Mission Manzanita	X	
BIRDS					
coastal cactus wren	*Campylorhynchus brunneicapillus sandiegensis*	CSSC	Coastal sage scrub with extensive stands of prickly pear or cholla cacti	X	
coastal California gnatcatcher	*Polioptila californica californica*	FT, CSSC	Diegan coastal sage scrub, dominated by California sagebrush and flat-top buckwheat	X	
MAMMALS					
Dulzura pocket mouse	*Chaetodipus californicus femoralis*	CSSC	Coastal sage scrub, chaparral, woodlands, and grasslands, often at the scrub-grassland interface	X	

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CNPS-2 = California Native Plant Society Listed Rare, Threatened, or Endangered
CNPS-4 = California Native Plant Society Listed as Limited Distribution

Of the 11 special-status plant species identified in the CNDDB search, AECOM concluded that two of the plant species—San Diego marsh-elder (*Iva hayesiana*) and San Diego sagewort (*Artemisia palmeri*)—have the potential to exist adjacent to the reservoir based on the presence of suitable wetland habitat, as mapped in the SANDAG regional vegetation data. San Diego marsh-elder is an evergreen herbaceous perennial shrub that occupies the margins of permanent alkaline streams and playas near the coast. San Diego sagewort is a perennial deciduous shrub that occupies drainages and riparian scrub from the foothills to the coast. Both of these plants are considered sensitive by the California Native Plant Society due to their limited distribution and threats from water channelization and coastal development. These plants are terrestrial species that may be found in or near drainages that lead into San Dieguito Reservoir. They are not found in open water, so they are unlikely to become inundated by copper-treated water that enters the reservoir after injection at the Cielo Pump Station. Furthermore, the EPA has determined that copper sulfate does not pose a risk to freshwater vascular plants or estuarine/marine plants (EPA 2008), so the potential exposure of these plants to copper as a result of the project would not create a significant impact.

None of the three wildlife species identified in the San Dieguito Reservoir CNDDB search were considered to have potential to be present in or adjacent to the reservoir such that they could be exposed to elevated copper levels during or after algaecide application. Therefore, the project would not result in a significant impact on sensitive species.

No other special-status species would have the potential to be affected by algaecide application at San Dieguito Reservoir. Therefore, the project would have a less than significant impact at San Dieguito Reservoir.

Sweetwater Reservoir

The CNDDB search conducted for Sweetwater Reservoir identified 23 special-status plant species and 28 special-status wildlife species based on the species' regional distribution, as shown in Table 5. In addition to the 28 wildlife species identified in the CNDDB search, AECOM considered two more species based on input from Sweetwater biologists regarding special-status species known to occur near the Sweetwater Reservoir.

Table 5: CNDDB Search Results at Sweetwater Reservoir

Common Name	Scientific Name	Status	Habitat	Habitat is not Present in Project Area; Species Eliminated from Further Consideration	Habitat is Present in Project Area
PLANTS					
California adolphia	*Adolphia californica*	CNPS-2	Within Diegan Sage scrub, also peripheral of chaparral habitats on hillsides near creeks	X	
chaparral ragwort	*Senecio aphanactis*	CNPS-2	Coastal sage scrub, cismontane woodland and alkaline flats	X	
Dean's milk-vetch	*Astragalus deanei*	CNPS-1	Open coastal sage scrub, chaparral, or southern oak woodland on dry hillsides between 805 and 1126 feet	X	
decumbent goldenbush	*Isocoma menziesii* var. *decumbens*	CNPS-1	Coastal Sage Scrub, intermixed with grassland, wetland-riparian, more partial to clay soils		X
desert bedstraw	*Galium proliferum*	CNPS-2	Creosote Bush Scrub, Joshua Tree Woodland	X	
felt-leaved monardella	*Monardella hypoleuca* ssp. *lanata*	CNPS-1	Chaparral understory, beneath mature strands of Chamise in xeric conditions	X	
Laguna Mountains jewelflower	*Streptanthus bernardinus*	CNPS-4	Chaparral, Yellow Pine Forest	X	
mud nama	*Nama stenocarpum*	CNPS-2	Muddy embankments of ponds, lakes, and rivers		X
Munz's sage	*Salvia munzii*	CNPS-2	Coastal sage scrub below 1640 feet in elevation	X	
Otay manzanita	*Arctostaphylos otayensis*	CNPS-1	Dry slopes in chaparral on metavolcanic peaks, shallow soils with exposed rock flake, endemic to Otay mountain sites	X	
Otay Mountain ceanothus	*Ceanothus otayensis*	CNPS-1	Xeric chamise chaparral, restricted to metavolcanic and gabbroic peaks	X	
Otay tarplant	*Deinandra conjugens*	CNPS-1, SE, FT	Fractured clay soils in grasslands or lightly vegetated Diegan sage scrub	X	
Palmer's grapplinghook	*Harpagonella palmeri*	CNPS-4	clay soils and bums below 3280 feet as well as open grassy slopes or open Diegan Sage Scrub	X	
Parry's tetracoccus	*Tetracoccus dioicus*	CNPS-1	Low-growing chamise chaparral, with moderately dense canopy cover	X	

Common Name	Scientific Name	Status	Habitat	Habitat is not Present in Project Area; Species Eliminated from Further Consideration	Habitat is Present in Project Area
purple stemodia	*Stemodia durantifolia*	CNPS-2	Riparian habitats, on wet sand or rocks, drying streambeds lower than 1300 feet	X	
Robinson's pepper-grass	*Lepidium virginicum* var. *robinsonii*	CNPS-1	Openings in chaparral and sage scrub, away from coast in foothill elevations; typical sites are relatively dry and exposed	X	
San Diego ambrosia	*Ambrosia pumila*	CNPS-1, FE	Valleys or disturbed areas below 470 feet, usually creek beds, seasonally dry drainages, and floodplains		X
San Diego barrel cactus	*Ferocactus viridescens*	CNPS-2	Diegan sage scrub hillsides; crest of slopes and growing in cobbles, periphery of vernal pools, slopes below 4922 feet	X	
San Diego goldenstar	*Bloomeria clevelandii*	CNPS-1	Valley grasslands coastal sage scrub, and chaparral, near Mima mound topography or vicinity of vernal pools	X	
San Diego marsh-elder	*Iva hayesiana*	CNPS-2	Creeks or intermittent streambeds, open riparian canopy to allow sunlight, sandy alluvial embankments with cobbles		X
San Diego thorn-mint	*Acanthomintha ilicifolia*	CNPS-1, SE, FT	Grassy openings in chaparral or sage scrub with friable or broken clay soils, in clay depressions on mesas	X	
spreading navarretia	*Navarretia fossalis*	CNPS-1, FT	Vernal pools and vernal swales, ditches and other artificial depressions below 1475 feet	X	
variegated dudleya	*Dudleya variegata*	CNPS-1	Openings in sage scrub and chaparral, isolated rocky substrates in open grasslands, proximity to vernal pools	X	
INVERTEBRATE					
Hermes copper butterfly	*Lycaena hermes*		Chaparral or coastal sage scrub with redberry	X	
San Diego fairy shrimp	*Branchinecta sandiegonensis*	FE	Vernal pools on mesas and in roadsides ditches and tire ruts that are shallow	X	
Thorne's hairstreak	*Callophrys thornei*		Requires Tecate cypress (*Cupressus forbesii*) as a host plant for reproduction. Known remaining populations are within the BLM Otay Mountain Wilderness.	X	

Common Name	Scientific Name	Status	Habitat	Habitat is not Present in Project Area; Species Eliminated from Further Consideration	Habitat is Present in Project Area
Western beach tiger beetle	*Cicindela latesignata latesignata*		Coastal habitats consisting of salt flats associated with estuaries.	X	
Western tidal-flat tiger beetle	*Cicindela gabbii*		Salty coastal habitats including salt marsh, tidal flats, and beaches.	X	
AMPHIBIANS					
arroyo toad	*Anaxyrus californicus*	FE, CSSC	Gravelly or sandy washes, stream and river banks, and arroyos; adults burrow in upland habitat near washes and streams		X
Western spadefoot toad	*Spea hammondii*	CSSC	Prefers sandy or gravelly soil in grasslands, open chaparral, and pine-oak woodlands. Breeds in vernal pools and ephemeral ponds.		X
REPTILES					
coast horned lizard	*Phrynosoma blainvillii*	CSSC	Lowlands along sandy washes with scattered low bushes		X
orange-throated whiptail	*Aspidoscelis hyperythra*	CSSC	Coastal chaparral and thornscrub, within washes, streams, terraces, and other sandy areas associated with some perennial plants		X
Coastal whiptail	*Aspidoscelis tigris stejnegeri*	CSSA	Occurs in a variety of habitats, including chaparral, mixed chaparral, desert scrub, alkali scrub, and annual grassland.	X	
red-diamond rattlesnake	*Crotalus ruber*	CSSC	Chaparral, coastal sage scrub, along creek banks, and in granite rock outcrops or piles of debris		X
Rosy boa	*Charina trivirgata*	CSSA	Sparsely distributed in desert and chaparral habitats.		X
San Diego ringnecked snake	*Diadophis punctatus similis*	CSSA	Most common in rocky areas within valley-foothill, mixed chaparral, and annual grassland habitats.	X	
Western pond turtle	*Emys marmorata*	CSSC	Slow moving rivers, streams, and ponds with emergent marsh vegetation without dense canopy, with protruding rocks, vegetation mats, or submerged logs for sunning		X

Common Name	Scientific Name	Status	Habitat	Habitat is not Present in Project Area; Species Eliminated from Further Consideration	Habitat is Present in Project Area
BIRDS					
coastal cactus wren	*Campylorhynchus brunneicapillus sandiegensis*	CSSC	Coastal sage scrub with extensive stands of prickly pear or cholla cacti	X	
coastal California gnatcatcher	*Polioptila californica californica*	FT, CSSC	Diegan coastal sage scrub, dominated by California sagebrush and flat-top buckwheat	X	
Bell's sage sparrow	*Artemisiospiza belli belli*	CSWL	Coastal sage scrub and open chaparral habitats.	X	
California horned lark	*Eremophila alpestris actia*	CSWL	Inhabits sandy ocean or bay shores, grasslands, and open scrublands and woodlands with low, sparse vegetation.	X	
Cooper's hawk	*Accipiter cooperii*	CSWL (nesting)	Uncommon migrant and winter visitor to woodlands, parks, and residential areas.		X
Double-crested cormorant	*Phalacrocorax auritus*	CSWL	Found near fresh and saltwater near coastline, inshore waters, beaches, inland rivers, and lakes.		X
Least Bell's vireo	*Vireo bellii pusillus*	FE, SE, CSSC	Summer resident of low riparian growth in the vicinity of water or in dry river bottoms. Nests are placed along the margins of bushes, usually *Salix*, *Baccharis*, or *Prosopis*.		X
Southern California rufous-crowned sparrow	*Aimophila ruficeps canescens*	CSWL	Uncommon to fairly common localized resident of sage scrub on steep rocky slopes.	X	
Southwestern willow flycatcher	*Empidonax traillii extimus*	FE, SE	Typically nests in riparian woodlands that are marshy or at water's edge.		X
Swainson's hawk	*Buteo swainsoni*	ST	In southern California, now mostly limited to spring and fall transient. Breeds and roosts in open stands of trees in juniper-sage flats, riparian areas, and in oak savannah. Forages in adjacent grasslands or suitable agricultural fields, or livestock pastures.	X	
Tricolored blackbird	*Agelaius tricolor*	SE, CSSC (nesting colony)	Localized resident; nests in large, dense colonies in freshwater marsh; forages in agricultural areas, lakeshores and damp lawns.		X

Common Name	Scientific Name	Status	Habitat	Habitat is not Present in Project Area; Species Eliminated from Further Consideration	Habitat is Present in Project Area
Yellow warbler	*Setophaga petechia*	CSSC (nesting)	Occupies marshes, swamps, streamside groves, willow and alder thickets, open woodlands with thickets, orchards, gardens, and open mangroves.		X
Yellow-breasted chat	*Icteria virens*	CSSC (nesting)	The breeding population is confined to riparian woodlands in the coastal lowlands.		X
MAMMALS					
American badger	*Taxidea taxus*	CSSC	Primarily uses drier, relatively open stages of scrub, forest, and herbaceous habitats that have friable soils.	X	
Pocketed free-tailed bat	*Nyctinomops femorosaccus*	CSSC	Rare in California, but where it is present, the species' habitat preference includes pinyon-juniper woodlands, desert scrub, desert succulent shrub, desert riparian, desert wash, alkali desert scrub, Joshua tree, and palm oasis.		X
San Diego black-tailed jackrabbit	*Lepus californicus bennettii*	CSSC	Habitats include coastal sage scrub, chaparral, and grasslands.	X	

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FT = Federally Listed as Threatened
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ST = State Listed as Threatened
CSSC = State Listed Species of Concern
CSWL = State Watch List
CSSA = State Special Animal

CNPS-1 = California Native Plant Society Listed Rare, Threatened, or Endangered in CA only
CNPS-2 = California Native Plant Society Listed Rare, Threatened, or Endangered
CNPS-4 = California Native Plant Society Listed as Limited Distribution

Of the 23 special-status plant species identified in the CNDDB search, AECOM concluded that three species are known to exist at the Sweetwater reservoir. These include San Diego marsh-elder (*Iva hayesiana*), decumbent goldenbush (*Isocoma menziesii* var. *decumbens*), and mud nama (*Nama stenocarpum*). One other species that appeared in the CNDDB search, San Diego ambrosia (*Ambrosia pumila*), has the potential to occur at the reservoir based on the presence of suitable wetland habitat, as mapped in the SANDAG regional vegetation data. San Diego marsh-elder is an evergreen herbaceous perennial shrub that occupies the margins of permanent alkaline streams and playas near the coast. Decumbent goldenbush is a low-growing perennial evergreen shrub that occupies chaparral and coastal

scrub. Mud nama is a low-growing annual plant found in marshes, swamps, and lake margins. San Diego ambrosia is a low-growing evergreen rhizomatous perennial shrub that occurs most frequently on alluvial soils in valleys and floodplains that are seasonally dry. These plants are all terrestrial species that may be found in or near drainages that lead into Sweetwater Reservoir or, in the case of mud nama, on the reservoir's muddy embankments. They do not grow in open water, so they are unlikely to become inundated by copper-treated water in the reservoir. Furthermore, the EPA has determined that copper sulfate does not pose a risk to freshwater vascular plants or estuarine/marine plants (EPA 2008), so the potential exposure of these plants to copper as a result of the project would not create a significant impact.

