MWD
METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA

Executive Office

January 29, 2004

CERTIFIED MAIL REQUIRED
RETURN RECEIPT REQUESTED

Mr. Wayne Sobieralski
Regulations Unit
Division of Water Quality
State Water Resources Control Board
P. O Box 100
Sacramento, California 92124-1331

Dear Mr. Sobieralski:

Submittal of Mitigated Negative Declaration Metropolitan Report No. 1215, Notice of Determination and Request for "Categorical Exception"

In accordance with the requirements of the Draft Statewide General National Pollutant Discharge Elimination System Permit for Discharges of Aquatic Pesticides for Aquatic Weed Control in Irrigation Systems, Drinking water Canals, and Surface Water Impoundments that are Waters of the United States (Draft General Permit), we are submitting "The Application of Copper Sulfate to Lake Mathews, Lake Skinner, and Diamond Valley Lake to Control Algal Blooms-Mitigated Negative Declaration Metropolitan Report No. 1215" and Notice of Determination. Once the Draft General Permit is finalized, Metropolitan will be applying for coverage and will be seeking a "categorical exception" to discharge copper sulfate toLake Mathews, Lake Skinner, and Diamond Valley Lake. In the meantime, we will continue to operate under the terms and conditions of General Permit No, CAG990003.

If you have any questions, please call George Muse at (213) 217-6287, or I can be reached at (213) 217-5504.

Very truly yours,

John E. Clark, P.E.
Principal Environmental Specialist

GWM/sp-R-04-044

Attachment

cc:
California Regional Water Quality Control Board
San Diego Region
9771 Clairemont Mesa Blvd. Suite A,
San Diego, Ca 92124
Attention: Mr. Pete Michael

California Regional Water
Quality Control Board
Santa Ana Region
3737 Main Street, Suite 500
Riverside, California 92501-3339
Attention: Mr. Najah Amin

Notice of Determination

To: ☒ Office of Planning and Research
1400 Tenth Street, Room 222
Sacramento, CA 95814

☐ County Clerk
County of Riverside
2724 Gateway Drive
Riverside, CA 92507

From: The Metropolitan Water District of Southern California
P.O. Box 54153
Los Angeles, CA 90054-0153

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

Project Title: Mitigated Negative Declaration for the Application of Copper Sulfate to Lake Mathews, Lake Skinner, and Diamond Valley Lake to Control Algal Blooms

State Clearinghouse Number	Lead Agency/Applicant Contact Person	Area Code/Telephone/Extension
2003111077	Mr. Anthony Klecha The Metropolitan Water District of Southern California	(213) 217-5528

Project Location (include county): The project is located at Lake Mathews (18250 La Sierra Avenue) in an unincorporated area of Riverside County; Lake Skinner (33740 Borel Road) in the community of Winchester; and Diamond Valley Lake (33752 Newport Road) in the community of Winchester. All three locations are within Riverside County.

Project Description: The Metropolitan Water District of Southern California (Metropolitan) proposes to continue application of an aquatic pesticide (copper sulfate) to three of its reservoirs in Riverside County. Metropolitan currently applies copper sulfate on an as-needed basis to control algal blooms so that such blooms do not degrade drinking water quality through elevated taste and odor problems, production of algal toxins, and filter clogging. Metropolitan's copper sulfate applications are currently authorized under the State Water Resources Control Board's (SWRCB's) Water Quality Order No. 2001-12-DWQ, Statewide General National Pollutant Discharge Elimination System (NPDES) Permit for Discharges of Aquatic Pesticides to Waters of the United States (General Permit No. CAG990003), which expires on January 31, 2004. The SWRCB has notified interested parties that it intends to develop a new general NPDES permit for application of aquatic pesticides to replace the expiring General Permit. This Mitigated Negative Declaration has been prepared for this project in support of the new NPDES permit and to comply with CEQA requirements associated with new regulatory requirements recently established by the SWRCB.

This is to advise that the Chief Executive Officer of The Metropolitan Water District of Southern California as a **Lead Agency** and **Applicant** has approved the above-described project on December 23, 2003, and has adopted the following determinations regarding the above described project:

1. The project [☐will ☒will not] have a significant effect on the environment.
2. ☒ A Mitigated Negative Declaration was prepared for this project pursuant to the provisions of CEQA.
3. Mitigation measures [☒were ☐were not] made a condition of the approval of the project.
4. A Statement of Overriding Considerations [☐was ☒was not] adopted for this project.
5. Findings [☒were ☐were not] made pursuant to the provisions of CEQA.

This is to certify that the Mitigated Negative Declaration with record of approval is available to the General Public at Metropolitan's headquarters at 700 North Alameda Street, Los Angeles, CA 90012.

Laura J. Simonek — December 23, 2003 — Manager, Environmental Planning Team

Signature Laura J. Simonek *Date* *Titles*

Date received for filing at County or OPR:

RECEIVED
DEC 31 2003
STATE CLEARING HOUSE

The Metropolitan Water District of Southern California

The Application of Copper Sulfate to Lake Mathews, Lake Skinner, and Diamond Valley Lake to Control Algal Blooms

Mitigated Negative Declaration

For additional information regarding this document contact:

The Metropolitan Water District of Southern California
Environmental Planning
700 N. Alameda Street
Los Angeles, CA 90012

Mr. Anthony A. Klecha
(213) 217-5528

Metropolitan Report No. 1215

November 2003

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SECTION 1
PROJECT DESCRIPTION

INTRODUCTION AND LOCATION

The Metropolitan Water District of Southern California (Metropolitan) has applied for a statewide general National Pollutant Discharge Elimination System (NPDES) Permit from the State Water Resources Control Board (SWRCB) to continue application of an aquatic pesticide (copper sulfate), when necessary, to three of its reservoirs in Riverside County, California: Diamond Valley Lake, Lake Skinner, and Lake Mathews (Project). Figure 1 shows the location of the three reservoirs. This Mitigated Negative Declaration (MND) was prepared to comply with California Environmental Quality Act (CEQA) requirements associated with regulatory requirements established by the SWRCB. Metropolitan is the Lead Agency for this MND.

Metropolitan currently applies copper sulfate on an as-needed basis to control algal blooms so that such blooms do not degrade drinking water quality (through elevated tastes and odors, production of algal toxins, and filter clogging). These applications of copper sulfate for resource management currently are authorized under the SWRCB Water Quality Order No. 2001-12-DWQ: Statewide General National Pollution Discharge Elimination System (NPDES) Permit for Discharges of Aquatic Pesticides to Surface Waters of the United States (General Permit No. CAG990003).[1] This General Permit expires on January 31, 2004.

The SWRCB has notified interested parties that it intends to develop a new general NPDES permit for application of aquatic pesticides to replace the expiring General Permit, and that this new general permit will require strict compliance with California Toxics Rule criteria, the State Board Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (SWRCB Policy), and applicable Basin Plans.[2] Thus, any aquatic pesticide that contains a Priority Pollutant (such as copper) would be prohibited from being applied in concentrations that would exceed applicable water quality criteria outside of an established mixing zone. Section 5.3 of the SWRCB Policy, however, authorizes variances from the Priority Pollutant criteria.

Among other things, Section 5.3 provides a Categorical Exception from the toxics standards where the discharge is necessary to implement control measures (1) for resource or pest management or (2) to meet statutory requirements under the federal Safe Drinking Water Act or the California Health and Safety Code, and for certain maintenance and cleaning activities. Metropolitan's primary purpose in periodically applying copper sulfate to its reservoirs is to control algal blooms and, in turn, achieve secondary drinking water standards for taste and odor. Therefore, such discharges qualify for a Categorical Exception to the toxics standards. Accordingly, Metropolitan plans to apply for coverage under the SWRCB's new general permit for aquatic pesticides and, as part of that application, seek a Categorical Exception for its use of copper sulfate. If granted, Metropolitan would comply with all terms and conditions of the general permit.
Figure 1

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[1] USEPA, in interim guidance issued on July 11, 2003, states that the direct application of a pesticide to waters of the United States to control pests and consistent with all relevant requirements of FIFRA "does not constitute the discharge of a pollutant that requires an NPDES permit under the Clean Water Act." Chief Counsel for the SWRCB, in a memorandum issued on July 25, 2003 disagreed with USEPA's position and advised the SWRCB not to follow the guidance.

[2] Cantu, C. 2003

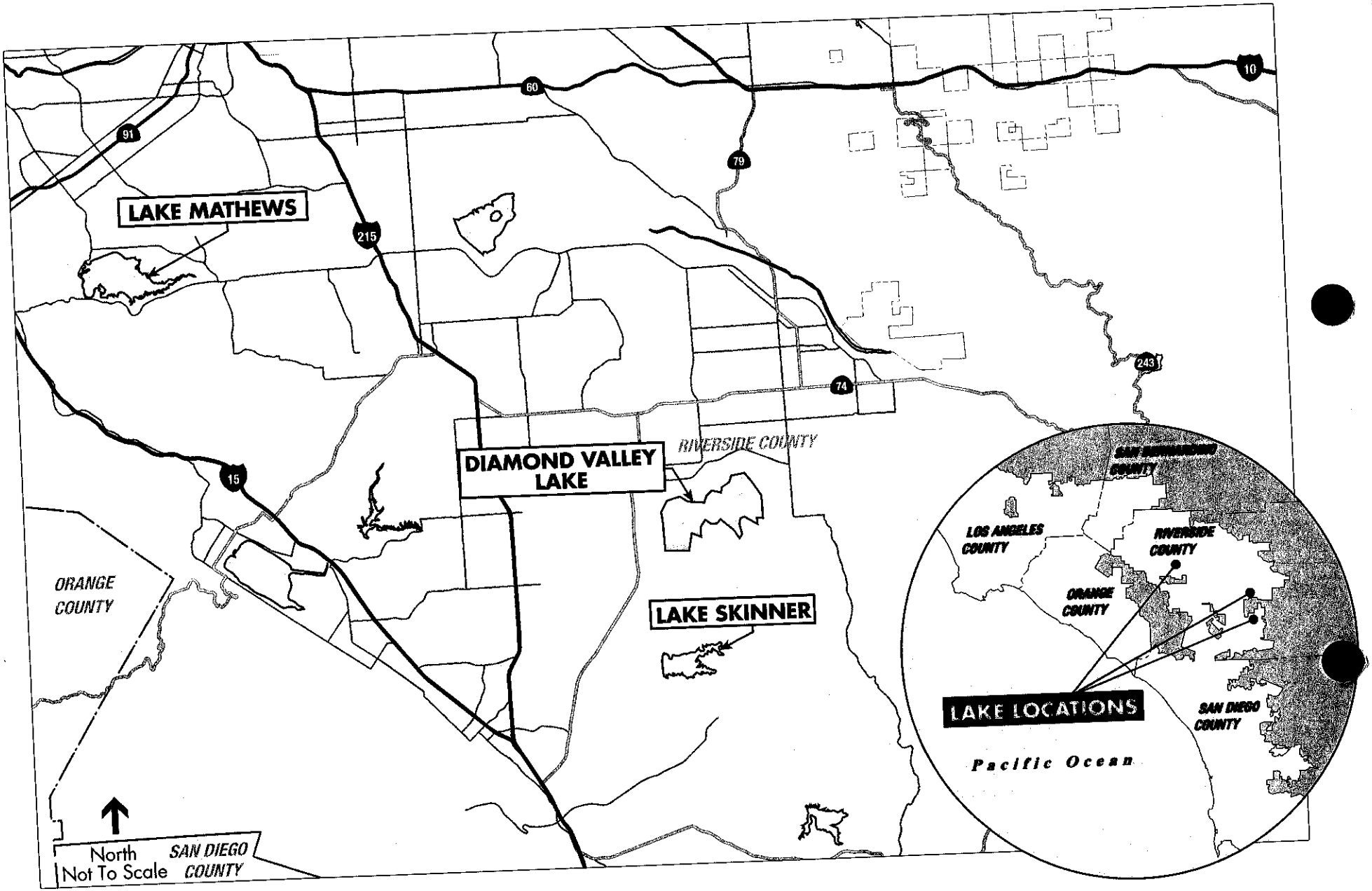

FIGURE 1: Regional Location Map

The proposed Project would involve the continued application of copper sulfate to control algal blooms at three reservoirs owned and operated by Metropolitan: Diamond Valley Lake, Lake Skinner, and Lake Mathews. Figures 2, 3, and 4 provide area maps for each of the reservoirs, all of which are located in unincorporated Riverside County. Table 1 summarizes general characteristics of each reservoir.

PROJECT BACKGROUND

Metropolitan is a cooperative of 26 cities and water agencies that provides drinking water to nearly 18 million people in parts of Los Angeles, Orange, San Diego, Riverside, San Bernardino, and Ventura counties. The mission of Metropolitan is to provide its service area with adequate and reliable supplies of high-quality water to meet present and future needs in an environmentally and economically responsible way. As a part of carrying out this mission, Metropolitan routinely monitors and tests water samples from its reservoirs, aqueducts, wells, water treatment plants, and other water supply facilities and systems to assure compliance with state and federal requirements for safe drinking water quality.

Metropolitan routinely monitors and analyzes for taste and odor compounds produced by algae and, over the past several years, has developed a comprehensive Algae Monitoring and Management Program to detect and manage algal-related tastes and odors before customers detect them in their drinking water. The Algae Monitoring and Management Program is comprised of three elements: 1) an early warning system; 2) operational strategies; and 3) treatment.

Chemical substances in water that often are associated with earthy, musty smelling or tasting water include geosmin and 2-methylisoborneol (MIB), which are produced in natural and man-made lakes by certain types of algae. Geosmin and MIB are natural byproducts of algal chlorophyll production, although not all algae produce them or produce them in the same amounts, so the presence of algae alone is not a good indicator of taste and odor problems.

Metropolitan's evaluation of a taste and odor event is based upon SCUBA diver observations, microscopic examination of samples, isolation and culture of taste- and odor-producing algae, flavor profile analysis, and most importantly, the chemical analysis of MIB and geosmin. When sampling results indicate that concentrations of geosmin or MIB in reservoir waters are increasing within the 1 to 10 nanograms per liter (ng/l) range (1 ng/l is one nanogram per liter of water, or one part per trillion), Metropolitan water quality staff respond by searching for the location of the source of the geosmin or MIB. To do this, water quality samples are collected and analyzed, and field staff ascertain possible algae sources. If an algae source is identified, Metropolitan scientists then develop a copper sulfate application plan to control the specific algae that are associated with the elevated geosmin and/or MIB concentrations.

Prior to application of copper sulfate, Metropolitan evaluates potential operational strategies to avoid introducing the taste and odor compounds into the distribution system. These modifications may include withdrawing water from varying depths on the intake towers, blending, or utilizing other sources of water until the taste and odor compounds naturally disperse. If application of copper sulfate is deemed necessary, this early warning monitoring provides detailed information on the location of the source blooms, allowing for spot-applications.

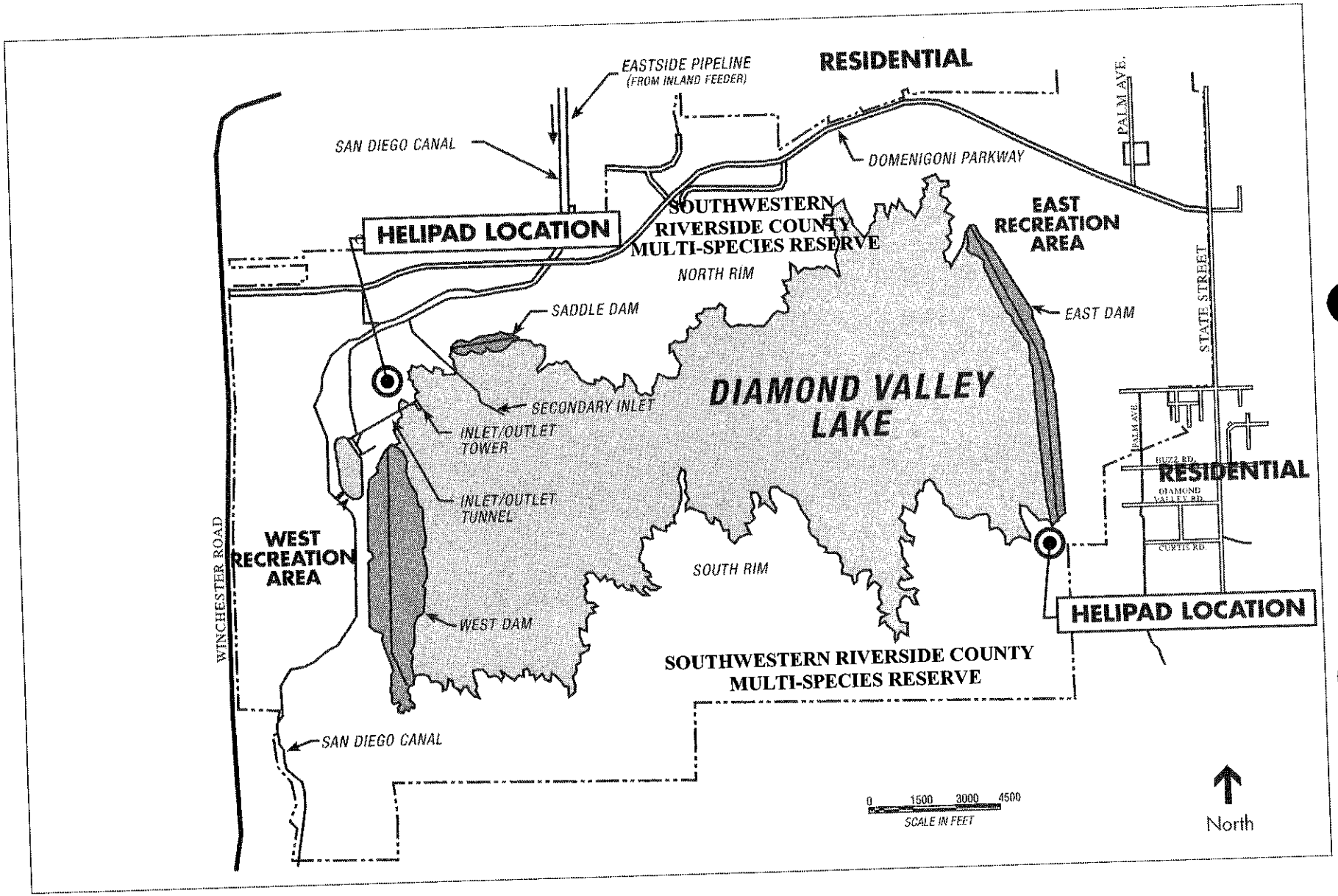

FIGURE 2: Diamond Valley Lake

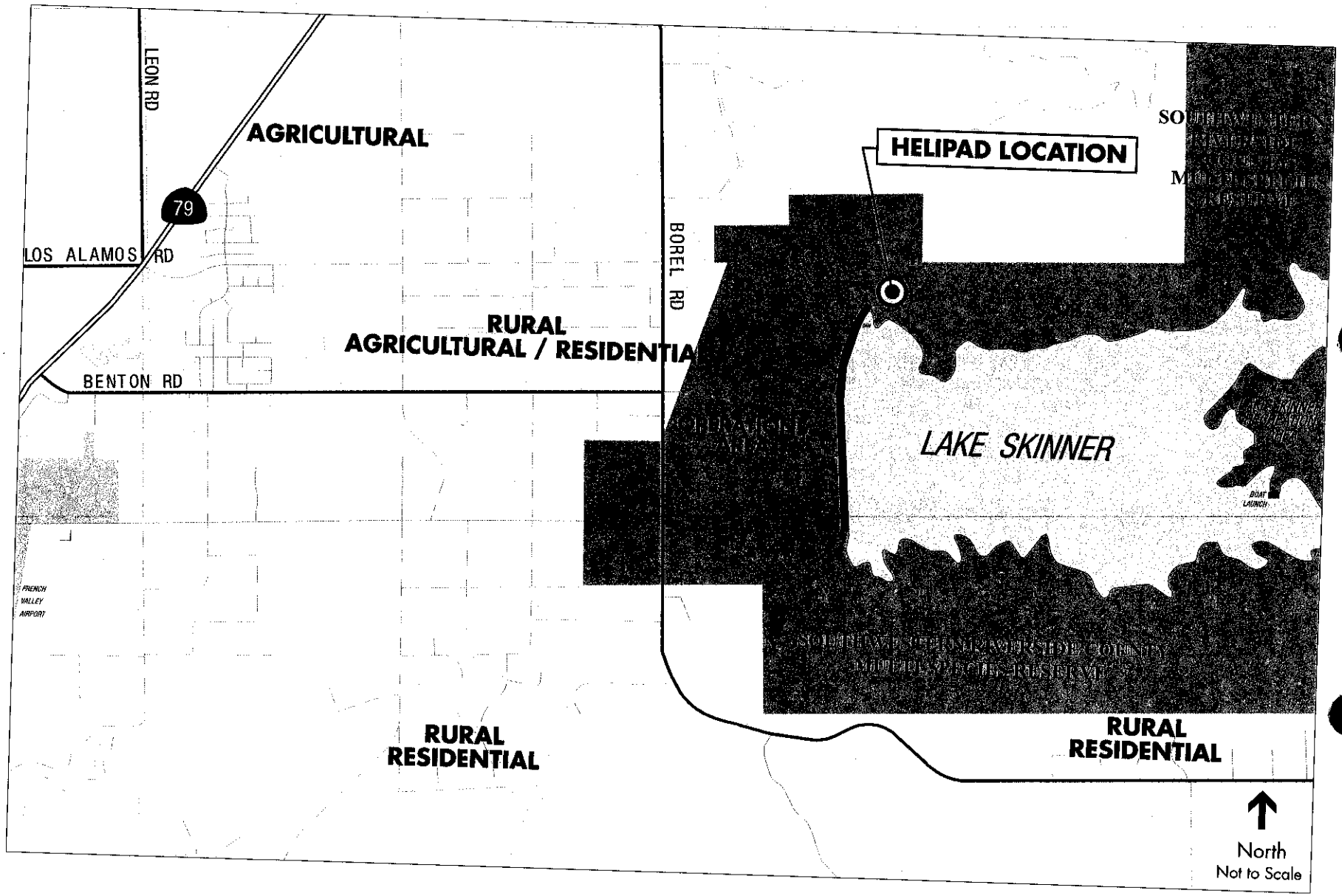

FIGURE 3: Lake Skinner

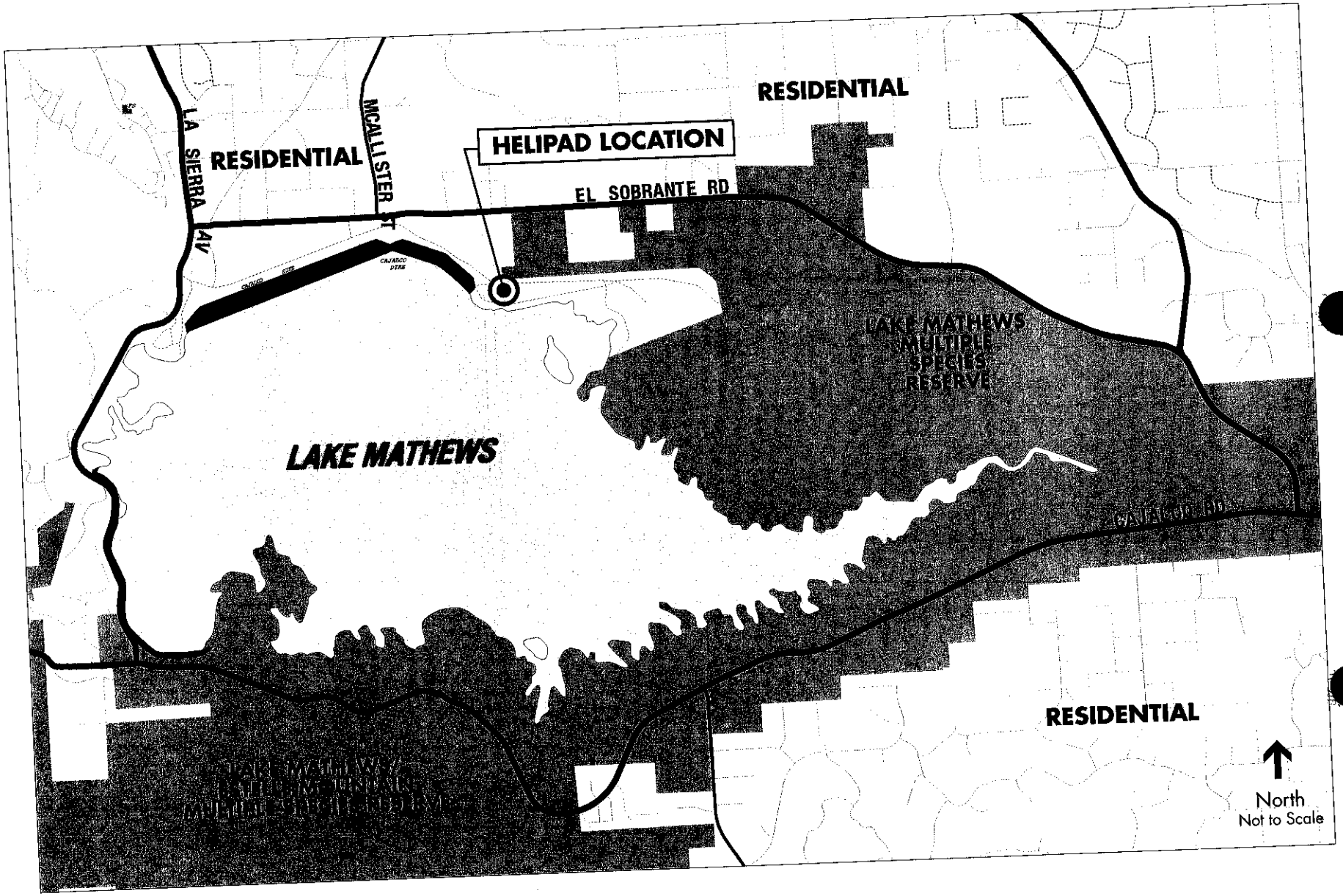

FIGURE 4: Lake Mathews

		Lake Skinner	Lake Mathews	Diamond Valley Lake
Pool Data	Maximum Volume (af)	44,423	182,000	800,000
	Maximum Pool Elevation (ft)	1,479	1,390	1,756
	Spillway Elevation (ft)	1,479	1,390	1,756
	Maximum Depth (ft)	89	180	260
	Mean Depth (vol./sa)	37	66	178
Surface Data	Maximum Surface Area (acres)	1,200	2,750	4,500
	Shoreline Length (mi)	14	25	26
	Watershed Area (sq. mi.)	51	39	13
Flow Data	Typical Winter Inflow (cfs)	800	600	N/A (New)
	Typical Summer Inflow (cfs)	1,200	800	N/A (New)
	Typical Winter Outflow (cfs)	800	500	N/A (New)
	Typical Summer Outflow (cfs)	1,200	1,200	N/A (New)

TABLE 1: Metropolitan Reservoirs' Characteristics

Where:

af = acre feet
ft = feet
vol = volume
sa = surface area
mi = miles
sq. mi = square miles
cfs = cubic feet per second
N/A = not available

Metropolitan's current Algae Monitoring and Management Program has been in place since the early 1990s and was developed specifically to reduce the use of copper sulfate. Since that time, Metropolitan's use of copper sulfate has decreased dramatically, as shown in Figure 5 for Lake Mathews and Lake Skinner. Copper sulfate has not yet been applied to the newly filled Diamond Valley Lake.