Fifteen of the 30 wildlife species identified in the Sweetwater Reservoir CNDDB search and identified by Sweetwater biologists were considered to have potential to be present in habitat immediately adjacent to the reservoir. Seven of these species are reptiles, including the following: coast horned lizard (*Phrynosoma blainvillii*), orange-throated whiptail (*Aspidoscelis hyperythra*), red-diamond rattlesnake (*Crotalus ruber*), and western pond turtle (*Emys marmorata*) (all CDFW State Species of Special Concern), as well as coastal whiptail (*Aspidoscelis tigris stejnegeri*), rosy boa (*Charina trivirgata*), and San Diego ringnecked snake (*Diadophis punctatus similis*) (CDFW State Special Animals). With the exception of the western pond turtle and red-diamond rattlesnake, they are primarily terrestrial species that would typically not enter the reservoir water, and their target prey base consists of terrestrial invertebrates and rodents, so they are not likely to have any exposure to copper-treated water as a result of the project. While the western pond turtle would be expected to occasionally enter the reservoir, it spends the majority of the time in streams, secluded ponded areas, or in basking habitat along the edge of streams and is unlikely to occur in the open water areas that are treated with copper. The red-diamond rattlesnake has been documented swimming in open water, but this behavior is not a regular or common occurrence. The potential for this species to be swimming in the application area on the reservoir's western side is very limited, and it is unlikely this species would come into contact with copper-treated water. Additionally, the rosy boa and the coast horned lizard have also been documented in the upper riparian zone at Sweetwater Reservoir, but this habitat is distant from the areas of copper-based algaecide application and the potential for these species to come into contact with copper-treated water is very limited. Therefore, the project's impact on these special-status reptile species is less than significant.

Two amphibian species with potential to occur in aquatic habitats adjacent to the reservoir are arroyo toad (*Bufo californicus)* and the western spadefoot toad (*Spea hammondii*). The arroyo toad is a species listed by USFWS as endangered pursuant to the federal Endangered Species Act, and is listed as a CDFW State Species of Special Concern. Outside of the arroyo toad's springtime breeding season, which is from March 1 through June 30, this species inhabits uplands areas with moist soils, typically in the interface between upland and riparian areas near streams. During the breeding season, arroyo toads enter slow-moving streams with adjacent sandbars, where quiet backwaters are available for egg laying. The species does not enter open water. Formerly occupied arroyo toad habitat is located upstream of the Sweetwater Reservoir along the Sweetwater River. The habitat is largely over-grown and arroyo toad has not been detected for many years. The western spadefoot toad is a CDFW State Species of Special Concern. This species occupies moist upland burrows for the majority of the year, only entering shallow rain-filled pools and ponds during the breeding season. Western spadefoot toad would not be expected to occur within the open water of the reservoir. Copper application at Sweetwater Reservoir would occur in open water, and high concentrations of copper would not migrate to formerly occupied arroyo toad or western spadefoot

toad habitat upstream of the reservoir. Therefore, the project would not result in a significant impact on arroyo toad or western spadefoot toad.

Thirteen special-status bird species are known to occur in the vicinity of the Sweetwater Reservoir, all of which have affinities for the various upland and/or wetland vegetation communities within the study area (Table 5, "BIRDS"). Six of those 13 bird species are terrestrial species that would not enter the reservoir water, and their target prey base consists of terrestrial invertebrates and rodents, so they are not likely to have any exposure to copper-treated water as a result of the project. These six birds are coastal cactus wren (*Campylorhynchus brunneicapillus sandiegensis*) (State Species of Concern), coastal California gnatcatcher (*Polioptila californica californica*) (Federally-listed threatened, and a State Species of Concern), Bell's sage sparrow (*Artemisiospiza belli belli*) (State Watch List), California horned lark (*Eremophila alpestris actia*) (State Watch List), southern California rufous-crowned sparrow (*Aimophila ruficeps canescens*) (State Watch List), and Swainson's hawk (*Buteo swainsoni*) (State-listed threatened). Therefore, the project's impact on these special-status reptile species is less than significant.

The other seven bird species are also terrestrial but are strongly associated with riparian and wetland vegetation communities associated with the Sweetwater reservoir. These are double-crested cormorant (*Phalacrocorax auritus*) (State Watch List), least Bell's vireo (*Vireo bellii pusillus*) (Federally and State-listed endangered, and a State Species of Concern), southwestern willow flycatcher (*Empidonax traillii extimus*) (Federally and State-listed endangered), tricolored blackbird (*Agelaius tricolor*) (State-listed endangered, and State Species of Concern), Cooper's hawk (*Accipiter cooperii*) (State Watch List), yellow warbler (*Setophaga petechia*) (State Species of Concern), and yellow-breasted chat (*Icteria virens*) (State Species of Concern). With the exception of the double-crested cormorant, these bird species would not be expected to swim, wade, or forage in the reservoir. In the case of the double-crested cormorant, the proposed application locations would be located away from potential rookery sites. Rookeries are colonial nests, and the double-crested cormorant builds their nests from twigs and branches, on cliff ledges, in trees, or occasionally on the ground; as such, rookeries would typically be near but not on water. Additionally, the activities associated with the application of algaecide would be expected to flush the cormorant away from the treated area. Once applied, copper sulfate quickly hydrolyzes and moves down the water column, and the likelihood of direct contact with avian species would be minimized. Terrestrial wildlife species have mechanisms for sequestering and/or eliminating some excess copper levels (EPA 2008). In order to minimize ecological risk and to avoid exposing terrestrial wildlife to high concentrations of copper that could have adverse effects, the EPA requires strict labeling and application guidelines associated with copper pesticides and algaecides, including weather restrictions and steps to minimize spray drift (EPA 2008), which will be strictly adhered to by Sweetwater pursuant to their APAP. Therefore, the project would have a less than significant impact on avian species at Sweetwater Reservoir.

Of the three special-status mammal species documented in the CNDDB query, only the pocketed free-tailed bat (*Nyctinomops femorosaccus*) would be expected to utilize the aquatic habitat of the Sweetwater Reservoir. The species is a State Species of Concern, and would be expected to fly over the reservoir during nighttime foraging, to skim the surface while drinking water. Since the application of algaecide would occur during daytime hours, the pocketed free-tailed bat would not be present when copper sulfate is being dispersed, or when the compound is at the surface of the reservoir. The other two mammal species identified in the CNDDB query are the American badger (*Taxidea taxus*) and San Diego black-

Environmental Impact Evaluation	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

tailed jackrabbit (*Lepus californicus bennettii*), which are both terrestrial species that would not be expected to enter the reservoir. Therefore, the application of copper sulfate is not expected to result in significant impacts to mammal species at the Sweetwater Reservoir site.

b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?			X	

Olivenhain Reservoir, Lake Jennings, Lake Poway, San Dieguito Reservoir, Sweetwater Reservoir

The project does not entail vegetation clearing or other activities that could have an adverse effect on riparian habitats or other sensitive natural communities. Project-related application of algaecide would occur in open water at surface water reservoirs or, in the case of San Dieguito Reservoir, through direct injection at the Cielo Pump Station, which then pumps water into a surface water reservoir. Applied copper settles out of water as it is taken up by the targeted algae and becomes bound to bottom sediments. Therefore, significant amounts of copper would not migrate into wetland habitat that exists at the fringes of the subject reservoirs. Furthermore, the EPA has determined that copper sulfate does not pose a risk to freshwater vascular plants or estuarine/marine plants (EPA 2008), so the potential copper exposure to plants that form these wetland communities would not create a significant impact.

Provision IX.4.b of the General Permit requires public entities who obtain an exception to the receiving water limitations on copper concentration to provide certification by a qualified biologist that beneficial uses of receiving waters have been restored upon completion of an algaecide application. This observation and certification process would be incorporated into the monitoring and reporting protocol for all five agencies addressed in this MND. If unforeseen situations arise in which the beneficial uses of receiving waters are adversely affected following an application, then provision IX.5.b of the General Permit requires the agency to implement corrective action by revising its application process and control measures to ensure that the situation is eliminated and will not be repeated in the future.

c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?				X

Olivenhain Reservoir, Lake Jennings, Lake Poway, San Dieguito Reservoir, Sweetwater Reservoir

The project does not propose direct removal, filling, hydrological interruption, or other disturbance of wetlands or jurisdictional waters. Therefore, no impact would occur.

Environmental Impact Evaluation	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?				X

Olivenhain Reservoir, Lake Jennings, Lake Poway, San Dieguito Reservoir, Sweetwater Reservoir

The project does not entail new construction or modification of existing features that could affect wildlife movement. Therefore, no impact would occur.

e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?				X

Olivenhain Reservoir, Lake Jennings, Lake Poway, San Dieguito Reservoir, Sweetwater Reservoir

There are no local policies or ordinances pertaining to biological resources that would apply to algae treatment activity at the subject reservoirs. Therefore, no impact would occur.

f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?				X

Olivenhain Reservoir

The Water Authority conducts capital improvement projects and operations and maintenance (O&M) work within its system pursuant to the Water Authority NCCP/HCP, which was adopted in December 2010 (San Diego County Water Authority 2010). The Water Authority NCCP/HCP is a comprehensive program designed in conjunction with CDFW and USFWS to (1) facilitate conservation and management of plan-specified covered species and habitats associated with Water Authority activities, and (2) contribute to ongoing regional conservation efforts. Section 5.2.14 of the Water Authority NCCP/HCP identifies pest control, including pesticide application, as a covered activity, but does not specify aquatic pest control at Olivenhain Reservoir as part of this activity (nor does it preclude such activity). The project is limited to occasional O&M work at the reservoir that would not have any direct impact on habitat, nor would it result in take of any covered species. Therefore, the project would not rely on the permits for habitat impacts or species impacts obtained by the Water Authority as part of the NCCP/HCP process, and NCCP/HCP reporting is not required for project-related activities at Olivenhain Reservoir. The project would not conflict with provisions of the Water Authority NCCP/HCP, and there would be no impact.

Environmental Impact Evaluation	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

Lake Jennings and Sweetwater Reservoir

HWD and Sweetwater, along with Padre Dam Municipal Water District, formed the Joint Water Agencies (JWA) to prepare a combined NCCP and HCP for land management and conservation of natural habitats and species specific to the projects and O&M work related to these agencies' systems. However, preparation of the JWA NCCP was terminated in 2012. Therefore, no current habitat conservation plans pertain to activity at Lake Jennings and Sweetwater Reservoir, and there would be no impact.

Lake Poway

Poway adopted its HCP/NCCP in April 1996 (City of Poway 1996). The Poway HCP/NCCP identifies Lake Poway and immediately surrounding lands with the land use designation Open Space-Recreation as active recreation areas, with the lake allowing boating and fishing and the developed park space supporting picnic areas, ball fields, and land areas featuring active recreation that is generally not compatible with open space preservation. The Poway HCP/NCCP does not explicitly allow or prohibit pesticide application at Lake Poway. The project is limited to occasional O&M work at the reservoir that would not have any direct impact on habitat, nor would it result in take of any species covered by Poway's plan. Therefore, the project would not rely on the permits for habitat impacts or species impacts obtained by the Water Authority as part of the NCCP/HCP process, and NCCP/HCP reporting is not required for project-related activities at Lake Poway. The project would not conflict with provisions of the Water Authority NCCP/HCP, and there would be no impact.

San Dieguito Reservoir

SFID is preparing a subarea plan to the MSCP that will include San Dieguito Reservoir and its surrounding lands, but the plan is in draft form and has not yet been finalized, nor have permits been issued pursuant to the plan (Santa Fe Irrigation District 2012). Therefore, no current habitat conservation plans pertain to activity at San Dieguito Reservoir, and there would be no impact.

V. CULTURAL RESOURCES. Would the project:

V. Cultural Resources

a) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?				X

Olivenhain Reservoir, Lake Jennings, Lake Poway, San Dieguito Reservoir, Sweetwater Reservoir

The project does not entail ground disturbance or any other activities that might adversely alter or disturb a historical resource. There would be no impact.

b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?				X

Environmental Impact Evaluation	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

Olivenhain Reservoir, Lake Jennings, Lake Poway, San Dieguito Reservoir, Sweetwater Reservoir

See V.a) above. No project activities would disturb or adversely affect the significance of an archaeological resource. There would be no impact.

c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?				X

Olivenhain Reservoir, Lake Jennings, Lake Poway, San Dieguito Reservoir, Sweetwater Reservoir

See V.a) above. No project activities would affect a unique paleontological resource or geologic feature. Project activities would be contained to the open water and therefore would have no impact.

d) Disturb any human remains, including those interred outside of formal cemeteries?				X

Olivenhain Reservoir, Lake Jennings, Lake Poway, San Dieguito Reservoir, Sweetwater Reservoir

See V.a) above. There would be no impact.

VI. GEOLOGY AND SOILS. Would the project:

VI. Geology and Soils

a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:

i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of known fault? Refer to Division of Mines and Geology Special Publication 42.				X

Olivenhain Reservoir, Lake Jennings, Lake Poway, San Dieguito Reservoir, Sweetwater Reservoir

Project activities are limited to algaecide transportation, application, and water quality monitoring at the subject reservoirs. The project would not develop new structures or expose people to any risk of geologic hazards. There would be no impact.

ii) Strong seismic ground shaking?				X

Olivenhain Reservoir, Lake Jennings, Lake Poway, San Dieguito Reservoir, Sweetwater Reservoir

See VI.a.- i) above. The project would not expose people or structures to seismic shaking and would not produce an increased risk of loss or injury due to ground shaking. There would be no impact.

Environmental Impact Evaluation	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
iii) Seismic-related ground failure, including liquefaction?				X

Olivenhain Reservoir, Lake Jennings, Lake Poway, San Dieguito Reservoir, Sweetwater Reservoir

See VI.a.- i) above. Project activities would occur only on the waters of the reservoirs and would not expose people or structures to ground failure. There would be no impact.

iv) Landslides?				X

Olivenhain Reservoir, Lake Jennings, Lake Poway, San Dieguito Reservoir, Sweetwater Reservoir

See VI.a.- i) above. The project would not involve any ground-disturbing activities and would not expose people or structures to related hazards. There would be no impact.

b) Result in substantial soil erosion or loss of topsoil?				X

Olivenhain Reservoir, Lake Jennings, Lake Poway, San Dieguito Reservoir, Sweetwater Reservoir

The project does not entail ground disturbance and would not create conditions that could contribute to soil erosion and loss of topsoil. There would be no impact.

c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?				X

Olivenhain Reservoir, Lake Jennings, Lake Poway, San Dieguito Reservoir, Sweetwater Reservoir

No project elements would be located on unstable geologic or soil units, and would not lead to a related hazard. Therefore, no impact would occur.

d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?				X

Olivenhain Reservoir, Lake Jennings, Lake Poway, San Dieguito Reservoir, Sweetwater Reservoir

See VI.c) above. No new structures would be built as a result of this project. No project activities would occur on expansive soil, so no impact would occur.

Environmental Impact Evaluation	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?				X

Olivenhain Reservoir, Lake Jennings, Lake Poway, San Dieguito Reservoir, Sweetwater Reservoir

The proposed project involves the direct application of algaecide into reservoirs and would not involve the use of septic tanks or alternative waste water disposal systems. Therefore, no related impacts would occur.

VII. GREENHOUSE GAS EMISSIONS. Would the project:

VII. Greenhouse Gas Emissions

a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?			X	

Olivenhain Reservoir, Lake Jennings, Lake Poway, San Dieguito Reservoir, Sweetwater Reservoir

See Section III.a) above. A minimal amount of greenhouse gas (GHG) emissions would be generated by trucks during the transportation of the algaecides to the reservoirs, and by the boats used to apply the algaecides and to conduct water quality monitoring. These activities would occur minimally on an as-needed basis and would last for a short duration. These emissions would not elevate GHG emissions significantly above existing conditions. This impact is less than significant.

b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emission of greenhouse gases?			X	

Olivenhain Reservoir, Lake Jennings, Lake Poway, San Dieguito Reservoir, Sweetwater Reservoir

See VII.a) above. The GHG emissions created by project activities would be negligible. Therefore, the project would not conflict with an applicable plan, policy, or regulation in the San Diego region. This impact is less than significant.

VIII. HAZARDS AND HAZARDOUS MATERIALS. Would the project:

VIII. Hazards and Hazardous Materials

a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?		X		

Algaecide application at the subject reservoirs would entail transporting, handling, and using copper, which is a regulated hazardous material, but one that is commonly used in applications such as is proposed as part of the project. The EPA "Copper Facts" factsheet discusses the human health risks and

environmental hazards related to copper-based pesticides and algaecides. According to the EPA's fact sheet, "There are no human health risks of concern for dietary (food and drinking water) exposures to the pesticidal uses of copper. However, some of the various copper compounds and formulations may cause some dermal or eye irritation." Exposure or ingestion at very high levels can be harmful to human health, and the EPA regulates labeling of copper-based pesticide and algaecide products to prevent injury resulting from improper handling and application. The factsheet also indicates that copper is highly toxic to most aquatic species but is less of a concern for terrestrial species. In response to potential hazards of these materials, EPA publishes standards for application of copper-based algaecides that are incorporated into product labels.

The potential for project-related impacts related to transport and handling of copper would be the result of spills or improper application, which could lead to worker or environmental exposure at toxic levels. Section VIII.C of the General Permit requires a discharger to incorporate into their APAP the BMPs that will be employed in association with algaecide application so as to reduce the risk of worker or environmental exposure at hazardous levels, including measures to prevent spills and to ensure application at rates consistent with the product label, a plan for staff education on proper use of the products, and measures to prevent fish kills. Section V.B.1 of the General Permit states that dischargers pursuant to the permit must be licensed by the Department of Pesticide Regulation for applicable products; however, copper-based algaecide applications do not require such a license because copper is not a federal restricted use pesticide (RUP) or a California restricted material.

The impact discussion below assesses the potential hazards of copper application at each of the subject reservoirs and identifies the best management practices stated in the agencies' APAPs, which will be incorporated as mitigation measures to ensure the project's impact related to hazardous materials would be reduced to less-than-significant levels.

Olivenhain Reservoir

Algaecide application at Olivenhain Reservoir entails transporting and handling copper sulfate pentahydrate, which is a regulated hazardous material. The Water Authority estimates up to 80 pounds of the solid crystalline product would be delivered for a single application. The product would be purchased at the time of each application, and would not be stored at the Water Authority's facility. The Water Authority's APAP encloses a Material Safety Data Sheet (MSDS) describing copper sulfate's potential hazards and handling precautions. The MSDS describes copper sulfate pentahydrate as a blue crystalline or powdered, odorless solid that is harmful or potentially fatal if swallowed. The material may cause irritation to the eyes, respiratory system, and skin, and exposing the material to flames may produce irritating, corrosive, and/or toxic fumes. The Water Authority's algaecide application at Olivenhain Reservoir also entails transporting and handling citric acid in solid form, which is less of a concern than copper sulfate, but is identified in the MSDS provided in the Water Authority's APAP as a potential irritant to eyes and skin (San Diego County Water Authority 2014a). All empty containers will be disposed of in accordance with all manufacturer and regulatory requirements.

Transport, handling, and use of copper sulfate and citric acid at Olivenhain Reservoir would create the potential for spills that could affect worker safety and the environment. The Water Authority operates with an Emergency Response Guide and Hazardous Materials Business Plan that would be followed in

the event of a spill. The Water Authority's APAP incorporates measures to prevent hazards related to a potential spill from occurring. With the implementation of these mitigation measures, the project's hazardous materials impact at Olivenhain Reservoir would be reduced to a less-than-significant level.

OLIVENHAIN-HAZ-1: The Water Authority will require training in copper sulfate and citric acid safety for all Water Authority employees participating in the application and handling of these chemicals. Response and containment procedures provided in the Water Authority's Emergency Response Guide, Hazardous Materials Business Plan and the product MSDS will be followed in the event of a spill. These procedures include isolation and containment of the spill while wearing the appropriate personal protective equipment.

OLIVENHAIN-HAZ-2: The Water Authority will avoid over-application by ensuring that employees involved with chemical application follow the specific product labels for the algaecides used in the program. Algaecide quantities required for each treatment will be precalculated and only sufficient material to carry out the treatment is transported for an application event. All label directions and California Department of Pesticide Regulation guidelines will be followed as to acceptable application methods as well as weather limitations for application.

OLIVENHAIN-HAZ-3: Water Authority staff members that may come into contact with the algaecide will be trained on its use and hazards by the safety department. Review of all applicable MSDSs will be included in the training to ensure that employees are up to date on the hazards associated with the chemical(s) used. Personal protective equipment is supplied to any employee that will be working with the chemical(s). Goggles, face shield, chemically impervious gloves, and protective clothing to prevent skin contact are provided and used any time work is to be done with the algaecide.

OLIVENHAIN-HAZ-4: The Water Authority will ensure that application of algaecides is targeted at nuisance algae growths and that algaecides are applied in accordance with label instructions to minimize the application quantity and maximize efficacy. This includes avoiding uneven distribution and applying during favorable weather conditions, when feasible. Because nuisance algal growth affects the beneficial uses within the project area, application of algaecides will be proactive, which will minimize the quantity of decaying algae that results and may threaten oxygen levels.

Lake Jennings

Algaecide application at Lake Jennings entails transporting and handling Cutrine Plus, a liquid copper-based product that is a regulated hazardous material. HWD estimates using 2.75 to 11 gallons of liquid Cutrine Plus per application, and would order the specific amount at the time application is needed. HWD's APAP encloses an MSDS describing Cutrine Plus's potential hazards and handling precautions. The MSDS describes Cutrine Plus as a liquid product that can cause irritation to the eyes, respiratory system, and skin, and that is slightly toxic if swallowed (Helix Water District 2014a). Exposing the material to flames may produce irritating, corrosive, and/or toxic fumes. All empty containers would be disposed of pursuant to the instructions on the product label and applicable regulations.

Transport, handling, and use of Cutrine Plus at Lake Jennings would create the potential for spills that could affect worker safety and the environment. HWD's APAP incorporates measures to prevent these hazards from occurring. With the implementation of these mitigation measures, the project's hazardous materials impact at Lake Jennings would be reduced to a less-than-significant level.

> **JENNINGS-HAZ-1:** HWD will ensure that algaecide use rates will be per the U.S. Environmental Protection Agency (EPA) label and will be limited to ensure compliance with receiving water limitations. Treatments will be performed when no water is being discharged from the lake system.
>
> **JENNINGS-HAZ-2:** HWD will ensure that application personnel follow the storage, transport, and spill control procedures per EPA and California Department of Pesticide Regulation rules, regulations, and label instructions.
>
> **JENNINGS-HAZ-3:** HWD will ensure that algaecide quantities required for each treatment will be precalculated and only sufficient material to carry out the treatment will be transported for an application event. Application equipment will be routinely cleaned and maintained, and all label directions and Department of Pesticide Regulations guidelines will be followed as to acceptable application methods, including limitations due to weather conditions. Surface applications will not be made in winds above 10 miles per hour.

Lake Poway

Algaecide application at Lake Poway entails transporting and handling copper sulfate, which is a regulated hazardous material. Poway applies the solid copper sulfate at a rate of 5 pounds per acre foot of water, and estimates an average use of roughly 300 pounds per application. Copper sulfate is an odorless solid that is harmful or potentially fatal if swallowed. The material may cause irritation to the eyes, respiratory system, and skin, and exposing the material to flames may produce irritating, corrosive, and/or toxic fumes (San Diego County Water Authority 2014a). Copper sulfate is ordered by Poway by the pallet, and is used as needed. Post-application, the empty copper sulfate bags are disposed of by Poway. Transport, handling, and use of copper sulfate at Lake Poway would create the potential for spills that could affect worker safety and the environment. Poway's APAP incorporates measures to prevent these hazards from occurring. With the implementation of these mitigation measures, the project's hazardous materials impact at Lake Poway would be reduced to a less-than-significant level.

> **POWAY-HAZ-1**: Poway will ensure that algaecide use rates will be per the EPA label and will be limited to ensure compliance with receiving water limitations. Treatments will be performed when no water is being discharged from the lake system.
>
> **POWAY-HAZ-2**: Poway will ensure that application personnel follow the storage, transport, and spill control procedures per EPA and California Department of Pesticide Regulation rules, regulations, and label instructions.
>
> **POWAY-HAZ-3**: Poway will ensure that algaecide quantities required for each treatment will be precalculated and only sufficient material to carry out the treatment will be transported for an

application event. Application equipment will be routinely cleaned and maintained, and all label directions and Department of Pesticide Regulation guidelines will be followed as to acceptable application methods, including limitations due to weather conditions. Surface applications will not be made in winds above 10 miles per hour.

San Dieguito Reservoir

Algaecide application at San Dieguito Reservoir entails transporting and handling a liquid form of copper sulfate pentahydrate, which is a regulated hazardous material. SFID's APAP encloses an MSDS describing copper sulfate's potential hazards and handling precautions. The MSDS describes copper sulfate pentahydrate as a clear blue, corrosive liquid with minimal odor. The substance is harmful if swallowed and may cause irritation to the eyes, respiratory system, and skin (Santa Fe Irrigation District 2014a). Exposing the material to flames may produce irritating, corrosive, and/or toxic fumes.

Application of algaecides at San Dieguito Reservoir is conducted via a feed system in the Cielo Pump Station, as opposed to application on the reservoir from a boat, which allows for safe and effective application and minimizes exposure to workers and unintended targets. SFID estimates using 100 to 500 gallons of the liquid copper sulfate pentahydrate per application. Because applications at San Dieguito Reservoir are from a fixed feed system, the rate of application can be tightly controlled from the chemical metering portion of the system. Each feed system is contained within a spill catchment that is sized to capture 100% of the chemical available for feed.

Transport, handling, and use of copper sulfate at San Dieguito Reservoir would create the potential for spills that could affect worker safety and the environment. SFID generally orders a year's supply of the product, and stores it on site to use as needed. After application the containers are triple rinsed and disposed of by SFID. SFID's APAP incorporates measures to prevent hazardous spills and exposure from occurring during and after application of copper sulfate. With the implementation of these mitigation measures, the project's hazardous materials impact at San Dieguito Reservoir would be reduced to a less-than-significant level.

SAN DIEGUITO-HAZ-1: SFID will ensure the algaecide treatment system within the Cielo Pump Station is flushed with water at the end of each treatment event to eliminate having any copper sulfate remaining in the system, which will protect the feed system from corrosion and leaks and minimize the potential for worker exposure.

SAN DIEGUITO-HAZ-2: SFID will ensure that a break in the algaecide application feed line, tanks, or pumps will be captured and treated as hazardous waste. SFID's safety department will employ a hazardous waste disposal company that will properly dispose of any material that has been contaminated by a spill.

SAN DIEGUITO-HAZ-3: SFID staff will calculate maximum dosage rates and program them into the feed system to ensure correct concentration of the feed. The rate of feed for any treatment event will be limited to the recommendations on the product label and the MSDS to ensure effectiveness and minimize any unintended effects on nontargeted organisms.

SAN DIEGUITO-HAZ-4: SFID will ensure that any staff members that may come into contact with copper sulfate are trained on its use and hazards by the SFID safety department. SFID will periodically review the product's MSDS to ensure employees are up to date on the hazards associated with the chemical. SFID will ensure personal protective equipment is supplied to any employee that will be working with copper sulfate. Goggles, face shield, chemically impervious gloves, and protective clothing to prevent skin contact will be provided by SFID and used any time work is to be done with the algaecide.

Sweetwater Reservoir

Algaecide application at Sweetwater Reservoir entails transporting and handling copper sulfate pentahydrate, which is a regulated hazardous material. Sweetwater generally stores enough copper sulfate product on site for two treatment applications. On average, an application at the Sweetwater Reservoir has required 1,250 pounds of solid copper sulfate crystals. This number varies based on water level and how much of the lake's surface area is being treated. The application rate of copper sulfate is approximately 2 pounds per surface acre. Sweetwater's APAP encloses an MSDS describing copper sulfate's potential hazards and handling precautions. The MSDS describes copper sulfate pentahydrate as a blue crystalline or powdered, odorless solid that is harmful or potentially fatal if swallowed. The material may cause irritation to the eyes, respiratory system, and skin, and exposing the material to flames may produce irritating, corrosive, and/or toxic fumes. Sweetwater's algaecide application at Sweetwater Reservoir also entails transporting and handling citric acid in solid form, which is less of a concern than copper sulfate but is identified in the MSDS provided in Sweetwater's APAP as a potential irritant to eyes and skin (Sweetwater Authority 2013). After application, the empty 50 pound bags of copper sulfate are disposed of by Sweetwater in a sanitary landfill, as per the product label instructions.

Transport, handling, and use of copper sulfate and citric acid at Sweetwater Reservoir would create the potential for spills that could affect worker safety and the environment. Sweetwater operates with a Chemical Hygiene Plan and Hazardous Response Plan that would be followed in the event of a spill. Sweetwater's APAP incorporates measures to prevent spill-related hazards from occurring. With the implementation of these mitigation measures, the project's hazardous materials impact at Sweetwater Reservoir would be reduced to a less-than-significant level.

SWEETWATER-HAZ-1: Sweetwater will apply copper sulfate and citric acid in accordance with the product label and shall comply with the recommendations provided on the MSDS applicable to the specific copper sulfate product to be used. Copper sulfate will be applied in an even, consistent manner over the surface area to be treated, thus minimizing the potential for higher than intended localized concentrations.

SWEETWATER-HAZ-2: Sweetwater will require training in copper sulfate and citric acid safety for all Sweetwater employees participating in the application and handling of copper sulfate. Sweetwater shall conduct additional refresher training, as deemed necessary, prior to each treatment event.

Environmental Impact Evaluation	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

SWEETWATER-HAZ-3: Sweetwater will follow all response and containment procedures provided in their Chemical Hygiene Plan, Hazardous Response Plan, and the product MSDS in the event of a spill. These procedures include isolation and containment of the spill while wearing the appropriate personal protective equipment.

SWEETWATER-HAZ-4: Sweetwater will require its employees participating in the application or handling of copper sulfate and citric acid to wear appropriate personal protective equipment recommended on the MSDS, including protective safety glasses with side shields (or goggles) per Occupational Safety and Health Administration (OSHA) 29 CFR 1910.133. Chemically impervious gloves made of any waterproof material, boots, and protective clothing will be worn to avoid skin contact (refer to OSHA 29 CFR 1910.138), as well as a respirator that meets OSHA 29 CFR 1910.134 requirements.

b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?		X		

Olivenhain Reservoir, Lake Jennings, Lake Poway, San Dieguito Reservoir, Sweetwater Reservoir

See VIII.a) above. Implementation of the mitigation measures identified above will reduce this impact to a less-than-significant level at all of the subject reservoirs.

c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?				X

Olivenhain Reservoir, Lake Jennings, Lake Poway, San Dieguito Reservoir, Sweetwater Reservoir

There are no schools within ¼ mile of any of the subject reservoirs. Therefore, no impact would occur.

d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?				X

Olivenhain Reservoir, Lake Jennings, Lake Poway, San Dieguito Reservoir, Sweetwater Reservoir

The project does not entail any new development, earth disturbance, or other activities that could be affected by prior hazardous materials listing at any of the subject reservoirs. Therefore, no impact would occur.