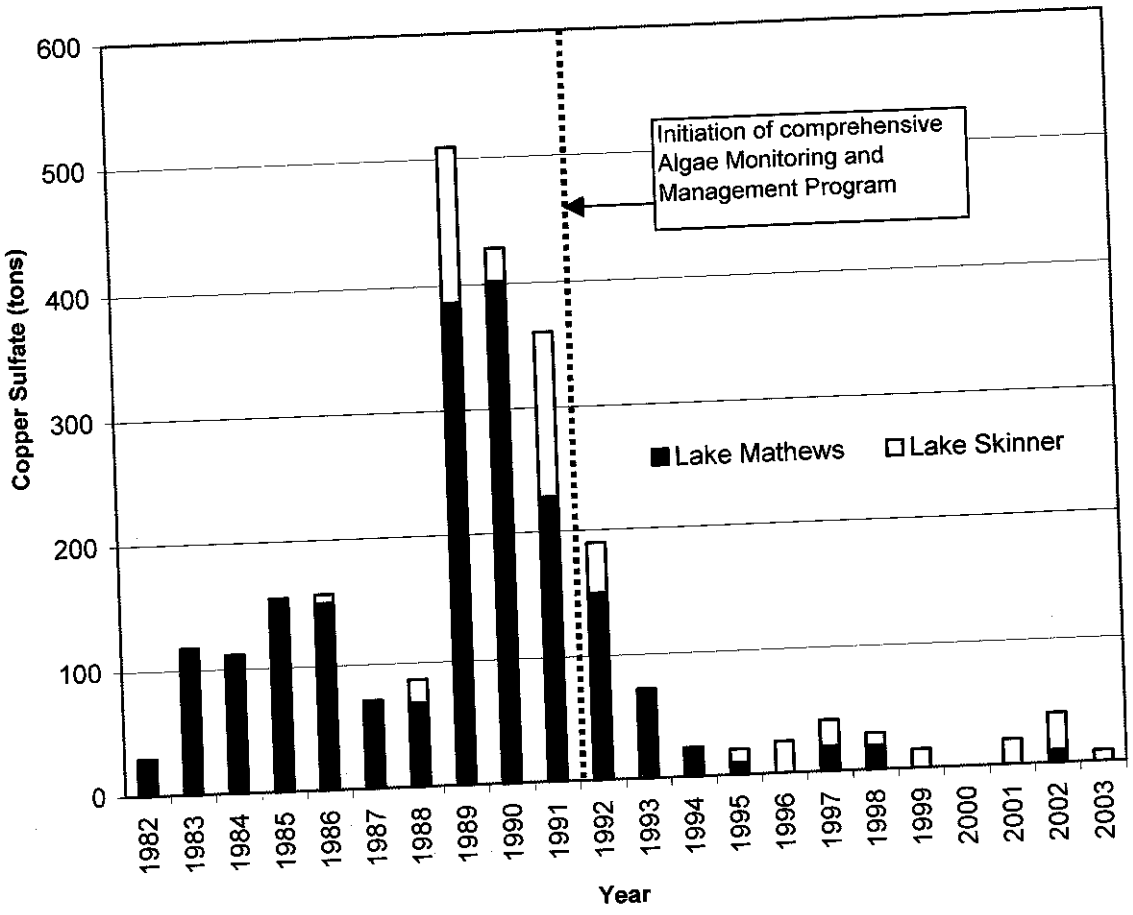

FIGURE 5: Annual Copper Sulfate Applications at Lake Mathews and Lake Skinner

PROJECT DESCRIPTION

Metropolitan proposes to continue the existing copper sulfate application operations at Lake Mathews and Lake Skinner for controlling algal blooms under the new NPDES permit, although such operations would be extended to include the newly filled Diamond Valley Lake.

Metropolitan's *Monitoring Plan for Copper Sulfate Treatments of Source Water Reservoirs*, herein referred to as "Monitoring Plan" was prepared to control taste and odor problems while minimizing the use of copper sulfate (refer to Appendix A).

Metropolitan proposes this Monitoring Plan in support of the new NPDES permit. This Monitoring Plan would implement procedures to collect pre-treatment water samples within 48 hours of treatment at varying depths with the treatment area and from the reservoir outflow, and that post-treatment samples be collected at the following intervals until the soluble copper concentration would return to pre-treatment levels:

- Within two days;
- Seven to ten days;
- Fifteen to 20 days; and
- If required, sampling would continue at ≤14-day intervals after the first 20 days until the soluble copper concentration returns to pre-treatment levels.

These monitoring results would be reported to the SWRCB after each pesticide application event.

A pre-application meeting would precede each treatment to coordinate staff and applicator contractor activities. Applications of copper sulfate crystals would be made to the reservoirs using agricultural spreaders suspended from helicopters. The spreaders would be operated over areas identified for treatment. Heliports or landing pads with loading areas currently are located at both ends of Diamond Valley Lake (at the East Dam and West Dam), on the north side of Lake Skinner (just east of the dam), and at the north side of Lake Mathews (near the end of the dike), and would continue to be used for the Project (see Figures 2 through 4). No new facilities would be constructed in support of the proposed Project.

The solid copper sulfate (in crystalline form) would continue to be stored at an existing warehouse at Lake Mathews. When needed for application, one-ton sacks of copper sulfate would be transported on flatbed trucks from the warehouse to heliports at each of the reservoirs. Metropolitan staff would then position the sacks of copper sulfate over a loading-hopper with a forklift and then slit the bags so that the copper sulfate empties directly into the hopper. An enclosed conveyor belt would move material from this loading-hopper to the agricultural spreader supplied by the helicopter company. The helicopter applicator would be properly licensed for application of pesticides, and ground crews would wear appropriate personal protective equipment (PPE) to reduce exposure to copper sulfate. PPE utilized during operations would include Tyvek coveralls worn over cotton coveralls, powered air purifying respirator hoods (with extended shrouds), gloves, and boots. A water tanker would be stationed at the site for dust suppression and site cleanup.

Approximately ten workers would be needed to undertake an application. An application event would generally occur at only one reservoir at a time. It would be highly unlikely that all three reservoirs would be treated at once. Equipment utilized during an application event would include a haul-truck to carry the sacks of copper sulfate to the helicopter pads, a forklift to handle the pallets of copper sulfate, a water truck for site cleanup, and a helicopter to apply copper sulfate to the reservoirs. An emergency response trailer would be stationed onsite during the application events.

Additionally, a fuel truck may be onsite for helicopter refueling during the treatment process. All refueling activities would be in according with applicable state and federal regulations, including Occupational Safety and Health Administration (OSHA) regulations.

During application, the Diamond Valley Lake and Lake Skinner reservoirs would be closed for recreational use. No recreational uses are allowed at Lake Mathews. Metropolitan staff would direct helicopter crews from a boat on the reservoir (setting buoys on the reservoir if necessary) to

assure application(s) in designated areas of the reservoir only. Application areas would vary in size, but may be greater than 1,000 acres. No changes in current existing application methods would be proposed for the Project. Figures 6 through 11 show photographs of the current application process conducted under the interim General Permit.

PROJECT SCHEDULE

Application of copper sulfate would be carried out only as needed, that is, when Metropolitan's Algae Monitoring and Management Program determines that a window of opportunity exists to eliminate an algae bloom and operational strategy options have been exhausted. In the past five years, copper sulfate applications have occurred between zero to three times per year lasting between four to eight hours per application event at both Lake Mathews and Lake Skinner. Diamond Valley Lake has not yet received a copper sulfate treatment.

REQUIRED APPROVALS

- Continued application of copper sulfate would require obtaining a permit from the SWRCB.