Environmental Impact Evaluation	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?				X

Olivenhain Reservoir, Lake Jennings, Lake Poway, San Dieguito Reservoir, Sweetwater Reservoir

The project does not entail any new development or activities that could be affected by air traffic. Therefore, no impact would occur.

f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?				X

Olivenhain Reservoir, Lake Jennings, Lake Poway, San Dieguito Reservoir, Sweetwater Reservoir

The project does not entail any new development or activities that could be affected by air traffic. Therefore, no impact would occur.

g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?				X

Olivenhain Reservoir, Lake Jennings, Lake Poway, San Dieguito Reservoir, Sweetwater Reservoir

The project does not entail any new development or construction activities that could interfere with emergency response. Therefore, no impact would occur.

h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?				X

Olivenhain Reservoir, Lake Jennings, Lake Poway, San Dieguito Reservoir, Sweetwater Reservoir

The project does not entail any new development or construction activities that could cause or be affected by wildland fire. Therefore, no impact would occur.

Environmental Impact Evaluation	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
IX. HYDROLOGY AND WATER QUALITY. Would the project:				
IX. Hydrology and Water Quality				
a) Violate any water quality standards or waste discharge requirements?		X		

As discussed in Section 1.1, the application of copper-based products for treatment of algae is permitted under the State Board's Water Quality Order No. 2013-0002-DWQ, *Statewide General Permit for Residual Aquatic Pesticide Discharges to Waters of the U.S. from Algae and Aquatic Weed Control* (General Permit), which regulates use of aquatic pesticides for the purpose of maintaining water quality statewide. The General Permit identifies a limitation on copper concentration in waters that receive permitted pesticide application, which is specified in Table 3 of the permit. The copper limitation is based on the California Toxics Rule (CTR) and varies depending on water hardness. Copper is more toxic to aquatic species when water is softer, as a lower concentration of minerals means a lower concentration of materials with which copper can bond, leading to a greater accumulation of copper in the water.

However, the State Board's permitting process acknowledges that public water agencies and mutual water companies may need to periodically exceed this copper limitation when required to otherwise control water quality in their facilities that serve the public. Section 5.3 of the State Implementation Plan provides a Categorical Exemption to the toxics standards where the discharge is necessary to meet statutory requirements under the federal Safe Drinking Water Act or the California Health and Safety Code. The potential application of this Categorical Exception to the receiving-water copper limitation is identified in Table 3 of the General Permit, which points to Attachment G of the permit, a list of water agencies and mutual water companies that have been granted exemptions. The Categorical Exception is intended as a short-term or seasonal exception, not a permanent pass on meeting the limitations. As stated in the General Permit's Fact Sheet, Attachment D to the permit, "there is no discrete definition for short-term; but the intent is to allow the exception to apply during the treatment period. It is up to the Discharger to make this demonstration." The timeframe of when an agency expects they may exceed the receiving water limitations is identified in the agency's Notice of Intent. If the agency is granted the exception, the agency's APAP is revised to identify the approved seasonal exception. For these agencies that are granted the exception, the General Permit or SIP does not state additional limits on copper concentrations for those agencies who have been granted an exception. Instead, water quality monitoring is conducted before, during, and after an application event, and this information is reported to the State Board so they can observe application-related conditions and ensure there are no causes for water quality concern at the respective receiving water.

As described above in Section 1.3, the purpose of algaecide application at the five subject reservoirs is to control serious algae blooms that could affect water quality at the subject reservoirs. This periodic treatment is necessary so the agencies can meet taste and odor standards in the drinking water they deliver to their respective consumers. Therefore, such discharges would qualify for the Categorical Exception to the CTR standards that are incorporated into the General Permit's receiving water limitations. The five subject water agencies plan to apply for coverage under the General Permit for use of copper sulfate and, as part of that application, seek the Categorical Exception to the receiving water limitations in case they identify the need to apply increased concentrations of copper during serious algae blooms.

The agencies' use of copper sulfate to control algae blooms would temporarily elevate copper concentrations in the subject reservoirs. If high concentrations of copper are needed or soft water conditions in the treated reservoirs elevate the copper toxicity, then these applications could result in excess of the thresholds set forth in the CTR and translated to the General Permit. Exceeding the thresholds in this instance would itself be necessary to prevent water quality impacts at the five reservoirs, but exceeding the thresholds would still be considered a significant impact. By seeking an exemption from the thresholds pursuant to the State Board's permit process, this potentially significant impact would be reduced to a less-than-significant level. Mitigation measures are stated below for each subject agency.

Olivenhain Reservoir

OLIVENHAIN-WQ-1: The Water Authority will apply for coverage under the State Board's NPDES Permit for Discharges of Aquatic Pesticides and, as part of that application, seek a Categorical Exception pursuant to Section 5.3 of the State Board's Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California.

OLIVENHAIN-WQ-2: The Water Authority will continue to monitor and report copper levels in Olivenhain Reservoir in accordance with State Board requirements.

Lake Jennings

JENNINGS-WQ-1: HWD will apply for coverage under the State Board's NPDES Permit for Discharges of Aquatic Pesticides and, as part of that application, seek a Categorical Exception pursuant to Section 5.3 of the State Board's Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California.

JENNINGS-WQ-2: HWD will continue to monitor and report copper levels in Lake Jennings in accordance with State Board requirements.

Lake Poway

POWAY-WQ-1: Poway will apply for coverage under the State Board's NPDES Permit for Discharges of Aquatic Pesticides and, as part of that application, seek a Categorical Exception pursuant to Section 5.3 of the State Board's Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California.

POWAY-WQ-2: Poway will continue to monitor and report copper levels in Lake Poway in accordance with State Board requirements.

San Dieguito Reservoir

SAN DIEGUITO-WQ-1: SFID will apply for coverage under the State Board's NPDES Permit for Discharges of Aquatic Pesticides and, as part of that application, seek a Categorical Exception pursuant to Section 5.3 of the State Board's Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California.

Environmental Impact Evaluation	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

SAN DIEGUITO-WQ-2: SFID will continue to monitor and report copper levels in San Dieguito Reservoir in accordance with State Board requirements.

Sweetwater Reservoir

SWEETWATER-WQ-1: Sweetwater will apply for coverage under the State Board's NPDES Permit for Discharges of Aquatic Pesticides and, as part of that application, seek a Categorical Exception pursuant to Section 5.3 of the State Board's Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California.

SWEETWATER-WQ-2: Sweetwater will continue to monitor and report copper levels in Sweetwater Reservoir in accordance with State Board requirements.

b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?				X

Olivenhain Reservoir, Lake Jennings, Lake Poway, San Dieguito Reservoir, Sweetwater Reservoir

The proposed project would not entail the use of groundwater and, thus, would not deplete groundwater supplies or interfere with groundwater recharge. Therefore, no related impacts would occur.

c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?				X

Olivenhain Reservoir, Lake Jennings, Lake Poway, San Dieguito Reservoir, Sweetwater Reservoir

The proposed project would not affect drainage patterns. Therefore, no impact would occur.

d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on or off site?				X

Olivenhain Reservoir, Lake Jennings, Lake Poway, San Dieguito Reservoir, Sweetwater Reservoir

See IX.c) above. No impact would occur.

Environmental Impact Evaluation	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?				X

Olivenhain Reservoir, Lake Jennings, Lake Poway, San Dieguito Reservoir, Sweetwater Reservoir

See IX.c) above. The project would not create or contribute runoff water. No impact would occur.

f) Otherwise substantially degrade water quality?		X		

Olivenhain Reservoir, Lake Jennings, Lake Poway, San Dieguito Reservoir, Sweetwater Reservoir

See IX.a) above. All of the respective reservoirs are surface water impoundments within potable water systems, and none of them release considerable amounts of water to downstream water bodies. Therefore, temporarily increased copper levels at the reservoirs after application would have no impact outside the subject reservoirs. There are no other project components that would affect water quality that are not already discussed in IX.a). With the implementation of the mitigation measures stated above in IX.a), this impact would be reduced to a less than-significant level.

g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?				X

Olivenhain Reservoir, Lake Jennings, Lake Poway, San Dieguito Reservoir, Sweetwater Reservoir

The proposed project would not place housing in floodplains. No related impacts would occur.

h) Place structures within a 100-year flood hazard area which would impede or redirect flood flows?				X

Olivenhain Reservoir, Lake Jennings, Lake Poway, San Dieguito Reservoir, Sweetwater Reservoir

The project would not place structures in flood hazard areas. No related impacts would occur.

i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?				X

Olivenhain Reservoir, Lake Jennings, Lake Poway, San Dieguito Reservoir, Sweetwater Reservoir

The project would not expose people or structures to potential flooding. Therefore, no related impacts would occur.

Environmental Impact Evaluation	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
j) Inundation by seiche, tsunami, or mudflow?				X

Olivenhain Reservoir, Lake Jennings, Lake Poway, San Dieguito Reservoir, Sweetwater Reservoir

The project does not propose development or other uses that could be affected by seiche, tsunami, or mudflow. Therefore, no impact would occur.

X. LAND USE AND PLANNING. Would the project:

X. Land Use and Planning

a) Physically divide an established community?				X

Olivenhain Reservoir, Lake Jennings, Lake Poway, San Dieguito Reservoir, Sweetwater Reservoir

The proposed project would be implemented within existing reservoirs and does not entail building any new structures. Thus, the project would not physically divide an established community and no related impacts would occur.

b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?				X

Olivenhain Reservoir, Lake Jennings, Lake Poway, San Dieguito Reservoir, Sweetwater Reservoir

The project would not result in a change in land use, or create any new land uses, so it would not conflict with any applicable land use plan, policy, or regulation. Therefore, no related impacts would occur.

c) Conflict with any applicable habitat conservation plan or natural community conservation plan?				X

Olivenhain Reservoir, Lake Jennings, Lake Poway, San Dieguito Reservoir, Sweetwater Reservoir

See IV.f) above. The project would not conflict with any applicable habitat conservation or natural community conservation plans. Therefore, no impact would occur.

XI. MINERAL RESOURCES. Would the project:

XI. Mineral Resources

a) Result in the loss of availability of a known mineral resource that would be of future value to the region and the residents of the state?				X

Olivenhain Reservoir, Lake Jennings, Lake Poway, San Dieguito Reservoir, Sweetwater Reservoir

Environmental Impact Evaluation	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

Activities of the proposed project are limited to the application of algaecides into existing reservoirs in the San Diego region. No development or ground-disturbing activities would occur, and there would be no loss of availability of mineral resources. Therefore, no impacts to mineral resources would occur.

b) Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?				X

Olivenhain Reservoir, Lake Jennings, Lake Poway, San Dieguito Reservoir, Sweetwater Reservoir

See XI.a) above. The project activities would not result in the loss of availability of a mineral resource recovery site. There would be no impact.

XII. NOISE.
XII. Noise
Would the project result in:

a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?				X

Olivenhain Reservoir, Lake Jennings, Lake Poway, San Dieguito Reservoir, Sweetwater Reservoir

Algaecide application involves limited use of delivery trucks and boats on the subject reservoirs. Trucks would be licensed for use on existing roadways, and any noise produced would not exceed thresholds. On the reservoirs that allow boating, noise from the boat motor would not create significant adverse conditions. On the reservoirs that restrict boating access, other uses are restricted as well, so no people in the surrounding area would be significantly affected by the noise of the motor. Additionally, noise from one power boat engine would not be enough to exceed the thresholds of a general plan or other applicable standards. Noise generation would be short in duration and occur sporadically, on an as-needed basis. There would be no impact.

b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?				X

Olivenhain Reservoir, Lake Jennings, Lake Poway, San Dieguito Reservoir, Sweetwater Reservoir

See XII.a) above. Any groundborne vibration from delivery trucks would be inconsequential due to the short duration and minimal use of the equipment. There would be no impact.

Environmental Impact Evaluation	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?				X

Olivenhain Reservoir, Lake Jennings, Lake Poway, San Dieguito Reservoir, Sweetwater Reservoir

The project does not entail installation or operation of new permanent sources of stationary noise. Therefore, no impact would occur.

d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?			X	

Olivenhain Reservoir, Lake Jennings, Lake Poway, San Dieguito Reservoir, Sweetwater Reservoir

See XII.a) above. Trucks and boats would generate noise at the project area, but this would not be a substantial increase in noise, especially for the reservoirs that allow use of the lake for recreational activities. For the reservoirs that do not allow public access, the project activity would not last long enough or create enough of a noise disturbance to be considered substantial. This is a less than significant impact.

e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?				X

Olivenhain Reservoir, Lake Jennings, Lake Poway, San Dieguito Reservoir, Sweetwater Reservoir

None of the subject reservoirs are located within an airport use plan or within 2 miles of a public airport. Therefore, no related impacts would occur.

f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?				X

Olivenhain Reservoir, Lake Jennings, Lake Poway, San Dieguito Reservoir, Sweetwater Reservoir

None of the subject reservoirs are in the vicinity of a private airstrip. Therefore, no impact would occur.

Environmental Impact Evaluation	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

XIII. POPULATION AND HOUSING. Would the project:

XIII. Population and Housing

a) Induce substantial population growth in an area either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?				X

Olivenhain Reservoir, Lake Jennings, Lake Poway, San Dieguito Reservoir, Sweetwater Reservoir

The proposed project does not entail construction of homes, businesses, or new infrastructure. Therefore, no impact would occur.

b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?				X

Olivenhain Reservoir, Lake Jennings, Lake Poway, San Dieguito Reservoir, Sweetwater Reservoir

The proposed project occurs within the boundaries of existing reservoirs, and would not impact or displace existing housing or necessitate construction of replacement housing in the area. Therefore, no related impacts would occur.

c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?				X

Olivenhain Reservoir, Lake Jennings, Lake Poway, San Dieguito Reservoir, Sweetwater Reservoir

See XIII.b) above. There would be no impact.

XIV. PUBLIC SERVICES.

XIV. Public Services

Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:

a) Fire protection?			X	

Olivenhain Reservoir, Lake Jennings, Lake Poway, San Dieguito Reservoir, Sweetwater Reservoir

The proposed project involves the application of algaecides into the waters of existing reservoirs. There would be no development or construction of new structures, and no alteration of existing government facilities or new government facilities would be necessary. According to the MSDS included in the project-related APAPs, the algaecide products that would be used pursuant to this project are not flammable; therefore, on-site storage and use in compliance with applicable requirements would not

Environmental Impact Evaluation	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

create a fire hazard. However, the products may decompose if exposed to the heat of a fire and produce corrosive and/or toxic fumes. The storage and use of hazardous materials for algaecide application could require the hazmat response services of local fire agencies in the event of an unforeseen accident. The potential for this to occur is limited and would be alleviated by proper storage and use of the products. Therefore, the project would not result in a significant impact on response times or service standards and the project's impact on fire protection services is less than significant.

b) Police protection?				X

Olivenhain Reservoir, Lake Jennings, Lake Poway, San Dieguito Reservoir, Sweetwater Reservoir

See XIV.a) above. There would be no impact to police protection.

c) Schools?				X

Olivenhain Reservoir, Lake Jennings, Lake Poway, San Dieguito Reservoir, Sweetwater Reservoir

See XIV.a) above. There would be no impact to school facilities.

d) Parks?				X

Olivenhain Reservoir, Lake Jennings, Lake Poway, San Dieguito Reservoir, Sweetwater Reservoir

See XIV.a) above. There would be no impact to parks.

e) Other public services?				X

Olivenhain Reservoir, Lake Jennings, Lake Poway, San Dieguito Reservoir, Sweetwater Reservoir

See XIV.a) above. There would be no impact to other public services.