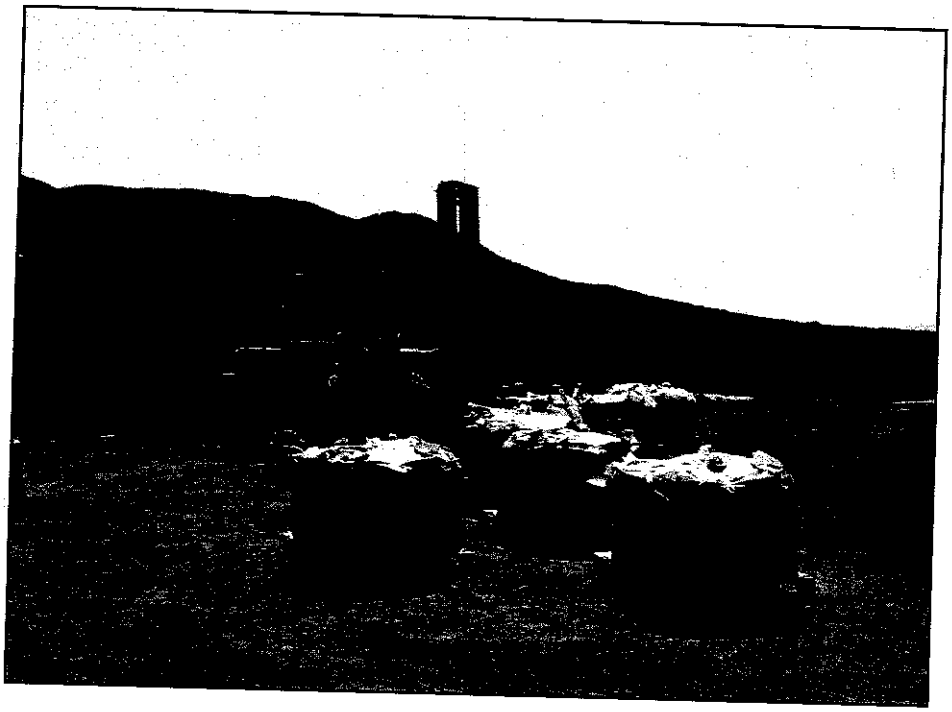

FIGURE 6: Copper Sulfate on Pallets

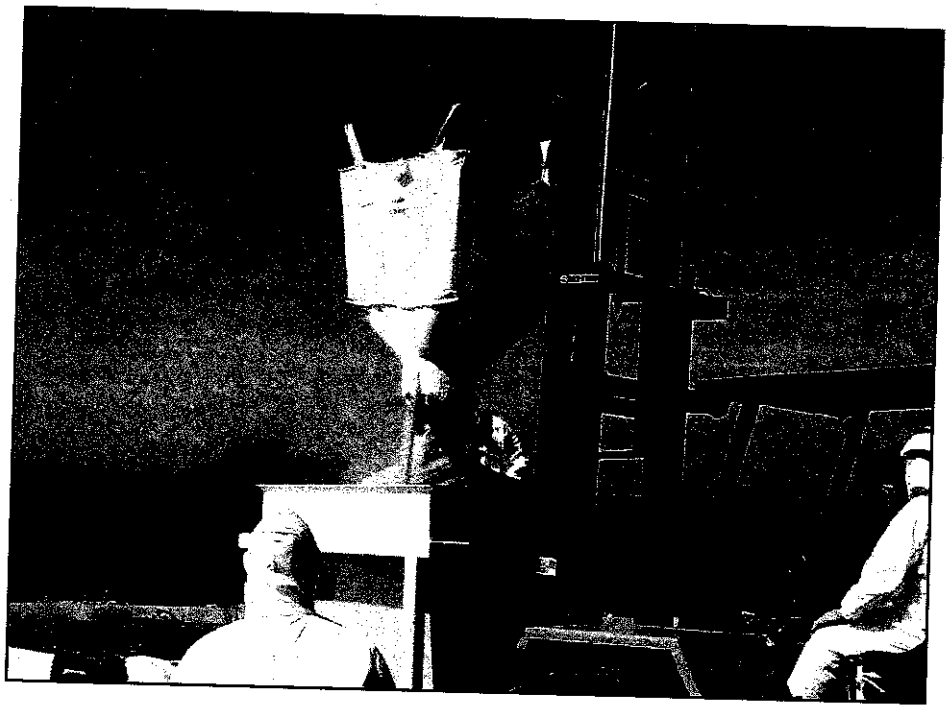

FIGURE 7: Transferring Copper Sulfate into Loading-Hopper

FIGURE 8: Loading Copper Sulfate into Spreader

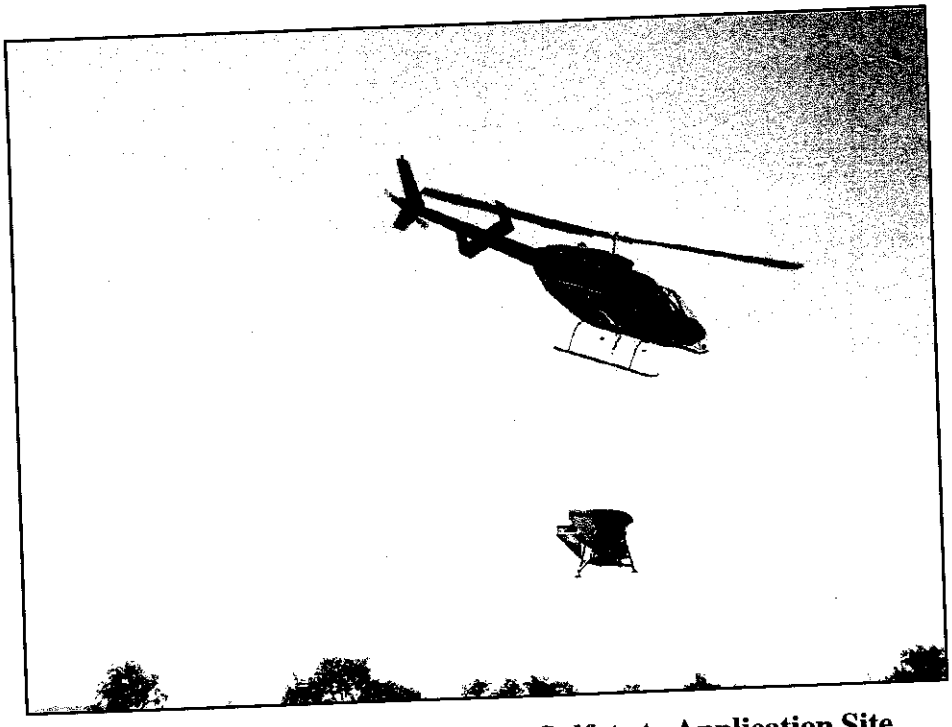

FIGURE 9: Transporting Copper Sulfate to Application Site

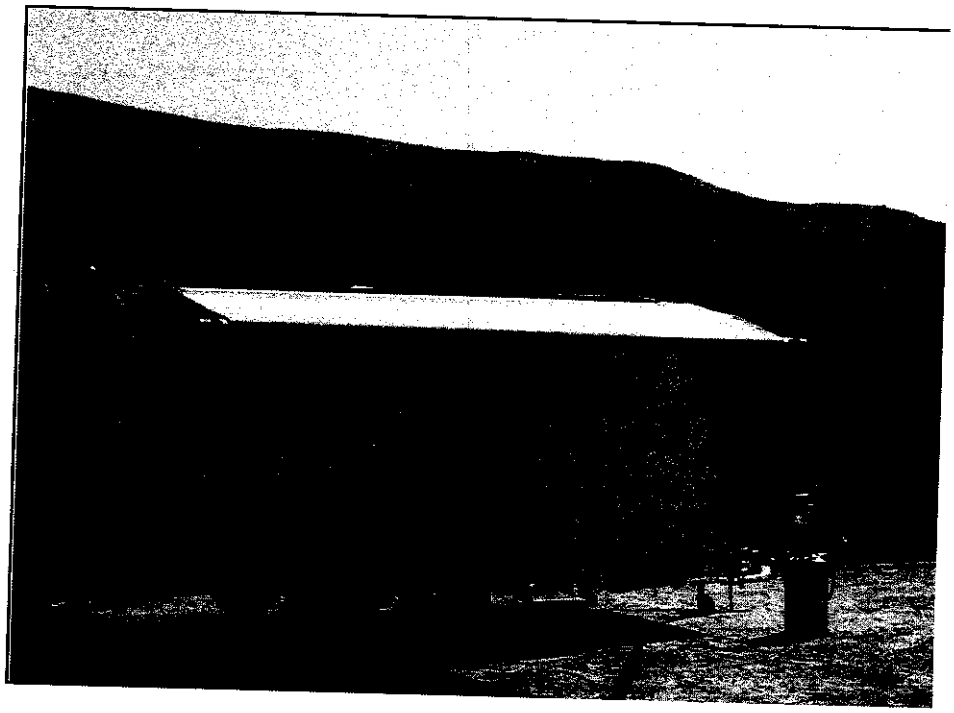

FIGURE 10: Mobile Emergency Response Trailer

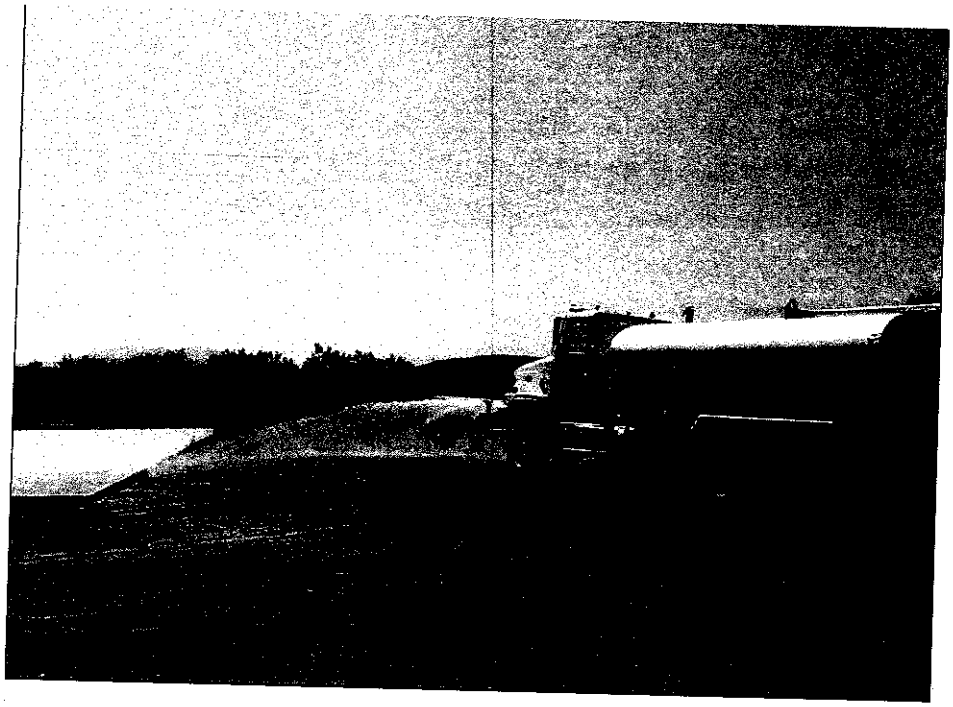

FIGURE 11: Dust Suppression and Site Cleanup

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SECTION 2
INITIAL STUDY

This MND complies with Section 21064.5 of the California Public Resources Code (California Environmental Quality Act [CEQA]) and Article 6 of the *State CEQA Guidelines* (14 California Code of Regulations). The following Initial Study, Environmental Checklist, and evaluation of potential environmental effects (see Section 3) were completed in accordance with Section 15063(d) of the *State CEQA Guidelines* to determine if the proposed Project could have any potentially significant effect on the physical environment, and if so, what mitigation measures would be imposed to reduce such impacts to less-than-significant levels.

An explanation is provided for all determinations, including the citation of sources as listed in Section 5. A "No Impact" or a "Less-than-Significant Impact" determination indicates that the proposed Project would not have a significant effect on the physical environment for that specific environmental category. With regard to the water quality and hazardous materials categories, the proposed Project would include specific mitigation measures (see Section 4) to reduce the potentially significant impacts to a less-than-significant levels. No other environmental categories for this evaluation were found to be potentially affected in a significant manner by the proposed Project.

INITIAL STUDY AND ENVIRONMENTAL CHECKLIST FORM

1. Project Title:	The Application of Copper Sulfate to Lake Mathews, Lake Skinner, and Diamond Valley Lake to Control Algal Blooms
2. Lead Agency Name and Address:	The Metropolitan Water District of Southern California 700 N. Alameda Street Los Angeles, CA 90012
3. Contact Person and Phone Number:	Anthony A. Klecha (213) 217-5528
4. Project Location:	Lake Skinner, Lake Mathews, and, Diamond Valley Lake in Riverside County
5. Project Sponsor's Name and Address:	The Metropolitan Water District of Southern California 700 N. Alameda Street Los Angeles, CA 90012
6. General Plan Land Use Designation:	Reservoir
7. Zoning:	Public facilities
8. Description of Project:	See Project Description in Section 1 of the MND
9. Surrounding Land Uses and Setting:	See Project Location in Section 1 of the MND
10. Other Agencies Whose Approval is Required:	SWRCB

Environmental Factors Potentially Affected:

The environmental factors checked below would be potentially affected by the proposed Project, involving at least one impact that is a "Potentially Significant Impact" as indicated by the checklist on the following pages:

☐ Aesthetics	☐ Agriculture Resources	☐ Air Quality
☐ Biological Resources	☐ Cultural Resources	☐ Geology/Soils
☐ Hazards & Hazardous Materials	☐ Hydrology/Water Quality	☐ Land Use/Planning
☐ Mineral Resources	☐ Noise	☐ Population/Housing
☐ Public Services	☐ Recreation	☐ Transportation/Traffic
☐ Utilities/Service Systems	☐ Mandatory Findings of Significance	

DETERMINATION: (To be completed by lead agency)
On the basis of this initial evaluation:

☐ 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.

Laura J. Simonek
Signature

NOV. 10, 2003
Date

Laura J. Simonek
Printed Name

The Metropolitan Water District of Southern California
For

SECTION 3
EVALUATION OF ENVIRONMENTAL IMPACTS

I. AESTHETICS – Would the project:

	Potentially Significant Impact	*Less Than Significant With Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
a) Have a substantial adverse effect on a scenic vista?	☐	☐	☐	☒
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☐	☒
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	☐	☐	☐	☒
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	☐	☒

Discussion:

a) No Impact. No designated scenic vistas or state scenic highways overlook any of the reservoirs. The closest Caltrans-designated scenic highway to any of the reservoirs is State Route 74 traversing the San Jacinto Mountains terminating approximately 15 miles east of Diamond Valley Lake.[3] This Caltrans-designated scenic route connects with State Route 243 also within the San Jacinto Mountains. A Scenic Vista Point is located near Idyllwild overlooking western Riverside County approximately 20 miles east of Diamond Valley Lake. The proposed Project would not alter existing scenic conditions because no new structures would be built. No impact would occur.

b) No Impact. The proposed Project would consist entirely of the periodic application of aquatic pesticides to the existing reservoirs and would not involve any permanent or long-term alterations to existing visual conditions. Implementation of the proposed Project would not affect any historic buildings, rock outcroppings or other scenic resources. Hence, the proposed Project would have no impact on existing scenic resources.

c) No Impact. No structures, physical alterations, or other physical changes would be included in the proposed Project that would degrade visual conditions in the vicinity. Hence, the proposed Project would not degrade the existing visual character or quality of the site and its surroundings. Therefore, no impact would result from Project implementation.

[3] Caltrans website, http://www.dot.ca.gov/hq/LandArch/scenic/schwy4.html

d) No Impact. The proposed Project would not introduce any new source of substantial light or glare. Therefore, implementation of the proposed Project would have no impact.

II. AGRICULTURE RESOURCES: In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1977) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. Would the project:

	Potentially Significant Impact	*Less Than Significant With Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
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 California Resources Agency, to non-agricultural use?	☐	☐	☐	☒
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☒
c) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use?	☐	☐	☐	☒

Discussion:

a, b & c) No Impact. There are no agricultural resources or operations within the Project sites. All Project activities would be conducted entirely within Metropolitan-owned property at the existing reservoirs. No development or acquisition of new lands would be involved. Therefore, no lands enrolled under the Williamson Act would be impacted. No impacts to agricultural resources would occur.

III. AIR QUALITY: Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:

	Potentially Significant Impact	*Less Than Significant With Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☒	☐
b) Violate any air quality standard or contribute to an existing or projected air quality violation?	☐	☐	☒	☐
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)?	☐	☐	☒	☐
d) Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☒	☐
e) Create objectionable odors affecting a substantial number of people?	☐	☐	☐	☒

Discussion:

a & b) Less-than-significant Impact. The proposed Project would be situated within the South Coast Air Basin (SCAB). The South Coast Air Quality Management District (SCAQMD) is the regional agency empowered to regulate stationary and certain mobile air emission sources within SCAB. The SCAB is in non-attainment for ozone, particulates (PM_{10}), and carbon monoxide (CO). The SCAQMD has prepared an Air Quality Management Plan (AQMP), most recently updated in 1997, which establishes emissions control measures for activities within the air basin that contribute to the non-attainment condition. The proposed Project would result in minimal vehicle emissions from the use of a helicopter, a forklift, a haul truck, and a water truck during application events (see Table 2). Within the previous five years, Metropolitan has applied copper sulfate to its reservoirs between zero and three times per year. The proposed Project would not involve any construction activities, nor would it change existing conditions. The proposed Project would not conflict with or result in an impact to policies or control measures established in the AQMP, and would not result in a violation of air quality standards.

c) **Less-than-significant Impact.** Emissions associated with the Project would include helicopter exhaust and forklift diesel exhaust emissions, as well as emissions generated from the use of a haul truck and a water truck a few days per year. Within the previous five years, Metropolitan has applied copper sulfate to its reservoirs between zero and three times per year. The Project would also result in minor dust emissions resulting from the application process. The proposed Project would not result in a cumulatively considerable increase in any of the emissions of criteria pollutants. Based on past experiences, the likelihood of all three reservoirs being treated at the same time would be minimal. Table 2 summarizes estimated emissions for an eight-hour application event. Emissions estimates include the use of a helicopter, a forklift, a haul truck, a water truck, and worker commutes to and from the Project sites. The Project would not exceed the thresholds of significance established the SCAQMD. Appendix B includes air emissions calculation worksheets. Furthermore, the proposed Project would not change the existing condition. The emissions associated with the Project would be less than significant.

TABLE 2: Estimated Project Operational Emissions

Air Pollutant	SCAQMD Thresholds	Project Operations
Carbon Monoxide	550 lbs/day	54 lbs/day
Reactive Organic Compounds	55 lbs/day	11 lbs/day
Nitrogen Oxides	55 lbs/day	13 lbs/day
Particulate Matter	150 lbs/day	3 lbs/day

Source: SCAQMD, 1993.

d) **Less-than-significant Impact.** Copper sulfate would be directly administered to the reservoirs from an agricultural spreader attached to a helicopter, thereby avoiding sensitive receptors. The SCAQMD defines sensitive receptors as residential areas, schools, playgrounds, health care facilities, day care facilities, and athletic facilities. Figures 2 through 4 identify local land uses including sensitive receptors near each reservoir. The closest sensitive receptors to any of the reservoirs are scattered residences approximately 2,000 feet from Lake Mathews. The reservoirs, including the public marinas at Diamond Valley Lake and Lake Skinner would be closed for recreational boating and fishing during application periods.

Since the copper sulfate applied to the water would be in a granular form, any dust emissions generated by its application would be minimal. Copper sulfate is not a toxic air contaminant according to the SCAQMD. Most of the dust would settle out into the reservoirs within a few hundred feet of the application areas. Therefore, implementation of the proposed Project would have a less-than-significant impact on local sensitive receptors.

e) **No Impact.** Project implementation would not create any substantial odors. Copper sulfate is odorless.[4] The purpose of the pesticide application would be to reduce taste and odor-producing algae growth in the reservoirs. The pesticides handled by the proposed Project would be assembled offsite and flown in and deposited via helicopter. The Project would not generate any odors (i.e., no impact).

4 Material Safety Data Sheet, Triangle Brand Copper Sulfate Crystal

IV. BIOLOGICAL RESOURCES – Would the project:

	Potentially Significant Impact	*Less Than Significant With Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
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?	☐	☐	☒	☐
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?	☐	☐	☒	☐
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?	☐	☐	☒	☐
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☐	☒	☐
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☐	☒
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Conservation Community Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	☒

Discussion:

a) **Less-than-significant Impact.** The proposed Project would involve the periodic application of aquatic pesticides (copper sulfate) to the existing Lake Skinner, Lake Mathews, and Diamond Valley Lake reservoirs. Several federal and state-listed threatened and/or endangered species are known to exist in terrestrial areas adjacent to the Project sites, including Stephens' kangaroo rat (*Dipodomys stephensi*), California gnatcatcher (*Polioptila californica*), ferruginous hawk (*Buteo regalis*), orange-throated whiptail (*Cnemidophorus hyperythrus beldingi*), San Diego horned lizard (*Phrynosoma coronatum blainvillei*), northern red-diamond back rattlesnake (*Crotalus ruber ruber*), and San Diego black-tailed jackrabbit (*Lepus californicus bennettii*). These animals currently are managed under the terms of the Lake Mathews Multiple Species Habitat Conservation Plan and Natural Community Conservation Plan (MSHCP/NCCP)[5] (Lake Mathews) and the Southwestern Riverside County Multi-Species Reserve Habitat Conservation Plan[6] (Diamond Valley Lake and Lake Skinner). These reserve lands are also identified for conservation under the Riverside County MSHCP/NCCP and the Riverside County Habitat Conservation Agency Habitat Conservation Plan (HCP).