XV. RECREATION.

XV. Recreation

a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?				X

Olivenhain Reservoir, Lake Jennings, Lake Poway, San Dieguito Reservoir, Sweetwater Reservoir

Application of algaecides at the subject reservoirs would not increase the use of existing recreational facilities. No impact would occur.

In addition, the potential for impacts on existing water-based recreational uses at the subject reservoirs has been considered. There are no in-water recreational uses allowed at Olivenhain Reservoir, San

Environmental Impact Evaluation	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

Dieguito Reservoir, or Sweetwater Reservoir. HWD, Poway, and Sweetwater do not restrict recreational use of the reservoir following a copper application (Helix Water District 2015; City of Poway 2015; Sweetwater 2015).

b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?				X

Olivenhain Reservoir, Lake Jennings, Lake Poway, San Dieguito Reservoir, Sweetwater Reservoir

See XV.a) above. The proposed project would not include recreational facilities or require the construction or expansion of recreational facilities. Therefore, no impact would occur.

XVI. TRANSPORTATION/CIRCULATION.
XVI. Transportation/Circulation
Would the project:

a) Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?				X

Olivenhain Reservoir, Lake Jennings, Lake Poway, San Dieguito Reservoir, Sweetwater Reservoir

The proposed project involves the use of light- to medium-duty trucks periodically for the delivery of the algaecide to the reservoir, and would not cause a substantial increase in traffic above existing conditions. Deliveries of the algaecide would occur infrequently and would not require an extensive number of trips to and from the project site. The use of boats for algaecide application would not have an impact on transportation at the project site or surrounding areas. There would be no impact.

b) Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?				X

Olivenhain Reservoir, Lake Jennings, Lake Poway, San Dieguito Reservoir, Sweetwater Reservoir

See XVI.a) above. There would be no impact.

Environmental Impact Evaluation	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?				X

Olivenhain Reservoir, Lake Jennings, Lake Poway, San Dieguito Reservoir, Sweetwater Reservoir

The proposed project would have no effect on air traffic. Therefore, no related impacts would occur.

d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?				X

Olivenhain Reservoir, Lake Jennings, Lake Poway, San Dieguito Reservoir, Sweetwater Reservoir

The proposed project activities would be limited to the waters of existing reservoirs and existing roadways. No changes to roadways or increases in hazards due to equipment would occur. Therefore, no impact would occur.

e) Result in inadequate emergency access?				X

Olivenhain Reservoir, Lake Jennings, Lake Poway, San Dieguito Reservoir, Sweetwater Reservoir

The proposed project would not restrict emergency access to the reservoirs. There would be no impact.

f) Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?				X

Olivenhain Reservoir, Lake Jennings, Lake Poway, San Dieguito Reservoir, Sweetwater Reservoir

See XVI.d and e) above. The proposed project would not result in effects on existing bus stops, bike lanes, or pedestrian facilities in the vicinity. Thus, the project would not result in conflicts with adopted policies, plans, or programs supporting alternative transportation. There would be no impact.

XVII. UTILITIES AND SERVICE SYSTEMS. Would the project:

XVII. Utilities and Service Systems

a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?				X

Olivenhain Reservoir, Lake Jennings, Lake Poway, San Dieguito Reservoir, Sweetwater Reservoir

The proposed project would be limited to the application of algaecides in existing bodies of water and would not generate any wastewater. No wastewater treatment requirements would be exceeded; therefore, no related impacts would occur.

Environmental Impact Evaluation	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?				X

Olivenhain Reservoir, Lake Jennings, Lake Poway, San Dieguito Reservoir, Sweetwater Reservoir

The proposed project would not generate any wastewater. No new or expanded water or wastewater treatment facilities would result or be required. Therefore, no related impacts would occur.

c) Require or result in construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?				X

Olivenhain Reservoir, Lake Jennings, Lake Poway, San Dieguito Reservoir, Sweetwater Reservoir

The proposed project would not require or include construction of new or expanded storm water facilities. Additionally, no new areas of impervious surface would be created that could increase the volume of storm water runoff associated with the project alignment. Therefore, no related impacts would occur.

d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?				X

Olivenhain Reservoir, Lake Jennings, Lake Poway, San Dieguito Reservoir, Sweetwater Reservoir

The proposed project would not require additional water supplies. No new or expanded facilities would be needed. Therefore, no related impacts would occur.

e) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?				X

Olivenhain Reservoir, Lake Jennings, Lake Poway, San Dieguito Reservoir, Sweetwater Reservoir

The proposed project would not result in an increased demand on wastewater services. Therefore, no related impacts would occur.

Environmental Impact Evaluation	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?				X

Olivenhain Reservoir, Lake Jennings, Lake Poway, San Dieguito Reservoir, Sweetwater Reservoir

No solid waste would be generated by the application of algaecides into the reservoirs aside from the bags and containers used to store the algaecides. This solid waste generation would be minimal, and no landfill would be needed for this project, and therefore no impact would occur.

g) Comply with federal, state, and local statutes and regulations related to solid waste?				X

Olivenhain Reservoir, Lake Jennings, Lake Poway, San Dieguito Reservoir, Sweetwater Reservoir

See XVII.f) above. There would be no impact.

XVIII. MANDATORY FINDINGS OF SIGNIFICANCE.

XVIII. Mandatory Findings of Significance

a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory?			X	

These topics have been addressed above, including issues of biological resources in Section IV and cultural resources in Section V. Section IV concluded that there would be no significant impact on biological resources. Section V concluded there would be no impacts on cultural resources, so the project would not eliminate examples of the major periods of California history or prehistory.

b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)				X

Environmental Impact Evaluation	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

Olivenhain Reservoir, Lake Jennings, Lake Poway, San Dieguito Reservoir, Sweetwater Reservoir

The project entails a very minimal amount of worker activity on an ongoing basis at each of the subject reservoirs, with work being confined to the reservoirs and their adjacent operations facilities. The subject reservoirs are contained by dams that do not release substantial amounts of water downstream, and there is no direct hydrologic connection between any of the reservoirs involved in the project. Therefore, algaecide-treated water in one reservoir would never drain into another reservoir. Application of aquatic pesticides at one reservoir could not lead to increased impacts at any of the others, as the pesticides could not travel between reservoirs and lead to a compounded level of copper. Accordingly, there would be no potential for a cumulative increase in copper levels at any of the reservoirs due to application at any of the other reservoirs. This means that no potential for cumulative water quality impacts would occur at any of the subject reservoirs as a result of this project. This also means there is no potential for a combined accumulation of copper levels at any of the reservoirs that would affect biological resources. This limited amount of activity and lack of connectivity between the reservoirs would not have the potential to substantially contribute to any cumulative impacts that may occur in the project areas. Therefore, no impact would occur.

c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?		X		

The project's potential to result in impacts on human health have been addressed above, including air quality (Section III), hazards and hazardous materials (Section VIII), and noise (Section XII). As discussed in Sections III and XII, the project would not have air quality or noise effects that would cause substantial direct or indirect adverse effects on human beings. Section VIII identified potential health risks of exposure to copper-based products used in the proposed activity, and identified mitigation measures each of the subject agencies would employ to limit these risks and ensure impacts would be reduced to less-than-significant levels.

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SECTION 3.0
DETERMINATION

In conformance with the State CEQA Guidelines, the Water Authority, as lead agency, prepared an Initial Study (IS) and completed an Environmental Checklist Form (see Section 2.0) for the proposed project. During the analysis of the project's environmental impacts, the Water Authority determined that, unless certain mitigation was implemented, the proposed project could have a significant impact on the following environmental factors: hazards and hazardous materials, and hydrology and water quality. The significant impacts warranting mitigation were presented in the IS Checklist and are detailed below in Section 3.1 through 3.5. The project has been revised to include the specific measures listed below in Section 3.2, which would mitigate these impacts to below a level of significance. Analysis of all environmental issues is presented in the evaluation portion of the IS Checklist, provided in Section 2.0.

3.1 OLIVENHAIN RESERVOIR ENVIRONMENTAL IMPACTS AND MITIGATION

3.1.1 Hazards and Hazardous Materials

Algaecide application at Olivenhain Reservoir entails transporting, handling, and using copper-based products that are regulated hazardous materials and, if handled or applied improperly, could be hazardous to human health and the environment. The following mitigation measures will be incorporated into the project to reduce this impact to a less-than-significant level:

OLIVENHAIN-HAZ-1: The Water Authority will require training in copper sulfate and citric acid safety for all Water Authority employees participating in the application and handling of these chemicals. Response and containment procedures provided in the Water Authority's Emergency Response Guide, Hazardous Materials Business Plan and the product MSDS will be followed in the event of a spill. These procedures include isolation and containment of the spill while wearing the appropriate personal protective equipment.

OLIVENHAIN-HAZ-2: The Water Authority will avoid over-application by ensuring that employees involved with chemical application follow the specific product labels for the algaecides used in the program. Algaecides quantities required for each treatment will be precalculated and only sufficient material to carry out the treatment is transported for an application event. All label directions and California Department of Pesticide Regulation guidelines will be followed as to acceptable application methods as well as weather limitations for application.

OLIVENHAIN-HAZ-3: Water Authority staff members that may come into contact with the algaecide will be trained on its use and hazards by the safety department. Review of all applicable MSDSs will be included in the training to ensure that employees are up to date on the hazards associated with the chemical(s) used. Personal protective equipment is supplied to any employee that will be working with the chemical(s). Goggles, face shield, chemically impervious gloves, and protective clothing to prevent skin contact are provided and used any time work is to be done with the algaecide.

OLIVENHAIN-HAZ-4: The Water Authority will ensure that application of algaecides is targeted at nuisance algae growths and that algaecides are applied in accordance with label instructions to minimize the application quantity and maximize efficacy. This includes avoiding uneven distribution and applying during favorable weather conditions, when feasible. Because

nuisance algal growth affects the beneficial uses within the project area, application of algaecides will be proactive, which will minimize the quantity of decaying algae that results and may threaten oxygen levels.

3.1.2 Hydrology and Water Quality

The Water Authority's use of copper to control algae blooms at Olivenhain Reservoir may result in excess of receiving-water limitations established in the General Permit. Exceeding the thresholds would itself be necessary to prevent algae-related water quality impacts at Olivenhain Reservoir, but this would be considered a significant impact unless the Water Authority obtains an exception from the limitations by the State Water Resources Control Board. The following mitigation measures will be incorporated into the project to reduce this impact to a less-than-significant level:

OLIVENHAIN-WQ-1: The Water Authority will apply for coverage under the State Board's NPDES Permit for Discharges of Aquatic Pesticides and, as part of that application, seek a Categorical Exception pursuant to Section 5.3 of the State Board's Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California.

OLIVENHAIN-WQ-2: The Water Authority will continue to monitor and report copper levels in Olivenhain Reservoir in accordance with State Board requirements.

3.2 LAKE JENNINGS ENVIRONMENTAL IMPACTS AND MITIGATION

3.2.1 Hazards and Hazardous Materials

Algaecide application at Lake Jennings entails transporting, handling, and using copper-based products that are regulated hazardous materials and, if handled or applied improperly, could be hazardous to human health and the environment. The following mitigation measures will be incorporated into the project to reduce this impact to a less-than-significant level:

JENNINGS-HAZ-1: HWD will ensure that algaecide use rates will be per the U.S. Environmental Protection Agency (EPA) label and will be limited to ensure compliance with receiving water limitations. Treatments will be performed when no water is being discharged from the lake system.

JENNINGS-HAZ-2: HWD will ensure that application personnel follow the storage, transport, and spill control procedures per EPA and California Department of Pesticide Regulation rules, regulations, and label instructions.

JENNINGS-HAZ-3: HWD will ensure that algaecide quantities required for each treatment will be precalculated and only sufficient material to carry out the treatment will be transported for an application event. Application equipment will be routinely cleaned and maintained, and all label directions and Department of Pesticide Regulations guidelines will be followed as to acceptable application methods, including limitations due to weather conditions. Surface applications will not be made in winds above 10 miles per hour.

3.2.2 Hydrology and Water Quality

HWD's use of copper to control algae blooms at Lake Jennings may result in excess of receiving-water limitations established in the General Permit. Exceeding the thresholds would itself be necessary to prevent algae-related water quality impacts at Lake Jennings, but this would be considered a significant

impact unless HWD obtains an exception from the limitations by the State Water Resources Control Board. The following mitigation measures will be incorporated into the project to reduce this impact to a less-than-significant level:

> **JENNINGS-WQ-1:** HWD will apply for coverage under the State Board's NPDES Permit for Discharges of Aquatic Pesticides and, as part of that application, seek a Categorical Exception pursuant to Section 5.3 of the State Board's Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California.
>
> **JENNINGS-WQ-2:** HWD will continue to monitor and report copper levels in Lake Jennings in accordance with State Board requirements.

3.3 LAKE POWAY ENVIRONMENTAL IMPACTS AND MITIGATION

3.3.1 Hazards and Hazardous Materials

Algaecide application at Lake Poway entails transporting, handling, and using copper-based products that are regulated hazardous materials and, if handled or applied improperly, could be hazardous to human health and the environment. The following mitigation measures will be incorporated into the project to reduce this impact to a less-than-significant level:

> **POWAY-HAZ-1**: Poway will ensure that aquatic algaecide use rates will be per the EPA label and will be limited to ensure compliance with receiving water limitations. Treatments will be performed when no water is being discharged from the lake system.
>
> **POWAY-HAZ-2**: Poway will ensure that application personnel follow the storage, transport, and spill control procedures per EPA and California Department of Pesticide Regulation rules, regulations, and label instructions.
>
> **POWAY-HAZ-3**: Poway will ensure that algaecide quantities required for each treatment will be precalculated and only sufficient material to carry out the treatment will be transported for an application event. Application equipment will be routinely cleaned and maintained, and all label directions and Department of Pesticide Regulation guidelines will be followed as to acceptable application methods, including limitations due to weather conditions. Surface applications will not be made in winds above 10 miles per hour.

3.3.2 Hydrology and Water Quality

Poway's use of copper to control algae blooms at Lake Poway may result in excess of receiving-water limitations established in the General Permit. Exceeding the thresholds would itself be necessary to prevent algae-related water quality impacts at Lake Poway, but this would be considered a significant impact unless Poway obtains an exception from the limitations by the State Water Resources Control Board. The following mitigation measures will be incorporated into the project to reduce this impact to a less-than-significant level:

> **POWAY-WQ-1:** Poway will apply for coverage under the State Board's NPDES Permit for Discharges of Aquatic Pesticides and, as part of that application, seek a Categorical Exception pursuant to Section 5.3 of the State Board's Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California.

POWAY-WQ-2: Poway will continue to monitor and report copper levels in Lake Poway in accordance with State Board requirements.