The proposed Project would not affect habitat conservation areas. Project activities would include unloading pallets of copper sulfate from a truck to the helicopter pad area, loading the copper sulfate into bins and depositing the material into the reservoir using a helicopter. No copper sulfate would be dispersed within the habitat conservation areas. The concrete/asphalt helicopter pad areas are devoid of vegetation and are not part of the habitat conservation areas. Terrestrial species would not be impacted by the Project.

Lake Skinner, Lake Mathews, and Diamond Valley Lake reservoirs support established warmwater and coldwater, non-native, recreational fisheries and their associated aquatic habitat.[7] Game species found in the reservoirs include large mouth bass (*Micropterus salmoides*), small mouth bass (*Micropterus dolomieu*), striped bass (*Menidia audens*), channel catfish (*Ictalurus punctatus*), blue catfish (*Ictalurus* furcatus), yellow bullhead (*Ameiurus natalis*), bluegill (*Lepomis macrochirus*), green sunfish (*Lepomis cyanellus*), redear sunfish (*Lepomi microlophus*), black crappie (*Pomoxis nigromaculatus*), bigscale logpearch (*Percina macrolepida*), and rainbow trout (*Oncorhynchus mykiss*). Other non-native fish and invertebrates found in the three reservoirs include carp (*Cyprinus carpio*), shimifori goby (*Tridentiger bifasciatus*), threadfin shad (*Dorosoma petenense*), inland silversides (*Menidia beryllina*), signal crayfish (*Pacifasticus leniusculus*), red swamp crayfish (*Procambarus clarkii*), and softshell turtle (*Apalone spinifera*). Two native species of fish, the tule perch (*Hysterocarpus traski*), and the prickly sculpin (*Cottus asper*), have records of occurrence in Diamond Valley Lake reservoir as well.[8] None of these species are listed or fully protected species.

5 Metropolitan and Riverside County Habitat Conservation Agency, 1995

6 *Ibid*, 1992

7 Eastside Reservoir Project Environmental Planning Technical Report, June 1991

8 Giusti, Michael S., Fish Species at Diamond Valley Lake, Skinner and Mathews, Oct. 6, 2003

Studies have shown that the application of copper sulfate to surface waters for nuisance algae control in reservoirs has no apparent negative effects within most adult game fish.[9] However, copper sulfate has been shown to be toxic to larval fish and aquatic invertebrates[10] and has shown a potential for bioaccumulation depending on the physical, biological, and chemical factors present within the ecosystem.[11] Due to the relative infrequency of applying copper sulfate to Lake Mathews and Lake Skinner and the diminishing concentration retained in the water over a short period of time, substantial reductions of zooplankton, including early life history stages of the non-native fishes, have not been detected. Bioaccumulation of copper sulfate poses less of a threat to birds than to other animals, with the lowest lethal dose for this material in pigeons and ducks being 1,000 parts per million (mg/kg).[12]

Copper sulfate has been used at Lake Mathews since 1941 to control algae blooms in quantities far greater than currently used under Metropolitan's Algae Monitoring and Management Program, which has been in place since the early 1990s. Despite such use, no adverse impacts to the fish and benthic organism populations present within this reservoir have been identified.[13]

Similarly, in 2002 copper sulfate was applied twice in Lake Skinner (May 28 and August 2) and once in Lake Mathews (July 6). There were no fish kills during any of these treatments and copper levels returned to pre-treatment levels within 9 to 20 days.[14]

Metropolitan's Monitoring Plan would include a list of Best Management Practices (BMPs), such as selective withdrawal, bypass, and blending of water, that would be implemented in an effort to minimize the amount of copper sulfate used to manage algae problems and, in turn, would further reduce less-than-significant impacts on aquatic species and their environment.

Implementation of Metropolitan's existing Algae Monitoring and Management Program in conjunction with the proposed Monitoring Plan would substantially reduce the use of copper sulfate. Application of copper sulfate in specific areas of the reservoirs would provide opportunities to fish to avoid the application sites. While temporary impacts to these animals may occur during pesticide applications, the Project's impacts would be less than significant.

b & c) Less-than-significant Impact. The proposed Project would be implemented entirely within the open water of the existing Project reservoirs and would not disturb any upland habitat adjacent to the Project areas. Aquatic vegetation within the Project areas is primarily limited to those species most likely to survive reservoir water level fluctuations such as pondweeds (*Potomogeton sp.*) and bushy pondweed (*Najas marina*). Shoreline vegetation within Lake Skinner and Lake Mathews support small areas of wetland and riparian habitat. These areas are dominated by cattail (*Typha latifolia*), sedge (*Carex sp.*), bulrush (*Scirpus sp.*), willow (*Salix sp.*), barnyard grass (*Echinochloa crugalli*), and mule fat (*Baccharis salicifolia*). Diamond Valley Lake supports no wetland habitat.

9 Anderson, M. A., et al. 2001
10 Diamond, J.M. et al. 1997
11 TOXNET. 1975-1986
12 Tucker, R. and D.G. Crabtree. 1970
13 Anderson, M. A., et al. 2001
14 Annual 2002 Monitoring Report Aquatic Pesticides to Surface Waters

One of the limiting factors in the use of copper sulfate is its potential for phytotoxicity, or poisonous activity in plants.[15] Copper sulfate can kill plants by disrupting photosynthesis at levels above 200 ppm. However, it has a low propensity to accumulate in soil, usually precipitating out of solution and becoming biologically inactive.[16] With the implementation of Metropolitan's current Algae Monitoring and Management Program, levels of copper sulfate in these reservoirs have been maintained at a level that generally is less than 0.1 ppm. Therefore, the proposed Project would result in less-than-significant impacts to the reservoirs' vegetation (excluding the target species, algae) and their associated instream wetlands and riparian habitats.

d) **Less-than-significant Impact.** Project activities would be conducted entirely within the existing reservoirs and would not interfere substantially with the movement of any native resident or migratory fish or wildlife corridors, or impede the use of native wildlife nursery sites. Resident fish and potential impacts to fish nursery sites are evaluated in Item IV.a above. The impact would be less than significant.

e) **No Impact.** The Project would consist of applying aquatic pesticides to the water of existing reservoirs and would not conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance. No impact would occur.

f) **No Impact.** Select upland areas around Lake Mathews, Lake Skinner, and Diamond Valley Lake are designated as reserves and managed under various Conservation Plans (refer to Item IV.a). The proposed Project would be conducted entirely within the existing reservoirs and designated operations areas, outside of upland habitat, and would not affect any MSHCP, Natural Community Conservation Plan or other Conservation Plan. Therefore, the proposed Project would not conflict with or impact any provisions of an adopted Habitat Conservation Plan, Natural Conservation Community Plan, or other approved local, regional, or state habitat conservation plan.

V. CULTURAL RESOURCES – Would the project:

	Potentially Significant Impact	*Less Than Significant With Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
a) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?	☐	☐	☐	☒
b) Cause a substantial adverse change in the significance of a unique archaeological resource pursuant to §15064.5?	☐	☐	☐	☒
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☐	☐	☒

[15] U. S. Environmental Protection Agency. 1986

[16] TOXNET. 1975-1986

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

Discussion:

a, b, c & d) No Impact. Cultural resources occur within the vicinities of the reservoirs. The proposed Project would be implemented entirely within the open water of the existing Project reservoirs and would include no elements that would alter or otherwise disturb any known historical, archaeological or paleontologic resources. As the Project would only involve water treatment with no ground disturbances, there would be no impacts to unrecorded cultural resource sites. Therefore, no impacts to cultural resources would occur.

VI. GEOLOGY AND SOILS – Would the project:

	Potentially Significant Impact	*Less Than Significant With Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
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 a known fault? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	☐	☒
ii) Strong seismic ground shaking?	☐	☐	☐	☒
iii) Seismic-related ground failure, including liquefaction?	☐	☐	☐	☒
iv) Landslides?	☐	☐	☐	☒

b) Result in substantial soil erosion or the loss of topsoil?	☐	☐	☐	☒
c) Be located on strata 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?	☐	☐	☐	☒
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code, creating substantial risks to life or property?	☐	☐	☐	☒
e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	☐	☐	☐	☒

Discussion:

a, b, c, d & e) No Impact. The Project would consist of applying copper sulfate to the water of existing reservoirs and would not include any new structures, ground disturbances, or other elements that could expose persons or property to geological hazards. There would be no risk of landslide or erosion of topsoil. The Project would not require a septic or other wastewater system, as workers would use existing facilities in the operation areas of the reservoirs. No impacts to soils or geologic conditions would occur.

VII. HAZARDS AND HAZARDOUS MATERIALS – Would the project:

	Potentially Significant Impact	*Less Than Significant With Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☒	☐	☐
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?	☐	☒	☐	☐

c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☐	☒
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?	☐	☐	☐	☒
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?	☐	☐	☒	☐
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?	☐	☐	☒	☐
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒
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?	☐	☐	☐	☒

Discussion:

a & b) Less-than-significant Impact with Mitigation Incorporation. The proposed Project would involve handling copper sulfate, which is a regulated hazardous material. Acute exposure to humans can cause eye, skin, and respiratory irritation, and can be harmful if swallowed.[17] The Material Safety Data Sheet (MSDS) for copper sulfate is included in Appendix C. Use of this material would create a potential for spills that could affect worker safety and the environment. The spills could occur potentially at the storage warehouse at Lake Mathews, during transport to the helicopter pads, during loading into the spreader, and during transport by helicopter to the application sites.

[17] Material Safety Data Sheet, Triangle Brand Copper Sulfate Crystal

Additionally, a fuel truck may be onsite for helicopter refueling during the treatment process. All refueling activities would be in according with applicable state and federal regulations, including OSHA regulations.

Potential risks would exist for spills to occur during the application process. Exposure to spills could affect humans and the environment. Metropolitan has instituted a Hazardous Waste Management Program that sets forth policy, requirements, and responsibilities for evaluation, handling, storage, disposal, transport, and source reduction of hazardous waste. The existing Program includes procedures for containment and cleanup of hazardous materials/wastes spills, and establishes hazardous waste contingency plans (see Figures 10 and 11). Section 107.003 of this Program covers the safe use and application of pesticides. Compliance with this Program during the implementation of the proposed Project would reduce the potential risks for spills and potentially significant impacts of spills to less-than-significant levels. Figure 10 shows the emergency response trailer that would be present during each application event. With implementation of the proposed mitigation measures as noted below, along with the Hazardous Waste Management Program, the Project would result in a less-than-significant impact.

Mitigation Measure

To ensure worker safety protection, Metropolitan would require handlers of copper sulfate to undergo training specific to the copper sulfate application process. Metropolitan would also require workers to wear personal protective equipment for handling this pesticide, including disposable coveralls, gloves and respirators (see Figures 7 and 8). Metropolitan would further require that applications of copper sulfate be conducted in a manner consistent with the product labeling. Finally, Metropolitan would comply with the recommendations on the MSDS for worker protection to minimize potential for exposure to the copper sulfate.

With implementation of the following proposed mitigation measures, the potential to create a significant hazard to the public or to the environment would be reduced to a less-than-significant impact:

HAZ-1 *Annual training in copper sulfate safety shall be required for all Metropolitan employees participating in the application or handling of copper sulfate. Similarly, Metropolitan shall require that all participating contractors and their employees or agents secure and maintain in force such licenses and permits as are required by law, in connection with the application or handling of copper sulfate. Additional "toolbox" (i.e., "refresher") trainings may occur, as deemed necessary, prior to each treatment event.*

HAZ-2 *Metropolitan shall require its employees participating in the application or handling of copper sulfate to wear appropriate personal protective equipment, including protective eyewear, gloves, boots, and coveralls, as well as a respirator that meets OSHA 29 CFR 1910.134 requirements.*

HAZ-3 *Metropolitan shall apply copper sulfate in a manner consistent with the product labeling.*

HAZ-4 *Metropolitan shall comply with the recommendations provided on the Material Safety Data Sheet applicable to the specific copper sulfate product to be used.*

c) **No Impact.** No known existing or proposed schools are located within ¼ mile of the reservoirs or helicopter pads. The closest sensitive receptors to any of the reservoirs are residences located within 2,000 feet of Lake Mathews. No impact would occur.

d) **No Impact.** The Project sites are not listed on any hazardous waste site lists compiled in Government Code Section 65962.5. Hence, there would be no impact.

e & f) **Less-than-significant Impact.** Two airports are located within a two-mile range of the Project: the French Valley Airport and the Hemet-Ryan Airport. The Project would involve use of a helicopter likely departing from one of these airports, flying to the reservoirs, and utilizing existing helicopter pads. The application process would involve carrying spreaders containing copper sulfate over the reservoirs. No spreaders containing copper sulfate would fly over housing, roadways, or habitat conservation areas. The use of helicopters would not pose hazards to people working in the Project areas, nor would it result in any impacts to airport facilities.

g) **No Impact.** The proposed Project would not affect emergency evacuation routes, as public roadways would not be affected by the Project. No impact would result from the Project.

h) **No Impact.** The Project would not increase fire hazards at the reservoirs. Helicopter refueling activities would take place on existing concrete/asphalt pads. No impact from wildland fires would occur.