3.4 SAN DIEGUITO RESERVOIR ENVIRONMENTAL IMPACTS AND MITIGATION

3.4.1 Hazards and Hazardous Materials

Algaecide application at San Dieguito Reservoir entails transporting, handling, and using copper-based products that are regulated hazardous materials and, if handled or applied improperly, could be hazardous to human health and the environment. The following mitigation measures will be incorporated into the project to reduce this impact to a less-than-significant level:

SAN DIEGUITO-HAZ-1: SFID will ensure the algaecide treatment system within the Cielo Pump Station is flushed with water at the end of each treatment event to eliminate having any copper sulfate remaining in the system, which will protect the feed system from corrosion and leaks and minimize the potential for worker exposure.

SAN DIEGUITO-HAZ-2: SFID will ensure that a break in the algaecide application feed line, tanks, or pumps will be captured and treated as hazardous waste. SFID's safety department will employ a hazardous waste disposal company that will properly dispose of any material that has been contaminated by a spill.

SAN DIEGUITO-HAZ-3: SFID staff will calculate maximum dosage rates and program them into the feed system to ensure correct concentration of the feed. The rate of feed for any treatment event will be limited to the recommendations on the product label and the MSDS to ensure effectiveness and minimize any unintended effects on nontargeted organisms.

SAN DIEGUITO-HAZ-4: SFID will ensure that any staff members that may come into contact with copper sulfate are trained on its use and hazards by the SFID safety department. SFID will periodically review the product's MSDS to ensure employees are up to date on the hazards associated with the chemical. SFID will ensure personal protective equipment is supplied to any employee that will be working with copper sulfate. Goggles, face shield, chemically impervious gloves, and protective clothing to prevent skin contact will be provided by SFID and used any time work is to be done with the algaecide.

3.4.2 Hydrology and Water Quality

SFID's use of copper to control algae blooms at San Dieguito Reservoir may result in excess of receiving-water limitations established in the General Permit. Exceeding the thresholds would itself be necessary to prevent algae-related water quality impacts at San Dieguito Reservoir, but this would be considered a significant impact unless SFID obtains an exception from the limitations by the State Water Resources Control Board. The following mitigation measures will be incorporated into the project to reduce this impact to a less-than-significant level:

SAN DIEGUITO-WQ-1: SFID will apply for coverage under the State Board's NPDES Permit for Discharges of Aquatic Pesticides and, as part of that application, seek a Categorical Exception pursuant to Section 5.3 of the State Board's Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California.

SAN DIEGUITO-WQ-2: SFID will continue to monitor and report copper levels in San Dieguito Reservoir in accordance with State Board requirements.

3.5 SWEETWATER RESERVOIR ENVIRONMENTAL IMPACTS AND MITIGATION

3.5.1 Hazards and Hazardous Materials

Algaecide application at Sweetwater Reservoir entails transporting, handling, and using copper-based products that are regulated hazardous materials and, if handled or applied improperly, could be hazardous to human health and the environment. The following mitigation measures will be incorporated into the project to reduce this impact to a less-than-significant level:

SWEETWATER-HAZ-1: Sweetwater will apply copper sulfate and citric acid in accordance with the product label and shall comply with the recommendations provided on the MSDS applicable to the specific copper sulfate product to be used. Copper sulfate will be applied in an even, consistent manner over the surface area to be treated, thus minimizing the potential for higher than intended localized concentrations.

SWEETWATER-HAZ-2: Sweetwater will require training in copper sulfate and citric acid safety for all Sweetwater employees participating in the application and handling of copper sulfate. Sweetwater shall conduct additional refresher training, as deemed necessary, prior to each treatment event.

SWEETWATER-HAZ-3: Sweetwater will follow all response and containment procedures provided in their Chemical Hygiene Plan, Hazardous Response Plan, and the product MSDS in the event of a spill. These procedures include isolation and containment of the spill while wearing the appropriate personal protective equipment.

SWEETWATER-HAZ-4: Sweetwater will require its employees participating in the application or handling of copper sulfate and citric acid to wear appropriate personal protective equipment recommended on the MSDS, including protective safety glasses with side shields (or goggles) per Occupational Safety and Health Administration (OSHA) 29 CFR 1910.133. Chemically impervious gloves made of any waterproof material, boots, and protective clothing will be worn to avoid skin contact (refer to OSHA 29 CFR 1910.138), as well as a respirator that meets OSHA 29 CFR 1910.134 requirements.

3.5.2 Hydrology and Water Quality

Sweetwater's use of copper to control algae blooms at the Sweetwater Reservoir may result in excess of receiving-water limitations established in the General Permit. Exceeding the thresholds would itself be necessary to prevent algae-related water quality impacts at Sweetwater Reservoir, but this would be considered a significant impact unless Sweetwater obtains an exception from the limitations by the State Water Resources Control Board. The following mitigation measures will be incorporated into the project to reduce this impact to a less-than-significant level:

SWEETWATER-WQ-1: Sweetwater will apply for coverage under the State Board's NPDES Permit for Discharges of Aquatic Pesticides and, as part of that application, seek a Categorical Exception pursuant to Section 5.3 of the State Board's Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California.

SWEETWATER-WQ-2: Sweetwater will continue to monitor and report copper levels in Sweetwater Reservoir in accordance with State Board requirements.

3.6 AUTHORITY TO PREPARE A MITIGATED NEGATIVE DECLARATION

As provided in the State CEQA Guidelines Section 15070 (Title 14 - California Code of Regulations), an MND may be prepared for a project subject to CEQA when an IS has identified potentially significant effects on the environment, but revisions to the project have been made so that clearly no significant effect on the environment will result from project implementation. The Water Authority is the lead agency for preparation of this MND. Based on the findings of the IS/Environmental Checklist Form prepared for this project (Section 2.0 of this document), the Water Authority has determined that preparation of an MND is the appropriate method to present environmental review of the proposed project in compliance with CEQA. HWD, City of Poway, SFID, and Sweetwater have reviewed this IS and MND; their respective decision-making bodies will also consider adopting the MND before implementing any mitigation program identified specific to their activities.

3.7 PREPARERS OF THE MITIGATED NEGATIVE DECLARATION

This MND was prepared by AECOM, 401 West A Street, Suite 1200, San Diego, CA 92101. The following AECOM professionals contributed to its preparation.

Bill Graham – Principal in Charge
Alex Hardy – Senior Project Manager
Jessica Fernandes – Environmental Planner
Meghan Haggblade – Environmental Planner
Lyndon Quon – Senior Biologist
Keoni Calantas – Project Biologist
Nick Janssen – Geographic Information Systems Specialist
Therese Tempereau – Technical Editor
Marisa Fabrigas – Word Processor

3.8 RESULTS OF PUBLIC REVIEW (TO BE COMPLETED WITH FINAL MND)

( ) No comments were received during the public input period.

( ) Comments were received during the public input period, but they did not address the Draft Mitigated Negative Declaration findings or the accuracy or completeness of the Initial Study. No response is necessary. The letters are attached.

(x) Comments addressing the findings of the Draft Mitigated Negative Declaration and/or accuracy or completeness of the Initial Study were received during the public input period.

Signature

March 10, 2015
Date of Draft MND

May 13, 2015
Date of Final MND

Ken Weinberg
Director of Water Resources
San Diego County Water Authority

SECTION 4.0
REFERENCES

City of Poway 1996. Poway Subarea Habitat Conservation Plan/Natural Community Conservation Plan. April.

City of Poway. 2014a. Aquatic Pesticide Application Plan. March.

City of Poway. 2014b. Personal communication; project questionnaire and emailed information provided to Alex Hardy, AECOM, by Kevin O'Reilly, Water Treatment Plant Supervisor. November–December.

City of Poway. 2015. Personal communication; emailed information provided to Alex Hardy, AECOM, by Kevin O'Reilly, Water Treatment Plant Supervisor. January.

Helix Water District. 2014a. Aquatic Pesticide Plan.

Helix Water District. 2014b. Personal communication; project questionnaire and emailed information provided to Alex Hardy, AECOM, by Brian Olney. November–December.

Helix Water District. 2015. Personal communication; emailed information provided to Alex Hardy, AECOM, by Brian Olney. January.

San Diego County Water Authority. 2010. San Diego County Water Authority Subregional Natural Community Conservation Plan/Habitat Conservation Plan (NCCP/HCP). October.

San Diego County Water Authority. 2014a. Aquatic Pesticide Application Plan. November 25.

San Diego County Water Authority. 2014b. Personal communication; project questionnaire and emailed information provided to Alex Hardy, AECOM, by Jim Fisher, O&M Manager. November–December.

Santa Fe Irrigation District 2012. Final Project Development and Feasibility Report for the San Dieguito Reservoir. Prepared by Dudek. May.

Santa Fe Irrigation District. 2014a. Aquatic Pesticide Application Plan. October 16.

Santa Fe Irrigation District. 2014b. Personal communication; project questionnaire and emailed information provided to Alex Hardy, AECOM, by Tim Bailey. November–December.

Sweetwater Authority. 2013. State Water Resources Control Board Aquatic Pesticide Application Plan. October 28.

Sweetwater Authority. 2014. Personal communication; project questionnaire and emailed information provided to Alex Hardy, AECOM, by Mark Hatcher, Water Quality Laboratory Supervisor. November–December.

Sweetwater Authority. 2015. Personal communication; emailed information provided to Alex Hardy, AECOM, by Mark Hatcher, Water Quality Laboratory Supervisor. January.

U.S. Environmental Protection Agency (EPA). 2008. Copper Facts. Office of Pesticide Programs. June.

U.S. Environmental Protection Agency (EPA). 2015. Ecological Toxicity Information. Website accessed February 5, 2015 (http://www.epa.gov/R5Super/ecology/toxprofiles.htm).

Willis, B.E. 2012. Detecting Copper Residues in Sediments From Aquatic Copper-Based Pesticide Applications. A Thesis Presented to the Graduate School of Clemson University. December.

Attachment 3

Notice of Determination

FILED
Ernest J Dronenburg, Jr, Recorder County Clerk

JUL 22 2015

BY E. Alvarado DEPUTY

NOTICE OF DETERMINATION

TO:	☒ Office of Planning and Research P. O. Box 3044 Sacramento, CA 95812-3044 ☒ County Clerk 150110 County of: San Diego Address: 1600 Pacific Highway, Suite 260 San Diego, CA 92101	FROM:	Public Agency: Santa Fe Irrigation District Address: 5920 Linea del Cielo Rancho Santa Fe, CA 92067 Contact: Tim Bailey Phone: (858) 227-5812 Lead Agency: San Diego County Water Authority Address: 4677 Overland Avenue San Diego, CA 92123 Contact: Larry Purcell Phone: (858) 522-6752

SUBJECT: Filing of Notice of Determination in compliance with Section 21108 or 21152 of the Public Resources Code.

State Clearinghouse Number (If submitted to SCH): 2015031045		

Project Title: Application of Copper-Based Algaecides at Five Reservoirs in San Diego County

Project Applicant: Santa Fe Irrigation District, et al.

General Project Location (City and/or County): Five Reservoirs in San Diego County, including Santa Fe Irrigation District's San Dieguito Reservoir located at 6339 El Camino del Norte, Rancho Santa Fe, California, 92067.

Project Description: The project consists of the occasional application of copper-based algaecides at five reservoirs to control and prevent degradation of water quality resulting from algae blooms. The subject reservoirs and the public water agencies that own and operate them are Olivenhain Reservoir (San Diego County Water Authority (SDCWA)), Lake Jennings (Helix Water District), Lake Poway (City of Poway Public Works Department), San Dieguito Reservoir (Santa Fe Irrigation District), and Sweetwater Reservoir (Sweetwater Authority). Copper-based algaecide application is authorized by the State Water Resources Control Board under a statewide General Permit, Water Quality Order No. 2013-0002-DWQ (as amended by Order No. 2014-0078-DWQ).

On May 28, 2015, SDCWA, as the lead agency under CEQA, adopted the Final Mitigated Negative Declaration for the project. On July 16, 2015, Santa Fe Irrigation District's Board of Directors, as a responsible agency for the project, considered the Final Mitigated Negative Declaration. The District determined that its jurisdiction to impose conditions on the project is limited under State CEQA Guidelines section 15096 because application of copper-based algaecides at San Dieguito Reservoir is just a component of the larger project approved by SDCWA. The District determined that the Final Mitigated Negative Declaration contains a complete, objective and accurate reporting of the environmental impacts associated with the application of copper-based algaecides at San Dieguito Reservoir. The District adopted the Mitigation Monitoring and Reporting Program, approved the application of copper-based algaecides at San Dieguito Reservoir, and authorized staff to proceed with obtaining the exemption from the State Water Resources Control Board.

Identify the person or entity undertaking the project, including any private applicant, any other person undertaking an activity that receives financial assistance from the Public Agency as part of the project, and any person receiving a lease, permit, license, certificate, or other entitlement of use from the Public Agency as part of the project.
Not applicable.

This is to advise that the Santa Fe Irrigation District (☐ Lead Agency or ☒ Responsible Agency) has approved the above described project on July 16, 2015 and has made the following determinations regarding the above described project:

1.	☒	The project will have a significant effect on the environment.

	☐	The project will NOT have a significant effect on the environment
2.	☐	An Environmental Impact Report was prepared and certified for this project pursuant to the provisions of CEQA and reflects the independent judgment of the Lead Agency.
	☐	A Negative Declaration was prepared for this project pursuant to the provisions of CEQA and reflects the independent judgment of the Lead Agency.
	☒	A Mitigated Negative Declaration was prepared for this project pursuant to the provisions of CEQA and reflects the independent judgment of the Lead Agency.
3.	☒	Mitigation measures were made a condition of the approval of the project.
	☐	Mitigation measures were NOT made a condition of the approval of the project.
4.	☒	A Mitigation Monitoring or Reporting Plan was adopted for this project.
	☐	A Mitigation Monitoring or Reporting Plan was NOT adopted for this project.
5.	☐	A Statement of Overriding Considerations was adopted for this project.
	☒	A Statement of Overriding Considerations was NOT adopted for this project
6.	☐	Findings were made pursuant to the provisions of CEQA.
	☒	Findings were NOT made pursuant to the provisions of CEQA.
		This is to certify that the Initial Study/Mitigated Negative Declaration with comments and responses and record of project approval is available to General Public at:

	Custodian: Michael Bardin, General Manager Custodian: Larry Purcell	Location: Santa Fe Irrigation District 5920 Linea del Cielo Rancho Santa Fe, CA 92067 and San Diego County Water Authority 4677 Overland Avenue San Diego, CA 92123 www.sdcwa.org

Date: 7-16-15

M Bardin

Signature

Title: Michael J. Bardin, General Manager

Date Received for Filing: _____

FILED IN THE OFFICE OF THE COUNTY CLERK

San Diego County on JUL 22 2015

Posted JUL 22 2015 Removed _____

Returned to agency on _____

Deputy E. Alvarado

Authority cited: Sections 21083, Public Resources Code.
Reference Section 21000-21174, Public Resources Code.

State of California—Natural Resources Agency
CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE

2015 ENVIRONMENTAL FILING FEE CASH RECEIPT

RECEIPT# SD2015 0646

STATE CLEARING HOUSE # *(If applicable)* 2015031045

SEE INSTRUCTIONS ON REVERSE. TYPE OR PRINT CLEARLY

LEAD AGENCY: SAN DIEGO COUNTY WATER AUTHORITY

DATE: 07/22/2015

COUNTY/STATE AGENCY OF FILING: SAN DIEGO

DOCUMENT NUMBER: *20150110*

PROJECT TITLE: APPLICATION OF COPPER-BASED ALGAECIDES AT FIVE RESERVOIRS IN SAN DIEGO COUNTY

PROJECT APPLICANT NAME: SANTA FE IRRIGATION DISTRICT, ET AL.

PHONE NUMBER: 858-522-6752

PROJECT APPLICANT ADDRESS: 4677 OVERLAND AVENUE

CITY: SAN DIEGO

STATE: CA

ZIP CODE: 92123

PROJECT APPLICANT *(Check appropriate box):*

☒ Local Public Agency ☐ School District ☐ Other Special District ☐ State Agency ☐ Private Entity

CHECK APPLICABLE FEES:

☐ Environmental Impact Report (EIR)	150110	$3,069.75	$
☑ Negative Declaration (ND)(MND)		$2,210.00	$ $0.00
☐ Application Fee Water Diversion *(State Water Resources Control Board Only)*		$850.00	$
☐ Projects Subject to Certified Regulatory Programs (CRP)		$1,043.75	$
☑ County Administrative Fee		$50.00	$ $50.00
☐ Project that is exempt from fees			
☐ Notice of Exemption			
☐ CDFW No Effect Determination (Form Attached)			
☐ Other _____			$

PAYMENT METHOD:

☐ Cash ☐ Credit ☑ Check ☐ Other CHK: 101336536

TOTAL RECEIVED $ $50.00

SIGNATURE: X E. Alvarado

TITLE: Deputy

RCT: 342112420150529 VC
REM: 05/29/2015

ORIGINAL - PROJECT APPLICANT | COPY - CDFW/ASB | COPY - LEAD AGENCY | COPY - COUNTY CLERK | FG 753.5a (Rev. 11/12)

Attachment 4

San Dieguito Reservoir Aquatic Pesticide Application Plan

Santa Fe Irrigation District

R.E. Badger Filtration Plant

Aquatic Pesticide Application Plan

WQ Order No. 2013-0002-DWQ

Prepared By: Timothy Bailey
R.E. Badger Filtration Plant
Laboratory Supervisor
October 16, 2014

Table of Contents

Introduction

On March 5, 2013, the State Water Resources Control Board (SWRCB) adopted the NPDES Permit for Aquatic Pesticide Discharges to waters of the US from Algae and Aquatic Weed Control Applications (Order No. 2013-0002-DWQ). To obtain permit coverage, the general permit requires dischargers to submit to the water board an application containing a Notice of Intent (NOI) and an Aquatic Pesticide Application Plan (APAP). The purpose of the APAP is to outline the methods and procedures that will be used to comply with the requirements of Order No. 2013-0002-DWQ. At times the use of an algaecide is necessary to maintain the beneficial use of Santa Fe Irrigation District's main local source, the San Dieguito Reservoir (SDR) which is limited to maintaining drinking water quality. The Lake Management Program / Algae Control Program for SDR works to control the water quality within the reservoir by managing and minimizing blue-green algal transfers in the feed water provided to SDR from Lake Hodges and preventing these algae from negatively impacting the treated water quality. Treatment for nuisance algae within SDR or in the water transfers varies from event to event depending on the season and demand for water. Santa Fe Irrigation Districts' APAP here includes but is not limited to:

- Description of Santa Fe Irrigation District
- Description of the treatment areas
- Description of the algae of concern
- Factors influencing aquatic pesticide usage
- Outline of the monitoring program to comply with the permit
- Description of best management practices
- Discussion of possible alternatives

Description of Santa Fe Irrigation District

The Santa Fe Irrigation District was originally formed by land owners under the California Irrigation District Act to provide water service to the area. Residents within the SFID boundaries voted on and approved the creation of the Santa Fe Irrigation District in January 1923 primarily to meet the agricultural needs of the area at that time. As the area developed, the district matured and began providing potable water for the now predominantly residential community.

The District serves approximately 19,400 customers on 10,200 acres of land within three communities: Rancho Santa Fe, Fairbanks Ranch and Solana Beach and owns 151 miles of pipeline as well as the 6 million gallon Larrick reservoir. Santa Fe Irrigation District, along with the San Dieguito Water District jointly own the 40 MGD capacity R.E. Badger Filtration Plant also located in Rancho Santa Fe.

The R.E Badger Filtration Plant, originally built in 1970, provides water to both districts via a conventional filtration system. The Filtration plant also has the capacity to provide treated water off of

the Aqueduct system but its primary role is to treat local water from the San Dieguito Reservoir or a combination of Local water and aqueduct raw water. The San Dieguito Reservoir is an 800 acre foot terminal reservoir that receives its water from Lake Hodges Located in Escondido. The water is transferred from Lake Hodges via the Ceilo Pump Station. Water is then pumped from the San Dieguito Reservoir up to the treatment plant. The Ceilo pump station is equipped with a feed system for aquatic pesticides use should the need arise. Both the Lake Hodges source and the San Dieguito Reservoir source are prone to seasonal algae blooms which can potentially cause taste and odor problems in the finished water that customers find objectionable.

The management of the San Dieguito Reservoir primarily consists of oxygen control via aeration, level manipulation, nutrient control and selective withdrawals from Lake Hodges. These strategies are effective at minimizing algae blooms and their associated adverse effects Within SDR, however occasionally an aquatic pesticide application may be necessary to maintain acceptable water quality within the reservoir by treating the transfers out of Lake Hodges into SDR or through the chemical feed system within the SDR pump station which would both be permitted under Order number 2013_002_DWQ; general permit number CAG990005.

Description of Treatment areas

San Dieguito Reservoir:

The 800 Acre foot San Dieguito Reservoir (SDR) is the primary local source for the R.E. Badger Filtration Plant. It receives 90% of its water throughout the year from Lake Hodges transfers via the Cielo pump station. SDR has a 1.5 square mile watershed that consists of residential homes and a small population of agricultural areas. During the winter months, transfers of water from Lake Hodges are minimized and local run off from the watershed can account for a larger portion of inflow. During the summer months SDR is susceptible to cyanobacteria blooms that are transferred to SDR from Lake Hodges and can impact the treatment ability of the R.E. Badger Filtration Plant. With cyanobacteria being a more common type of bloom, coupled with a surface wind currents, often times the blooms can accumulate at the west end of the reservoir directly in front of the San Dieguito pump station and adversely affect the influent flows to the treatment plant. The Lake management program that has been implemented at SDR has successfully minimized the frequency of Cyanobacteria blooms within SDR throughout the year and has essentially eliminated our dependency on algaecide products for the control of these blooms in this terminal reservoir.

Application:

Earthtech* Algaecide will be used to control nuisance algae within the SDR reservoir. A side stream injection feed system within the intake line for the SDR pump station allows for treatment of the west

end of the reservoir. This is accomplished via a backflow of water from the intake line which can be chemically metered for accurate dosage. Occasionally, Lake Hodges water transfers to San Dieguito contain large amounts of cyanobacteria cells which can overwhelm current lake management systems used in SDR. Algaecide applications during these events are needed to control the transfer of the Cyanobacteria bloom in Lake Hodges from taking over in SDR.

Water Transfers:

The pipeline line that feeds SDR with Lake Hodges water runs approximately 4 miles from Lake Hodges located in Escondido, down to the San Dieguito Reservoir located in Rancho Santa Fe. Water can be pumped or fed by gravity to SDR via the Cielo Pump Station located on the Del Dios Highway roughly 1 mile downstream from Lake Hodges. The Cielo pump station holds three 500hp pumps and one 250hp pump and is capable of pumping approximately 21 MGD. Lake Hodges currently has no lake management program and is therefore very susceptible to large algae blooms, predominantly Blue-green cyanobacteria. Lake Hodges has three separate outlets to pull water from. By selectively withdrawing from varying depths out of Lake Hodges, the negative effect on SDR due to algae concentration can be minimized; however, at times there are no outlets available which are free from nuisance algae.

Application:

Earthtech* Algaecide will be used for control of nuisance algae for water transfers. Treatment of water transfers to SDR are applied at the Cielo pump station via a side stream injection system. Similar to the feed system at SDR the chemical metering pumps deliver accurate dosages to the transfer water via the chemical metering gear pump with complete isolation of the chemical storage and containment. Best management practices are employed to ensure accurate feed, maximum dosage limits, and safety of employees.

Control Structure:

The Intake at the Lake Hodges Dam is the main control structure for water transfers to SDR. The Dam is maintained by the City of San Diego and inspected annually for cracks and structural integrity. The Department of the Safety of Dams coordinates with the city of San Diego on an annual basis to conduct the inspections and an annual report is available for review through the City of San Diego. A secondary control structure is the Cielo pump station building and is inspected weekly for corrosion and maintenance of the pumps. The feed system is also located within the pump station and is inspected for corrosion and proper operation.

Santa Fe Irrigation District Aquatic Pesticide Treatment Areas	
Target Organism	**Treatment Area**
Cyanobacteria	Water Transfers
Cyanobacteria	SDR Body

Algae Subject to Control

Throughout the year within SDR algae blooms tend to occur. Typically during the warm summer months is when these blooms can begin to affect the quality and production of water that the R.E. Badger Filtration Plant produces. During large blooms in the summer months, primarily those resulting from large transfers of water from Lake Hodges, cyanobacteria (e.g. Anabaena, Microcystis, Aphanizomenon), both benthic and planktonic, are the organism of concern. Blue-green algae are known taste and odor producers and can release such compounds as Geosmin and 2-methylisoborneol which can be detected at levels as low as 5ng/l. The tastes and odors that are associated with these compounds are considered objectionable to customers and therefore often limit the blend of SDR water used.

At times when Cyanobacteria blooms produce large amounts of taste and odor compounds, the total production of local water decreases and must be supplemented with imported water off of the aqueduct at a much higher cost. This additional cost is the motivating factor to maintain a high quality source water that can yield a higher quality drinking water for our customers.

Factors Influencing Algaecide Usage

The decision to apply an aquatic pesticide rests in the review of results from several analyses. The R.E. Badger Filtration Plant conducts several analyses on a weekly or daily basis to determine the quality of the source water and to direct any changes to the treatment routine. As they apply to pesticide use, they are: Odor profiles, GCMS analysis for 2-methylisoborneol (MIB) and Geosmin, review of customer calls, visual inspection of SDR and secchi reads.

At a minimum, weekly odor profiles are conducted on the finished water produced by the plant. The treatment plant goal of 1 TON is a guideline for operators when using larger than normal amounts of local water. Seasonally, as odors increase with increased local usage, odor profiles are performed more frequently or as needed.

Weekly analysis of MIB and Geosmin are performed. Samples are taken from all sources as well as from the finished water reservoir to determine and trend the amounts of the compounds at each location. Many customers in the service area of the treatment plant are very sensitive to these compounds and therefore internal action levels of 7ng/l have been established. Upon exceeding this standard, a review of alternative options available is made including in-plant chemical treatments adjustments or source changes.

Reviewing customer calls as they relate to water quality gives a good indication of the water quality out in the system. Customer service representatives at the main office will inform the treatment plant staff of any taste or odor complaints that they receive. Customer service uses a standard questionnaire when speaking with customers that will provide operations staff with sufficient information.

Operations staff visits SDR once a day to assess the quality of the lake. Visual inspection of the water above the intake as well as secchi disk reads are performed by the operations department each morning. During the summer months secchi reads can be in excess of 120 inches; however, in the winter months a secchi reading of less than 24 inches can be common. Significant changes in secchi reads can often be attributed to algae blooms.

There is no single analysis that will trigger a pesticide treatment but critically all the above analyses can help to direct the decision for or against treatment. Generally, finished water quality is the largest concern and will dictate any corrective actions.

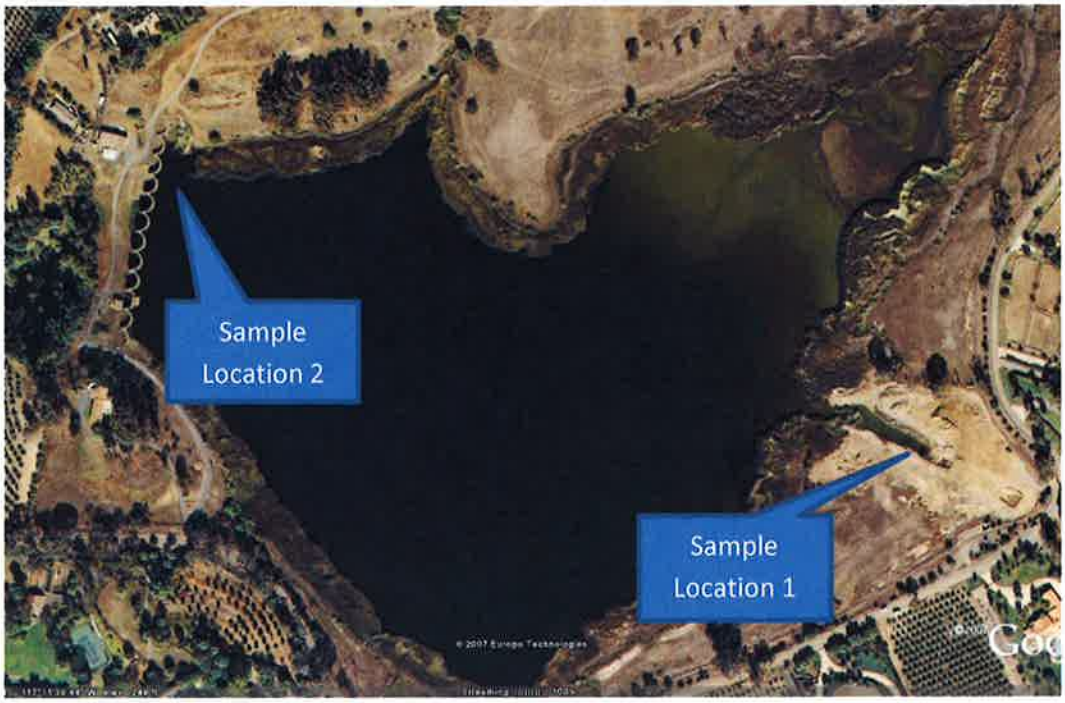
Monitoring Program

Santa Fe Irrigation District is required by the permit to develop and implement a monitoring program for SDR to ensure that it does not receive residual algaecides or herbicides in excess of the receiving water limitations and that the residuals, including degradation byproducts and inert ingredients do not exceed the "no toxics in toxic amounts" requirements of the objective.

Monitoring locations:

Two locations within SDR are identified as representative and appropriate for monitoring of residuals for the purpose of determining compliance. Figure 1 shows the two locations: (1) the receiving water pipeline and (2) the SDR pump station inlet. Treatments of SDR with algaecides are limited to pipeline injections at the Cielo pump station for water transfers from Lake Hodges to SDR and pipeline injections of the intake line at the SDR pump station for back flushing of the influent line for treatment of the west side of the reservoir. Both inlet and in-lake sample locations are established according to the pre and post event monitoring schedules as outlined in the general permit. The locations are shown below:

Figure 1:



Location 1 (Event monitoring): Monitoring begins immediately after treatment begins. This is the first location that will see the treated water as it arrives at SDR.

Location 2 (Post event monitoring): Monitoring begins within one week after treatment begins.