VIII. HYDROLOGY AND WATER QUALITY

– Would the project:

	Potentially Significant Impact	*Less Than Significant With Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
a) Violate any water quality standards or waste discharge requirements?	☐	☒	☐	☐
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there should 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)?	☐	☐	☐	☒

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?	☐	☐	☐	☒
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?	☐	☐	☐	☒
e) Create or contribute runoff water which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff?	☐	☐	☐	☒
f) Otherwise substantially degrade water quality?	☐	☒	☐	☐
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?	☐	☐	☐	☒
h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?	☐	☐	☐	☒
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?	☐	☐	☐	☒
j) Inundation of seiche, tsunami, or mudflow?	☐	☐	☐	☒

Discussion:

a) Less-than-significant Impact with Mitigation Incorporation.

Compliance with Federal and State Water Quality Standards:

National Toxics Rule / California Toxics Rule

As discussed in Section 1, the application of copper sulfate currently is permitted under and governed by Water Quality Order No. 2001-12-DWQ, NPDES Permit for Discharges of Aquatic Pesticides to Waters of the United States (General Permit), General Permit CAG990003. This General Permit was issued by the SWRCB in July 2001 and is scheduled to expire on January 31, 2004.

The SWRCB has notified interested parties that it intends to develop a new general permit for aquatic pesticides to replace the expiring General Permit No. CAG990003. However, to obtain coverage under this new permit, the SWRCB is requiring applicants to demonstrate either that its discharges comply with the water quality criteria for Priority Pollutants under the California Toxics Rule (CTR) and National Toxics Rule (NTR) or that it qualifies for an exception from compliance with such criteria, pursuant to Section 5.3 of the SWRCB's Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (SWRCB Policy). The CTR contains the copper water quality criteria for surface waters in California.

Among other things, Section 5.3 provides a Categorical Exception from the toxics standards where the discharge is necessary to implement control measures (1) for resource or pest management or (2) to meet statutory requirements under the federal Safe Drinking Water Act or the California Health and Safety Code, and for certain maintenance and cleaning activities. Metropolitan's purpose in periodically applying copper sulfate to its reservoirs is to control algal blooms and, in turn, achieve secondary drinking water standards for taste and odor. Therefore, such discharges qualify for a Categorical Exception to the toxics standards. Accordingly, Metropolitan plans to apply for coverage under the SWRCB's new general permit for aquatic pesticides and, as part of that application, seek a Categorical Exception for its use of copper sulfate. If granted, Metropolitan would comply with all terms and conditions of the general permit.

Metropolitan's use of copper sulfate to control algal blooms would temporarily elevate copper concentrations above the freshwater thresholds set forth in the CTR for aquatic life, resulting in a potentially significant impact.[18] However, with the implementation of the proposed mitigation measures (e.g., seeking a variance from these thresholds via a Categorical Exception), this potentially-significant impact would be reduced to a less-than-significant level.

[18] The recommended water quality criteria for copper in freshwater is dependent on water hardness and is expressed as chronic and acute values. When water hardness is 100 mg/l, the recommended acute threshold for copper is 13 micrograms per liter (µg/l). This level increases as water hardness increases. EPA, 2002

Existing data indicate that copper concentrations in Metropolitan's reservoirs decrease quickly following the initial application of this pesticide, generally dropping down to pre-application levels within a few days (see Appendices D and E). Furthermore, the copper concentrations are below the CTR copper human health criteria for consumption of water and organisms of 1.3 mg/l. Thus, Metropolitan's use of copper sulfate would not result in any long-term exceedance of the applicable toxics standards for copper.

Finally, Metropolitan would continue to monitor copper levels in accordance with its existing Monitoring Plan. This plan would require that pre-treatment water samples be collected within 48 hours before each application event and that post-treatment samples be collected at the following intervals until the soluble copper concentration would return to pre-treatment levels:

- Within two days;
- Seven to ten days;
- Fifteen to 20 days; and
- If required, sampling would continue at ≤14-day intervals after the first 20 days until the soluble copper concentration returns to pre-treatment levels.

The results of these monitoring events would be submitted to the SWRCB, pursuant to the reporting requirements of the NPDES permit (see Appendix D). The reports would indicate the hardness of the water and the calculated acute and chronic CTR thresholds for freshwater aquatic life beneficial uses. The sample analysis results would show the period when the copper concentrations exceed the thresholds, and when the concentrations would decrease below the calculated thresholds. Appendix E includes examples of the monitoring reports for pesticide application events that occurred in 2002 and 2003 at Lake Skinner and Lake Mathews.

National Toxics Rule / California Toxics Rule

Lake Mathews falls within the jurisdiction of the Santa Ana Regional Water Quality Control Board (RWQCB), but the Santa Ana Basin Plan (1995) does not identify any copper water quality objectives for this water body. (Diamond Valley Lake is not included in the Basin Plan since it was completed so recently.) Lake Skinner is within the jurisdiction of the San Diego RWQCB. The San Diego Basin Plan (1994) incorporates the Title 22 (California Code of Regulations) copper secondary maximum contaminant level (MCL) of 1.0 mg/l as the copper water quality objective for Lake Skinner's beneficial use as a drinking water supply. None of the reservoirs are included on the list of impaired water bodies prepared by the SWRCB pursuant to Section 303(d) of the CWA.

Application of the copper sulfate would temporarily increase copper levels at the application sites. However, overall copper levels within each reservoir would not exceed Basin Plan objectives. As part of the Project, Metropolitan would continue to monitor copper levels before and after each application as required by the Monitoring Plan (Appendix A). Monitoring results would be submitted to the RWQCB for review, as is the case presently.

National Toxics Rule / California Toxics Rule

The proposed Project would not adversely affect existing conditions. In fact, copper sulfate usage at the Metropolitan's reservoirs has decreased substantially over the last ten years, as shown in Figure 5. This decrease is the direct result of Metropolitan's voluntary implementation of an Algae Monitoring and Management Program, which includes site-specific analysis and operational strategies designed to minimize the use of pesticides while still meeting the state's secondary water quality standards. Therefore, the proposed Project would not conflict with the SWRCB's antidegradation policy.

Compliance with Federal and State Drinking Water Standards:

Metropolitan is responsible for ensuring that the water supplied to the public meets state and federal drinking water standards. California has primacy for the implementation of federal drinking water standards and compliance with state standards ensures compliance with federal standards. Title 22 of the California Code of Regulations establishes primary and secondary standards for copper. The primary standard, however, applies to the quality of water at the consumer's tap to ensure that the water delivered does not cause unacceptable leaching of any copper from plumbing. The primary standard is an Action Level of 1.3 mg/l. The secondary MCL is 1.0 mg/l.

Copper levels at Metropolitan's reservoir outlets are generally an order of magnitude below the federal and state drinking water standards. Copper levels measured at the outlets of Lake Mathews, Lake Skinner and Diamond Valley Lake between 1999 and October 2003 ranged from not detected (ND)[19] to 0.13 mg/l.

In addition, water withdrawn from these primary reservoirs undergoes conventional treatment prior to distribution. This treatment process involves coagulation, flocculation, sedimentation, filtration, and disinfection, which further reduces copper concentrations. Thus, periodic application of copper sulfate is not expected to adversely affect Metropolitan's ability meet applicable drinking water standards.

Mitigation Measures:

With the implementation of the following proposed mitigation measures, in conjunction with Mitigation Measure HAZ-3 (described above in Section VII, Hazards and Hazardous Materials), impacts to water quality standards and waste discharge requirements would be less than significant:

HYDRO-1 *Metropolitan shall apply for coverage under the State Water Resources Control Board's new NPDES Permit for Discharges of Aquatic Pesticides and, as part of that application, seek a Categorical Exception, pursuant to Section 5.3 of the SWRCB's Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California.*

[19] ND = Not detected at 0.01 mg/l.

HYDRO-2 *Metropolitan shall continue to monitor and report copper levels in its reservoirs in accordance with its existing SWRCB-approved Monitoring Plan for Copper Sulfate Treatments of Source Water Reservoirs (Monitoring Plan), as well as implement the Best Management Practices described in this plan, including, but not limited to:*

- *Continue implementation of an early warning system (e.g., frequent monitoring of taste and odor compounds, flavor profile analyses, microscopic analyses, and SCUBA diver observations) to facilitate utilization of strategies that minimize the amount of copper sulfate applied;*
- *To the extent feasible, take full advantage of operational options (e.g., selective water withdrawal, bypass and blending) to avoid or minimize the use of copper sulfate;*
- *To the extent feasible, treat algal blooms prior to their exponential growth phase to minimize the amount of copper sulfate used; and*
- *Focus resources on the specific type (i.e., planktonic or benthic) and location of the problem algae.*

Metropolitan shall implement this Monitoring Plan to the extent required as a condition of the new NPDES Permit but in all cases will continue to implement the best management practices identified above.

b) **No Impact.** The proposed Project would not involve any construction activities or require the use of groundwater. No impact on groundwater recharge or supplies would result from the Project.

c, d & e) **No Impact.** The proposed Project would not involve construction of any structures that would alter drainage patterns or increase storm water runoff. The Project would not increase erosion or siltation on- or off-site. No streambeds would be altered. No increase in drainage capacity of local storm sewers would be required. No impact would result from the Project.

f) **Less-than-significant Impact with Mitigation Incorporation.** See response to item VIII.a above.

g, h, i & j) **No Impact.** Since the proposed Project would involve no new construction, no housing or other structures would be placed within a designated 100-year floodplain. The proposed Project would not alter the floodplain or have the potential to redirect flood flows. The Project would not be subject to tsunami or inundation due to mudflows. Nor would the Project expose personnel to a substantial risk due to seiche waves or from flooding as a result of a catastrophic dam failure. Copper sulfate treatments would occur only periodically, as needed, for a duration of approximately four to eight hours, and would take place above reservoir surface elevations. Furthermore, each reservoir has a substantial freeboard around its perimeter, even when the reservoirs are full. Moreover, the dams at Lake Mathews, Lake Skinner, and Diamond Valley Lake have been designed and constructed to meet and/or exceed required standards. No impacts would occur.

IX. LAND USE AND PLANNING – Would the project:

	Potentially Significant Impact	*Less Than Significant With Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
a) Physically divide an established community?	☐	☐	☐	☒
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?	☐	☐	☐	☒
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?	☐	☐	☐	☒

Discussion:

a) No Impact. The proposed Project would be implemented within the open water of existing drinking water reservoir facilities in unincorporated Riverside County. Nearby housing and other development would not be affected. The proposed Project would not result in any division of an established community. Therefore, no impact would occur.

b) No Impact. The proposed Project would involve the application of copper sulfate to Lake Mathews, Lake Skinner, and Diamond Valley Lake, each of which is located in Riverside County within property owned and operated by Metropolitan. Each of the three sites has been designated as a drinking water reservoir/public facility in the newly adopted 2003 Riverside County Integrated Plan. The purpose of the proposed Project would be to control algal blooms and, in turn, achieve secondary drinking water standards for taste and odor. Implementation of the Project would not create any new land uses or alter any existing uses. Rather, the proposed Project would involve the continuation of copper sulfate treatments, which have occurred routinely at Lake Mathews and Lake Skinner for the past several years (copper sulfate treatments have not yet been necessary at Diamond Valley Lake). Implementation of the proposed Project would not conflict with any applicable land use plan, policy or agency regulation. No impact would occur.

c) No Impact. Refer to Item IV.f (Biological Resources) for discussion.

X. MINERAL RESOURCES – Would the project:

	Potentially Significant Impact	*Less Than Significant With Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	☒
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?	☐	☐	☐	☒

Discussion:

a & b) No Impact. All Project activities would be limited to adding copper sulfate to the water of existing reservoirs, and no development or ground disturbances would occur. Therefore, the proposed Project would not result in the loss of availability of any mineral resource that would be of future value. No impacts would occur.

XI. NOISE – Would the project result in:

	Potentially Significant Impact	*Less Than Significant With Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
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?	☐	☐	☒	☐
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☐	☒
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☐	☒
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☒	☐

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?	☐	☐	☒	☐
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?	☐	☐	☒	☐

Discussion:

a & d) Less-than-significant Impact. The application process would involve the use of a helicopter for a few days per year during daytime business hours for a duration of approximately four to eight hours. The Riverside County General Plan identifies normally-acceptable noise levels for residential areas to be 65 dBA, as recorded on the Community Noise Equivalent Level (CNEL). CNEL is a 24-hour average, weighted to reflect night-time noise sensitivity. Hovering helicopters can generate noise levels in excess of 100 dBA at distances of 50 feet. Noise from a hovering helicopter would be expected to attenuate approximately 6 dBA for every doubling of distance, similar to a stationary source. The closest sensitive noise receptors would be the residential areas near each reservoir, the closest being the area north of El Sobrante Road near Lake Mathews approximately 2,000 feet from the helipad. Figures 2 through 4 show the location of the helipads at each reservoir. In addition, each reservoir is near habitat conservation areas. The Riverside County General Plan identifies normally acceptable noise levels for open space to be 55 dBA CNEL. The helicopter activity would only occur during the daytime hours. Noise from the helicopter would be intermittent occurring for brief periods during a few days per year. The intermittent noise exposure would not exceed 24-hour CNEL noise compatibility thresholds.

Other noise-generating equipment used on the helipad site would include a forklift, a water truck, and haul trucks. Noise from this equipment would not exceed noise levels generated by the local roadways. The minimal use of the helicopter and other equipment would result in a less-than-significant noise impact.

b) No Impact. No substantial groundborne noise or vibration would result from the Project. No vibration impact would occur with Project implementation.

c) No Impact. The proposed Project would be carried out on a periodic basis as needed, and only during brief periods of time. An application process would typically be completed in four to eight hours. The Project would not create any permanent noise sources. Therefore, no impact would occur.

e & f) Less-than-significant Impact. Two airports are within a two-mile range of the Project: the French Valley Airport is situated to the southwest of the Lake Skinner, and the Hemet-Ryan Airport is north of the Diamond Valley Lake. The proposed Project would likely require helicopters to originate from one of these facilities. As Project application would only occur periodically for short periods of time, Project-related airport operations at both current levels and future levels would not result in a substantial noise contribution.

Therefore, less-than-significant impacts from airport-related noise would occur with Project implementation.