General Monitoring Provisions:

All analyses are performed according to the guidelines established in 40 CFR 136. Records of results and chain of custody are maintained and include date, time, collector, analyst, and analytical methods.

A log of each application is maintained outlining the date of application, duration, dosage calculation, monitoring results, lake level, and application rate. Also recorded are the daily reads from operations that outline the weather conditions, visual assessment and secchi reads. Algaecides used for the control of nuisance algae within SDR are registered by the USEPA and the CADPR. Manufacturers have provided registry information including details regarding environmental fate and effects of the products as well as transport and storage. This information as well as associated risk assessments including cumulative and indirect effects and toxicity information can also be found at the USEPA re-registration Eligibility Decisions (RED) document for the active ingredients at:

Copper Sulfate (copper):
http://www.epa.gov/oppsrrd1/REDs/copper_red.pdf

Negative environmental impacts due to the misuse or over use of an algaecide is unlikely due to the nature of the feed system and associated fail-safe equipment.

Baseline Monitoring:

On a weekly basis throughout the year, copper analysis is performed as part of the lake management program that is designed to characterize and trend nutrients as well as overall water quality within SDR. These weekly analyses employ a HACH spectrophotometric method which is not EPA approved for Drinking water. In addition to the lake management routine analyses, quarterly general mineral analyses are performed on SDR as well in which EPA method 200.8 is used to determine the amount of biologically available copper present in the source. Prior to a treatment event, back ground samples are collected at the two locations listed above and used as the baseline data for the particular treatment event. EPA approved method 200.8 is used for all event related samples.

Additionally, continuous monitoring of dissolved oxygen, turbidity and conductivity are performed using a dam-mounted YSI online monitoring system. Data collected prior to and after treatment events will be reported annually as a supplement to the treatment event data.

Event Monitoring:

All samples are collected as outlined in *Standard methods*... and transported back to the laboratory where they are packaged and shipped to Eurofins-Eaton Analytical Laboratories for analysis by the approved EPA 200.8 method. Samples are collected in properly prepared and labeled sample bottles and placed on ice for transportation. Chain of custody procedures, as outlined in the R.E. Badger Filtration Plants' Laboratory Quality Control Manual, are followed to ensure correct handling during transport.

Event background samples are collected no earlier than 24hrs prior to a treatment event. Event monitoring will be conducted no later than 24hrs after treatment has begun. Post event monitoring will begin no longer than 1 week after the completion of the treatment event.

Receiving Water Limitations

Constituent/ Parameter	Beneficial Use				
	MUN, ug/L	Warm or Cold ug?L	Other then MUN, Warm or Cold, ug/L	All Designations	Basis
2,4-D	70				U.S. EPA MCL
Acrolein[2]	320	21	780		U.S. EPA Water Quality Criteria, 1986
Copper[2]				Dissolved Freshwater[3] Copper Chronic=0.960exp{0.8545[in(Hardness[4])] – 1.702}[5,6]	California Toxics Rule

				Dissolved Freshwater[3] Copper Chronic=0.83exp{0.8545[in(Hardness[4])] – 1.702}[5,6]	
Diquat	20				USEPA MCL
Endothall	100				USEPA MCL
Fluoridone	560				USEPA Intgrated Risk Information System
Glyphosate	700				USEPA MCL
Nonylphenol				Freshwater Chronic Criterion = 6.6ug/L	USEPA National Recommended Ambient Water Quality Criteria
Toxicity	Algaecide and aquatic herbicide applications shall not cause or contribute to toxicity in receiving water(s).				Regioal Water Boards' Basin Plans

Notes:

1. See Regional Water Boards' Water Quality Control Plans (Basin Plans) for beneficial use definitions.
2. Public entities and mutual water companies* listed in Attachment G are not required to meet these limitations in receiving waters during the exception period described in the APAP and Section VIII.C.10 below.
3. 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.
4. 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.
5. Values should be rounded to two significant figures.
6. This limitation does not apply to the Sacramento River and its tributaries above the State Highway 32 Bridge at Hamilton City. See Table III-1 of the Basin Plan for the Sacramento and San Joaquin River Basins for copper limitation.

Laboratory Quality Assurance Program

Standard operating procedures for analyses performed in house as well as sample collection and preservation procedures are outlined in the laboratory Quality Assurance Manual. The manual outlines additional measures for analyses and sample preservation to ensure the reliability of data produced with in the lab. All SOPs reference the *Standard Methods for the Examination of Water and Wastewater.*

Examination of Possible Alternatives

The San Dieguito Reservoir management plan has made large strides to naturally manage the water quality with in the reservoir. Whenever possible, natural manipulations and non-chemical management

strategies are employed to ensure a healthy ecosystem and high water quality. The San Dieguito Reservoir management plan addresses runoff and nutrient control, fish population and food web balance monitoring, level control, mechanical removal of aquatic macrophites, and selective outlet withdrawal from source water.

Alternative: prevention: The Santa Fe Irrigation District prefers to avoid the use of aquatic pesticides whenever possible. A long standing practice of performance review and improvement has been applied to the management of SDR. In the event of a significant algae bloom that impacts the water quality, water transfers to the San Dieguito Reservoir can be halted to prevent the spread of the nuisance algae. During time that the water is needed regardless of a potentially challenging bloom, withdrawals from the source can be adjusted to a level below the surface to a point at which no live algae cells will be transferred however, this solution can only be used temporarily due to other water quality constraints that must be adhered to.

SFID is currently working with regional stakeholders to implement regional watershed and lake management practices that will be used in Lake Hodges to minimize algae blooms. The Lake Hodges watershed covers over 248 square miles and overlaps numerous jurisdictional boundaries. It is estimate that it will take approximately 8 to 12 years to implement management programs in Lake Hodges to mitigate algae blooms using similar techniques that are currently employed in SDR. Over the next few years, we foresee using algaecides to help control the spread of cyanobacteria from Lake Hodges to SDR until regional efforts are implemented to better manage Lake Hodges.

Alternative: Biological Control: Within SDR, biological control has allowed us to maintain control over nuisance algae blooms. Vertical mixers and aeration systems have created a dynamic environment that is not conducive to the growth of the nuisance blue-green algae. Since installing these, in-lake formation of blue-green blooms has significantly been reduced and currently the only time they are now experienced is during high flow transfers from Lake Hodges to SDR. Seasonal manipulation of SDR and selective withdrawals out of Lake Hodges are the two best options for controlling blue-green algae growth within SDR.

The Santa Fe Irrigation District has yet to find a 100% effective alternative to the use of algaecides when transferring large volumes of water from Lake Hodges to SDR other than temporary selective withdrawals. When algaecides are used at SDR to control the spread of Lake Hodges algae blooms during transfers, they are very tightly controlled and the application is carefully monitored.

Best Management Practices

Santa Fe Irrigation District uses several best management practices associated with the use of aquatic pesticides in order to ensure the safety of employees, customers and the environment. Use of aquatic pesticides is a measure of last resort. These are summarized below:

Spill prevention and mitigation:

Application of aquatic pesticides at San Dieguito Reservoir are conducted via a feed system that allows for safe and effective application and minimizes exposure to workers and unintended targets. At the end of a treatment event the system is flushed with water to eliminate having any pesticide remaining in the system. This protects the feed system from corrosion and leaks. Each feed system is contained within a spill catchment that can capture 100% of the chemical available for feed. A break in the feed line, tanks or pumps will be captured in the spill sump and treated as hazardous waste. Santa Fe Irrigation District's safety department employs a hazardous waste disposal company that will dispose of any spilled aquatic pesticide that has been contaminated by a spill.

The feed systems employed at the Cielo and SDR pump stations to treat transfer water were developed as the least intrusive and most secure and safe method available.

Appropriate rate of application:

Because applications at SDR and deliveries to SDR are from a fixed feed system, the rate of application can be tightly controlled from the chemical metering portion of the system. Monitoring of the feed via SCADA is provided to staff and additional safe guards in the form of maximum dosage rate calculations are programed into the system to ensure correct concentration of the feed. The rate of feed for any treatment event is limited to the recommendations on the product label and MSDS to ensure effectiveness and minimize any unintended effects on non-targeted organisms. Online, real-time monitoring of the DO and chlorophyll levels within SDR provides secondary information as to the effectiveness of the application. Maximum dosages and feed periods are such that suppression adjuvants are not required.

Education:

The staff at Santa Fe Irrigation District as well as any new employee that may come into contact with the aquatic pesticide are trained on its use and hazards by the safety department. Periodic MSDS reviews are conducted to ensure that employees are up to date on the hazards associated with this chemical. Personal protective equipment is supplied to any employee that will be working with the chemical. Goggles, face shield, chemically impervious gloves and protective clothing to prevent skin contact are provided and used any time work is to be done with the aquatic pesticide.

Monitoring Reports

Annual reporting for the permit will be submitted to both the Director of the SWRCB and to the Region 9 WQCB executive officer. The report will consist of a summary of the last years treatment and monitoring event data including analytical results and a summary discussing compliance or violation of the system. Additionally, Information regarding the effectiveness of current BMPs, volumes treated, identification

maps of treatment areas and a summary of the effectiveness of the APAP will be included. If no treatment was performed under the permit, a letter certifying that no treatment was performed will be submitted.

Additional reporting regarding non-compliance will be orally given within 24 hrs of the violation and a written report within 5 days. These will include a summary of the event resulting in non-compliance as well as corrective actions and follow-up monitoring results.

Attachment A

MATERIAL SAFETY DATA SHEET

EARTH SCIENCE LABORATORIES, INC.
113 SE 22nd St., Suite 1
Bentonville, AR 72712
earthsciencelabs.com

Emergency Phone Number: 1-800-535-5053 (Infotrac)
Information Phone Number: 1-479-271-7381

Material Name: *EarthTec®*

Issue Date: 12/93
Revision Date: 5/08

Section 1 – PRODUCT IDENTIFICATION

Product Name: EarthTec®

EPA No: 64962-1

Certified to: NSF / Standard 60 Do not exceed 19 mg/L.

Section 2 – HAZARDOUS INGREDIENTS

Components	CAS#	OSHA PEL	ACGIH TLV	%
Copper sulfate pentahydrate	7758-99-8	1mg/m^3	1mg/m^3	18.25-21.75%

Section 3 – HEALTH HAZARDS IDENTIFICATION

Primary Routes of Entry: *Inhalation, Absorption, and Ingestion.*
Eyes: *Corrosive.* Exposure may cause severe burns, destruction of eye tissue and possible permanent injury or blindness.
Skin: *Corrosive.* Contact may cause reddening, itching or inflammation.
Ingestion: *Corrosive.* May cause painful irritation and burning of the mouth and throat, painful swallowing, labored breathing, burns or perforation of the gastrointestinal tract leading to ulceration and secondary infection.
Inhalation: *Irritating.* Overexposure may cause burns and tissue damage.

Section 4 – FIRST AID MEASURES

Eyes: Flush immediately with large amounts of water for at least 20 minutes. Eyelids should be held away from the eyeball to ensure thorough rinsing. Get immediate medical attention.
Skin: Immediately flush skin with plenty of water for at least 20 minutes while removing contaminated clothing and shoes. Get immediate medical attention.
Ingestion: If victim is conscious and alert, give 1-3 glasses of water to dilute stomach contents. Rinse mouth out with water. Do not induce vomiting unless directed by medical personnel. Get immediate medical attention.
Inhalation: Remove to fresh air. If not breathing, institute cardiopulmonary resuscitation (CPR). If breathing is difficult, ensure clear airway and give oxygen. Keep affected person warm and at rest. Get immediate medical attention.

Section 5 – FIRE AND EXPLOSION HAZARDS

Flash Point: N/E **UFL:** N/E **LFL:** N/E

Hazardous Combustion Products: May react with high carbon metals to produce hydrogen gas, which can form an explosive mixture.
Fire Fighting Equipment/Instructions: Firefighters must wear MSHA/NIOSH approved positive pressure breathing apparatus (SCBA) with full face mask and full protective equipment.

NFPA Ratings:	**Fire:** 0	**Health:** 2	**Reactivity:** 1	**Other:** X
HMIS III Ratings:	**Fire:** 0	**Health:** 2	**Reactivity:** 1	**Personal Protection:** X

Section 6 – ACCIDENTAL RELEASE MEASURES

Containment Procedures: Flush with water into retaining area or container. Caution should be exercised regarding personal safety and exposure to released product.
Clean-Up Procedures: Neutralize solution with bicarbonate of soda.
Evacuation Procedures: Keep unnecessary people away; isolate hazard area and deny entry. Stay upwind.
Special Instructions: Notify local authorities and the National Response Center, if required.

Section 7 – HANDLING AND STORAGE

Procedures for Handling: Avoid contact with strong oxidizers. Do not use with materials or equipment sensitive to corrosive solutions.
Recommended Storage Methods: Avoid storage in excessive heat; expansion of container may occur creating spillage. Do not store in galvanized or nylon equipment.

Section 8 – PERSONAL PROTECTION

Respiratory Protection: Ventilation and other forms of engineering controls are the preferred means for controlling exposures. A NIOSH/ MSHA approved air-purifying respirator with an appropriate acid gas cartridge or canister may be appropriate under certain circumstances where airborne concentrations are expected to exceed exposure limits.
Protective Gloves: Use appropriate chemical gloves that are in usable order.
Other Protective Clothing or Equipment: Eye and face protection is necessary, long sleeved shirts, long pants, socks and shoes.
Work/Hygienic Practices: Use good personal hygiene. Body shower for prolonged skin contact.

Section 9 – PHYSICAL & CHEMICAL PROPERTIES

Appearance: Clear blue liquid
Physical State: Liquid
pH: 0.5
Vapor Pressure: 0.1mm 68° F
Boiling Point: 220° F
Melting Point: N/A

Odor: Minimal odor
Vapor Density (Air=1): 1.0
Evaporation Rate: N/A
Solubility in Water: Complete
Specific Gravity (H_2O=1): 1.2

Section 10 – REACTIVITY INFORMATION

Chemical Stability: Stable.
Conditions to Avoid: Avoid mixing with strong bases and strong reducing agents.
Incompatibility: Incompatible with strong bases and strong reducing agents.
Hazardous Decomposition Products: Sulfur dioxide and sulfur trioxide may be produced with decomposition.
Hazardous Polymerization: Will not occur.

Section 11 - TOXICOLOGICAL INFORMATION

Acute Toxicity / Chronic Toxicity: Continued overexposure to this solution may cause systemic toxicity.
Carcinogenicity: N/A
Signs and Symptoms of Exposure: Overexposure may cause the following specific symptoms, depending on the concentration and duration of exposure: vomiting, shallow respiration and lung function changes.

Section 12 – DISPOSAL CONSIDERATIONS

Disposal Instructions: Neutralize with bicarbonate of soda or fertilizer grade lime and dispose of in accordance with all federal, state and local regulations.

Section 13 – TRANSPORTATION INFORMATION

DOT Information

Proper Shipping Name: Corrosive liquid, acidic, inorganic, n.o.s., (contains cupric sulfate)
Hazard Class: 8
UN/NA #: UN3264
Packing Group: III

- *Packages that contain more than 5.1 US gallons are RQ (reportable quantity)*
- *Packages that contain less than 4.0 liters could be ORM-D*
- *The proper shipping information is the responsibility of the shipper and this information is only guidelines.*