XII. POPULATION AND HOUSING – Would the project:

	Potentially Significant Impact	*Less Than Significant With Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
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)?	☐	☐	☐	☒
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒
c) Displace substantial numbers of people necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

Discussion:

a) No Impact. The proposed Project would be entirely implemented within the open water of existing reservoirs. No new commercial buildings, or housing would be built in conjunction with Project implementation. The proposed Project would not directly or indirectly induce substantial population growth in the area. Hence, no impacts relating to substantial population growth would occur.

b) No Impact. No housing or other structures would be constructed, demolished, or replaced as a result of the proposed Project. All operations would occur within the boundaries of the existing reservoirs. There would be no net increase of employment possibilities at the proposed Project sites and no additional housing would be needed during operations. Therefore, no impact to housing would occur with Project implementation.

c) No Impact. No displacement of persons or housing would occur with Project implementation. Therefore, the proposed Project would not necessitate the construction of any replacement housing. No impact would occur.

XIII. PUBLIC SERVICES – Would the project:

	Potentially Significant Impact	*Less Than Significant With Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
a) 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:				
Fire protection?	☐	☐	☐	☒
Police protection?	☐	☐	☐	☒
Schools?	☐	☐	☐	☒
Parks?	☐	☐	☐	☒
Other public facilities?	☐	☐	☐	☒

Discussion:

a) No Impact. The proposed Project would involve the application of copper sulfate to the water of existing reservoirs. The proposed improvements would not alter or require the construction of new schools, parks, or other public facilities, nor would the proposed Project substantially increase the need for police and fire services beyond existing conditions. The Project would result in beneficial effects to water service by controlling algae blooms, which might otherwise degrade drinking water through elevated taste and odors problems.

XIV. RECREATION – Would the project:

	Potentially Significant Impact	*Less Than Significant With Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
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?	☐	☐	☐	☒

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?	☐	☐	☐	☒

Discussion:

a & b) No Impact. The proposed Project would involve the periodic application of copper sulfate to the existing Lake Skinner, Lake Mathews, and Diamond Valley Lake reservoirs. The proposed Project would not increase demand for neighborhood or regional parks. Boating and fishing recreational uses at Diamond Valley Lake and Lake Skinner would be temporarily shut down during the application process. These closures would occur a few times per year, as is currently the case at Lake Skinner. No impact would occur.

XV. TRANSPORTATION / TRAFFIC – Would the project:

	Potentially Significant Impact	*Less Than Significant With Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
a) Cause an increase in traffic, which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume-to-capacity ratio on roads, or congestion at intersections)?	☐	☐	☐	☒
b) Exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways?	☐	☐	☐	☒
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?	☐	☐	☐	☒
d) Substantially increase hazards to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☐	☒
e) Result in inadequate emergency access?	☐	☐	☐	☒
f) Result in inadequate parking capacity?	☐	☐	☐	☒

g) Conflict with adopted policies supporting alternative transportation (e.g., bus turnouts, bicycle racks)?	☐	☐	☐	☒

Discussion:

a & b) No Impact. The Project would involve the application of aquatic pesticides to open water with the use of a helicopter. The copper sulfate would be delivered on pallets to the helicopter pads. Approximately ten workers would be needed during an application event. Each application would require one to two trucks to deliver the copper sulfate for each application event. No impact would occur to the local traffic load in the Project vicinity during the operation of the proposed Project.

c) No Impact. The proposed Project would require the use of helicopters that would likely originate at one of two existing airports within the region (i.e., French Valley Airport is situated to the southwest of the Lake Skinner, and the Hemet-Ryan Airport is north of the Diamond Valley Lake). A flight plan would be filed routinely for each occurrence and no long-term or permanent alteration of air traffic patterns from planes associated with public or private use airports would be required. The helicopters would not transport any copper sulfate to or from the airports. No impact would occur.

d) No Impact. The proposed Project would be limited to the open water of existing reservoirs, and no alterations of roadways would be required. No incompatible uses or substantial increase in hazards would occur as a result of the proposed Project. Hence, no impact would occur.

e) No Impact. Refer to item VII.g (Hazards and Hazardous Materials) for discussion

f) No Impact. The existing operational areas of Metropolitan properties that are designated for storage, loading, and handling of copper sulfate have sufficient parking capacity to accommodate the proposed Project. No additional parking outside of Metropolitan properties would be required except for helicopters and pilot vehicles originating from either French Valley Airport or Hemet-Ryan Airport. No new helicopters would be required and existing activities relying on helicopters have been ongoing for a number of years at Lake Mathews and Lake Skinner, no additional parking requirements would be necessary at the two airports. Hence, no impact would occur with respect to parking capacity.

g) No Impact. The proposed Project would not involve or conflict with any alternative transportation policies identified in the Riverside County Integrated Plan. No impact would occur.

XVI. UTILITIES AND SERVICE SYSTEMS –

Would the project:

	Potentially Significant Impact	*Less Than Significant With Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	☐	☐	☐	☒
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?	☐	☐	☐	☒
c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☐	☒
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	☐	☐	☐	☒
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?	☐	☐	☐	☒
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	☐	☐	☒	☐
g) Comply with federal, state, and local statutes and regulations related to solid waste?	☐	☐	☐	☒

Discussion:

a) No Impact. The proposed Project would be limited to the application of copper sulfate to existing water reservoirs and would not generate additional wastewater. The Project would not result in discharges that would cause an exceedance of any wastewater treatment requirements. Therefore, no impacts would occur.

b) **No Impact.** The proposed Project would be limited to the application of aquatic pesticides to existing water reservoirs. The Project would not increase demand for water or wastewater treatment facilities in the region. Implementation of the proposed Project would result in no impacts with regards to water or wastewater treatment plants.

c) **No Impact.** Implementation of the proposed Project would not require paving and/or the installation of new facilities. There would be no increase in the amount of storm water runoff as a result of the Project. Therefore, the proposed Project would not necessitate the construction or expansion of storm water drainage facilities. No impacts would occur.

d) **No Impact**. The Project would be limited to the treatment of an existing water supply and would contain no elements that would require additional water supply. Hence, no impacts would occur.

e) **No Impact**. The proposed Project would not increase the amount of wastewater discharged into the existing sewer system. Hence, no impact would occur.

f) **Less-than-significant Impact.** Metropolitan proposes to continue the existing copper sulfate application operations at Lake Mathews and Lake Skinner for controlling algal blooms under the SWRCB's new NPDES permit, although such operations would be extended to the newly filled Diamond Valley Lake. Any solid waste generated by the proposed Project would be hauled to an approved offsite landfill or recycling facility with sufficient permitted capacity, as is the case presently. Solid waste generated from treating drinking water from Lake Mathews and Lake Skinner would remain the same as existing conditions. Implementation of the Project would result in only minor increases in solid waste production following copper sulfate applications to Diamond Valley Lake (this reservoir has not yet received a copper sulfate treatment). However, any increases in solid waste generation would be negligible and would not impact the landfill's capacity. Hence, the proposed Project would result in a less-than-significant impact.

g) **No Impact.** The proposed Project would not result in an increased production of solid waste, nor would it conflict with applicable federal, state, and local statutes and regulations related to solid waste. No impacts would occur.

XVII. MANDATORY FINDINGS OF SIGNIFICANCE

	Potentially Significant Impact	*Less Than Significant With Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
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?	☐	☒	☐	☐
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulative 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)	☐	☐	☐	☒
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☒	☐	☐

Discussion:

a) Less-than-significant Impact with Mitigation Incorporation. The proposed Project would involve the periodic application of copper sulfate (an aquatic pesticide) to three existing water storage reservoirs owned and operated by Metropolitan: Lake Mathews, Lake Skinner, and Diamond Valley Lake. Applications of this aquatic pesticide would take place, on an as-needed basis, to control algal blooms so that such blooms do not degrade drinking water quality through elevated taste and odor problems, production of algal toxins, and/or through filter clogging. The Project would not require any physical alteration or construction of any facilities at the Project sites. Nor would the Project result in any ground disturbance or tree or vegetation removal. Implementation of the Project may temporarily impact aquatic species present in the reservoirs and their associated habitats during pesticide applications. However, these impacts would be temporary and less than significant. Several species of rare or endangered animals are known to exist in the terrestrial areas adjacent to the Project sites. However, none of these species would be impacted by the proposed Project. Likewise, the Project would not eliminate any important examples of California history. Therefore, implementation of the proposed Project, in conjunction with the proposed mitigation measures

related to hydrology/water quality and hazards/hazardous materials to reduce potentially significant impacts (i.e., potential to degrade the quality of the environment), would result in a less-than-significant impact.

b) **No Impact.** The Project sites are each located within properties owned and operated by Metropolitan. No foreseeable cumulative impacts in conjunction with potential local or regional projects would occur. Application events would typically be conducted only a few times per year, on an as-needed basis, and, would generally never be expected to occur simultaneously at the three reservoirs because of the different chemical, biological, and hydrological factors involved at each site. Therefore, the impacts of Project application in the area would not be cumulatively considerable and would have no cumulative impact.

c) **Less-than-significant Impact with Mitigation Incorporation.** As previously discussed in Sections 3 and 4 of this MND, the proposed Project would reduce any hazard-related impacts to the human beings to less-than-significant levels with the implementation of the proposed mitigation measures in conjunction with strict compliance with Metropolitan's Hazardous Waste Management Program, as well as applicable safety laws and regulations. The proposed Project may induce limited and temporary noise intrusions during Project application, which would be less-than-significant. Hence, the proposed Project would result in less-than-significant effects on human beings.

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SECTION 4
LIST OF MITIGATION MEASURES

HAZARDS AND HAZARDOUS MATERIAL

HAZ-1 *Annual training in copper sulfate safety shall be required for all Metropolitan employees participating in the application or handling of copper sulfate. Similarly, Metropolitan shall require that all participating contractors and their employees or agents secure and maintain in force such licenses and permits as are required by law, in connection with the application or handling of copper sulfate. Additional "toolbox" (i.e., "refresher") trainings may occur, as deemed necessary, prior to each treatment event.*

HAZ-2 *Metropolitan shall require its employees participating in the application or handling of copper sulfate to wear appropriate personal protective equipment, including protective eyewear, gloves, boots, and coveralls, as well as a respirator that meets OSHA 29 CFR 1910.134 requirements.*

HAZ-3 *Metropolitan shall apply copper sulfate in a manner consistent with the product labeling.*

HAZ-4 *Metropolitan shall comply with the recommendations provided on the Material Safety Data Sheet applicable to the specific copper sulfate product to be used.*

HYDROLOGY AND WATER QUALITY

HYDRO-1 *Metropolitan shall apply for coverage under the State Water Resources Control Board's new NPDES Permit for Discharges of Aquatic Pesticides and, as part of that application, seek a Categorical Exception, pursuant to Section 5.3 of the SWRCB's Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California.*

HYDRO-2 *Metropolitan shall continue to monitor and report copper levels in its reservoirs in accordance with its existing SWRCB-approved Monitoring Plan for Copper Sulfate Treatments of Source Water Reservoirs (Monitoring Plan), as well as implement the Best Management Practices described in this plan, including, but not limited to:*

- *Continue implementation of an early warning system (e.g., frequent monitoring of taste and odor compounds, flavor profile analyses, microscopic analyses, and SCUBA diver observations) to facilitate utilization of strategies that minimize the amount of copper sulfate applied;*
- *To the extent feasible, take full advantage of operational options (e.g., selective water withdrawal, bypass and blending) to avoid or minimize the use of copper sulfate;*
- *To the extent feasible, treat algal blooms prior to their exponential growth phase to minimize the amount of copper sulfate used; and*

- *Focus resources on the specific type (i.e., planktonic or benthic) and location of the problem algae.*

Metropolitan shall implement this Monitoring Plan to the extent required as a condition of the new NPDES Permit but in all cases will continue to implement the best management practices identified above.

SECTION 5
REFERENCES

Anderson, M. A., M. S. Giusti and W. D. Taylor. 2001. Hepatic Copper Concentrations and Condition Factors of Largemouth Bass (*Micropterus salmoides*) and Common Carp (*Cyprinus carpio*) from Copper Sulfate-Treated and Untreated Reservoirs. Journal of Lake and Reservoir Management. 17(2): 97-104.

California Department of Transportation, website, http://www.dot.ca.gov/hq/LandArch/scenic/schwy4.html.

California Regional Water Quality Control Board, San Diego Region, *Water Quality Control Plan for the San Diego Basin (9)*, September 8, 1994.

California Regional Water Quality Control Board, Santa Ana Region, *Water Quality Control Plan, Santa Ana River Basin (8)*, January 24, 1995.

California State Water Resources Control Board, *Final 2002 Clean Water Act Section 303(d) List of Water Quality Limited Segments*, July 25, 2003.

California State Water Resources Control Board, Water Quality Order NO. 2001-12-DWQ *Statewide General National Pollutant Discharge Elimination System (NPDES) Permit for Discharges of Aquatic Pesticides to Surface Waters of the United States (General Permit) General Permit No. CAG990003, Waste Discharge Requirements* http://www.swrcb.ca.gov/resdec/wqorders/2001/wqo/wqo2001-12.doc.

Cantu, C., 2003. Letter from Celeste Cantu, Executive Director State Water Resources Control Board, California Environmental Protection Agency to Interested Parties Regarding Status of Aquatic Pesticides Permits, August 6, 2003.

Diamond, J.M., C. Gerardi, E. Leppo, and T. Miorelli, *Using a Water-Effect Ratio Approach to Establish Effects of an Effluent-Influenced Stream on Copper Toxicity to the Fathead Minnow. Environmental Toxicology and Chemistry*, Vol.16, No. 7, pp. 1480-1486, 1997.

Guisti, Michael S., *Eastside Reservoir Project Fishery Development Plan Phase II*, July 1999.

Material Safety Data Sheet, Triangle Brand Copper Sulfate Crystal.

Metropolitan Water District of Southern California, *Lake Mathews Copper Sulfate Treatment*, July, 7, 2002.

Metropolitan Water District of Southern California, *Annual 2002 Monitoring Report Aquatic Pesticides to Surface Waters Permit No. CAG99003*; January 2003.

Metropolitan Water District of Southern California, *Diamond Valley Lake Recreation East Marina Mitigated Negative Declaration*, December 2002.

Metropolitan Water District of Southern California, *Eastside Reservoir Project Environmental Planning Technical Report*; June 1991.

Metropolitan Water District of Southern California, *Eastside Reservoir Project Physical Plan Appendix I Fishery Development Plan Phase I.* July 1999

Metropolitan Water District of Southern California, *Eastside Reservoir Project Environmental Planning Technical Report; Biological Resources*, June 1991.

Metropolitan Water District of Southern California, *Eastside Reservoir Project Environmental Planning Technical Report; Rare and Endangered Species Vol. 3 Sensitive Plants*, June 1991.

Metropolitan Water District of Southern California, *Lake Skinner Copper Sulfate Treatment,* August 2, 2002.

Metropolitan Water District of Southern California, *Lake Skinner Copper Sulfate Treatment,* June, 26, 2003.

Metropolitan Water District of Southern California, *Lake Skinner Copper Sulfate Treatment,* May, 28, 2002.

Metropolitan Water District of Southern California, *Lake Skinner General Site Plan, Lake Skinner Bottom Elevations,* May 1970.

Metropolitan Water District of Southern California, *Monitoring Plan for Copper Sulfate Treatments of Source Water Reservoirs*; March 1, 2002.

Metropolitan Water District of Southern California, *Recreational Activity Plan for Phase I Diamond Valley Lake Recreation*, May 19, 2003.

Pimentel, D., *Ecological Effects of Pesticides on Non-target Species, 1971.*

Metropolitan Water District of Southern California and Riverside County Habitat Conservation Agency, *Lake Mathews Multiple Species Habitat Conservation Plan and Natural Community Conservation Plan; Vol.2 Biological Resources*, July 1995.

Metropolitan Water District of Southern California and Riverside County Habitat Conservation Agency, *Multi-Species Habitat Conservation for Southwestern Riverside County, California,* October 1992.

TOXNET. 1975-1986. National library of medicine's toxicology data network. Hazardous Substances Data Bank (HSDB). Public Health Service. National Institute of Health, U. S. Department of Health and Human Services http://pmep.cce.cornell.edu/profiles/extoxnet/carbaryl-dicrotophos/copper-sulfate-ext.html.

Tucker, R. and D.G. Crabtree, *Handbook of Toxicity of Pesticides to Wildlife.* U.S. Department of Agriculture, Fish and Wildlife Service. Bureau of Sport Fisheries and Wildlife, 1970.

U. S. Environmental Protection Agency, *Guidance for reregistration of pesticide products containing copper sulfate. Fact sheet no 100,* 1986.

U. S. Environmental Protection Agency, *National Recommended Water Quality Criteria: 2002, EPA-822-R-02-047,* 2002.

SECTION 6
AGENCIES CONTACTED

1. State Water Resources Control Board

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SECTION 7
LIST OF PREPARERS

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APPENDIX A
MONITORING PLAN[20]

[20] The enclosed *Monitoring Plan for Copper Sulfate Treatments of Source Water Reservoirs* (Monitoring Plan) was prepared and submitted to the State Water Resources Control Board (SWRCB) in accordance with the SWRCB's Water Quality Order No. 2001-12-DWQ, Statewide General National Pollutant Discharge Elimination System (NPDES) Permit for Discharges of Aquatic Pesticides to Waters of the United States (General Permit), General Permit No. CAG990003, which was issued by the SWRCB in July of 2002. As indicated in Mitigation Measure *HYDRO-2* (see Section 3, Item VIII a) of this Mitigated Negative Declaration), Metropolitan would continue to implement this Monitoring Plan until such time as the implementation of a new Monitoring Plan is deemed required or otherwise determined unnecessary under the NPDES program or other applicable program. If applicable, such modifications to the proposed Monitoring Plan would undergo additional CEQA review. Note, the enclosed Monitoring Plan has been revised, where necessary, to reflect existing conditions.

MONITORING PLAN FOR COPPER SULFATE TREATMENTS OF SOURCE WATER RESERVOIRS

The Metropolitan Water District Of Southern California

California State Water Resources Control Board (SWRCB) Water Quality Order No. 2001-12-DWQ
GENERAL PERMIT No. CAG990003
NPDES Permit for Discharge of Copper Sulfate

1. Introduction

This is a monitoring plan to track copper concentrations in source water reservoirs after treatment with granulated copper sulfate to control problem algae. The goal is to ensure that treatment occurs in a manner to control the areal extent and duration of impacts caused by the discharge of copper and to allow full restoration of water quality and protection of beneficial uses of the receiving waters following completion of the algae management treatment.

2. Background

Management of algal problems in source water supplies is critical for the maintenance of drinking water beneficial uses. Algal control is necessary to meet public health and aesthetic standards and meet water demands. Copper sulfate has been widely used for many decades as an algicide to control problem algae in drinking water sources and it is still considered the most effective chemical approach with the least harmful side effects, especially in hard water. Phytoplankton and attached benthic algae are known to cause serious algal problems. Both types have required treatment with copper sulfate. The Metropolitan Water District of Southern California (Metropolitan) has experienced serious algae problems during all times of the year.

The most serious problems caused by algae in source waters include filter clogging, taste-and-odor and toxin production. Filter clogging, most often caused by diatoms, reduces filter runs and can upset treatment plant processes potentially permitting microbial contaminants to pass into the distribution system. This is often seen as turbidity spikes during backwash operations. Turbidity standards are set by the national primary drinking water regulation (NPDWR). Taste-and-odors produced by various algae create aesthetic problems that reduce consumer confidence in the quality of their drinking water. Taste-and-odors are regulated as a secondary water quality standard. There are a number of common species of blue-green algae (cyanobacteria) that are known to produce a variety of toxins harmful to human health. In 1998, the U.S. Environmental Protection Agency, following 1996 amendments to the Safe Drinking Water Act, published its first list of priority pollutants to be considered for regulatory consideration. Several common cyanobacterial toxins were included on the drinking water contaminant candidate list, including microcystin, which was recently identified in high concentrations in a Metropolitan reservoir. The reservoir was treated specifically to control that bloom.

While algae problems can seriously affect drinking water quality, terminating the supply of drinking water is never a satisfactory solution; therefore, there are times when chemical treatment provides the only reasonable solution to those problems. Reservoirs and conveyance systems, constructed for the primary purpose of supplying drinking water, require management options to meet drinking water quality standards.

3. Best Management Practices

Metropolitan has a comprehensive program to monitor and manage problem algae in its source water reservoirs. By internal mandate, this program was specifically developed over the last ten years to provide early warning of algae problems and T&O events in order to manage the water system in an economically and environmentally sound way. Algal blooms can develop rapidly, within one to two weeks, to problem levels. Metropolitan's experience has clearly shown that early warning provides the best opportunity to take advantage of alternative management strategies that may be available at any given time. Metropolitan's approach takes full advantage of operational options such as selective withdrawal, bypass and blending to mitigate or minimize the use of copper sulfate to manage algae problems. Furthermore, Metropolitan has learned through experience that early warning provides opportunities to manage problems while they are small, which reduces total copper sulfate usage and thus the potential impact on the environment.

Metropolitan's early warning system is based on a network of monitoring stations at key locations in treatment plants, reservoirs and aqueducts. The T&O compounds of concern are measured directly at very low levels of detection (1 ng/L) to provide the earliest indication that populations of T&O producing algae are increasing. Flavor profile analysis (FPA), microscopic analysis and field observations (SCUBA) are also fundamental components of the early warning system. Once a potential algal event has been detected (e.g., T&O production), monitoring resources are quickly focused to refine knowledge of the specific location of the problem, the species responsible for the problem and the potential impact on drinking water quality.

A second important component of the evaluation is an analysis of the operational options available to mitigate the problem at that time. These options constantly change due to water demand and supply, season, facilities status (e.g., pipeline shutdowns or plant repairs), construction activities and limnological conditions within the reservoirs. Comprehensive management strategies are developed based upon current operational opportunities and the severity of the algal problem. This approach was extensively developed at Metropolitan for the explicit purpose of reducing reliance on copper sulfate to manage algal problems. Metropolitan's success is reflected in significantly reduced amounts of copper sulfate used for algal control. Importantly, Metropolitan has found that there is a narrow "window-of-opportunity" where copper sulfate, if applied early in the exponential growth of a problem bloom species, will modify the community structure towards non-problem species using minimal amounts of copper. Usually a second treatment is not required.

Metropolitan treats algal problems for two reasons: 1) to protect public health and 2) to protect the aesthetic quality of the water, in accordance with secondary standards, which affects public perception of the healthfulness of their drinking water.

4. Monitoring Plan

a. Source water reservoirs

Metropolitan owns and operates three source water reservoirs that are subject to periodic treatment with copper sulfate to control algae problems (Attachments a, b, c). Lake Mathews, the terminal reservoir for the Colorado River Aqueduct, has been in operation since 1941. Lake Skinner and Diamond Valley Lake (DVL) receive a blend of water from the California State Water Project and the Colorado River. Lake Skinner began operation in 1976 and DVL in 1999. DVL has been in a filling mode since 1999 and ~~is expected to be near~~reached full capacity for the first time in 2002. Statistics for each reservoir are presented in Table 1).

b. Treatment methods

All chemical treatments are applied specifically as prescribed on the manufacturer's label. The copper sulfate application is supervised by a licensed Qualified Applicator with category F (aquatic pest control), as required. During the treatment Metropolitan Water Quality Section staff will monitor the copper sulfate application to ensure proper dosage is applied and to guard against application outside of the treatment area. A treatment data sheet will be used to document treatment day conditions (Attachment d).

c. Routine monitoring for algae problems

Section 3 above describes Metropolitan's general approach to early warning monitoring for algae problems. The following is provided to give additional detail. Metropolitan's five treatment plants are monitored weekly by FPA and ~~closed loop stripping analysis~~Solid Phase Micro Extraction (SPME) using gas chromatography and mass spectrometry ~~(CLSA)~~ to determine if T&O problems are developing. Key locations in the conveyance systems are also monitored regularly for various water quality parameters in support of plant operations. Monitoring profiles are conducted at each reservoir at monthly intervals for a variety of biological and chemical constituents. Divers conduct monthly examinations of sediment surfaces in the littoral zone of the lakes for visual signs of problem algae and to collect samples for microscopic examination in the laboratory. In addition to these monitoring efforts, Metropolitan responds to complaints from member agencies if their plants experience problems or if they have had water quality complaints from consumers. These efforts trigger intensive focused monitoring to locate, identify and characterize the source of the problem. Comprehensive management strategies are developed from this information. For example, if the concentration of the T&O compound geosmin increases from 2 ng/L to 7 ng/L within a period of one week, then that signals the need to find the source and evaluate the nature of the event. It is

common to receive taste and odor complaints when concentrations of geosmin exceed 10 ng/L.

d. Routine monitoring for copper

Metropolitan has conducted monthly monitoring for total copper at the outlet of each source water reservoir for over 20 years

e. Pre-treatment monitoring

Planktonic blooms: Pre-treatment samples for soluble copper and total hardness will be collected from the center of the treatment area at 3-meters, mid-depth, 3/4 the depth of the water column and from the reservoir outflow. An electronic profile at 1-meter intervals will be conducted at the center of the treatment area for dissolved oxygen, pH, conductivity and temperature. Pre-treatment monitoring will occur within 48 hours of the treatment.

Benthic Algae Problems: Pre-treatment samples for soluble copper and total hardness will be collected from the center of the treatment area at 3-meters, mid-depth, and 1-meter above the sediment and from the reservoir outflow. An electronic profile at 1-meter intervals will be conducted at the center of the treatment area for dissolved oxygen, pH, conductivity and temperature. Pre-treatment monitoring will occur within 48 hours of the treatment.

f. Post-treatment monitoring

Planktonic blooms: Monitoring locations and constituents are the same as described in 4e. A visual assessment of the treatment area will be made to evaluate potential adverse impacts on beneficial uses caused by application of copper sulfate.

Benthic algae problems: Monitoring locations and constituents are the same as described in 4e. A visual assessment of the treatment area will be made to evaluate potential adverse impacts on beneficial uses caused by application of copper sulfate.

Sampling intervals: Post-treatment samples will be collected at the following intervals until the soluble copper concentration returns to pre-treatment levels:

- within 2 days,
- 7-10 days,
- 15-20 days,
- If required, sampling will continue at ≤14-day intervals after the first 20 days until the soluble copper concentration returns to pre-treatment levels.

5. Quality Assurance Plan (QAP):

This Quality Assurance Plan (QAP) provides the references, standardized procedures and quality specifications for the sampling, analyses, and data review procedures for the monitoring program.

a. Field Sampling

The water sampling device and sample containers for copper will be prepared for trace metal use per USEPA Method 200.8[1]. Sample containers will be sealed in a plastic bag and transported on ice, in a cooler from the field to the laboratory.

Grab samples for copper will be collected in duplicate.

A single sample from each monitoring depth and location will be collected for hardness.

A collection list generated with the corporate laboratory information management system (LIMS) and transported with the samples will provide chain of custody documentation providing sample date, time and identification of personnel handling samples.

b. Laboratory Analyses

USEPA Method 200.8 (inductively coupled plasma mass spectrometry (ICPMS))[1] will be used to determine soluble copper concentration following filtration with a 0.45 um membrane filter.

Hardness will be determined using Standard Method 2340 C, (EDTA titrimetric method)[2].

c. Field Instrument Analyses

Water column profiles for dissolved oxygen, pH, conductivity and temperature will be made using a Hydrolab or similar multiprobe sonde calibrated according to the manufacture's protocol.

d. Data Review

Laboratory personnel will review analytical results prior to approval and release as per standard Metropolitan laboratory practices[3]. The review will include verification that calibration standards and quality control samples are within specifications. Additionally, the reservoir managers will review the results for accuracy and consistency and that all results are properly reported.

[1]Determination of Trace Elements in Waters and Waste by Inductively Coupled Plasma - Mass Spectrometry, Method 200.8, Revision 5.4, May 1994. (Federal Register 12/05/94 - 40CFR Part 141,143)

[2] Standard Methods for the Examination of Water and Wastewater, 19th ed., American Public Health Association, 1995.

[3] Water Quality Assurance and Procedures Manual, Metropolitan Water District of Southern California, 2001.

6. **Reporting**

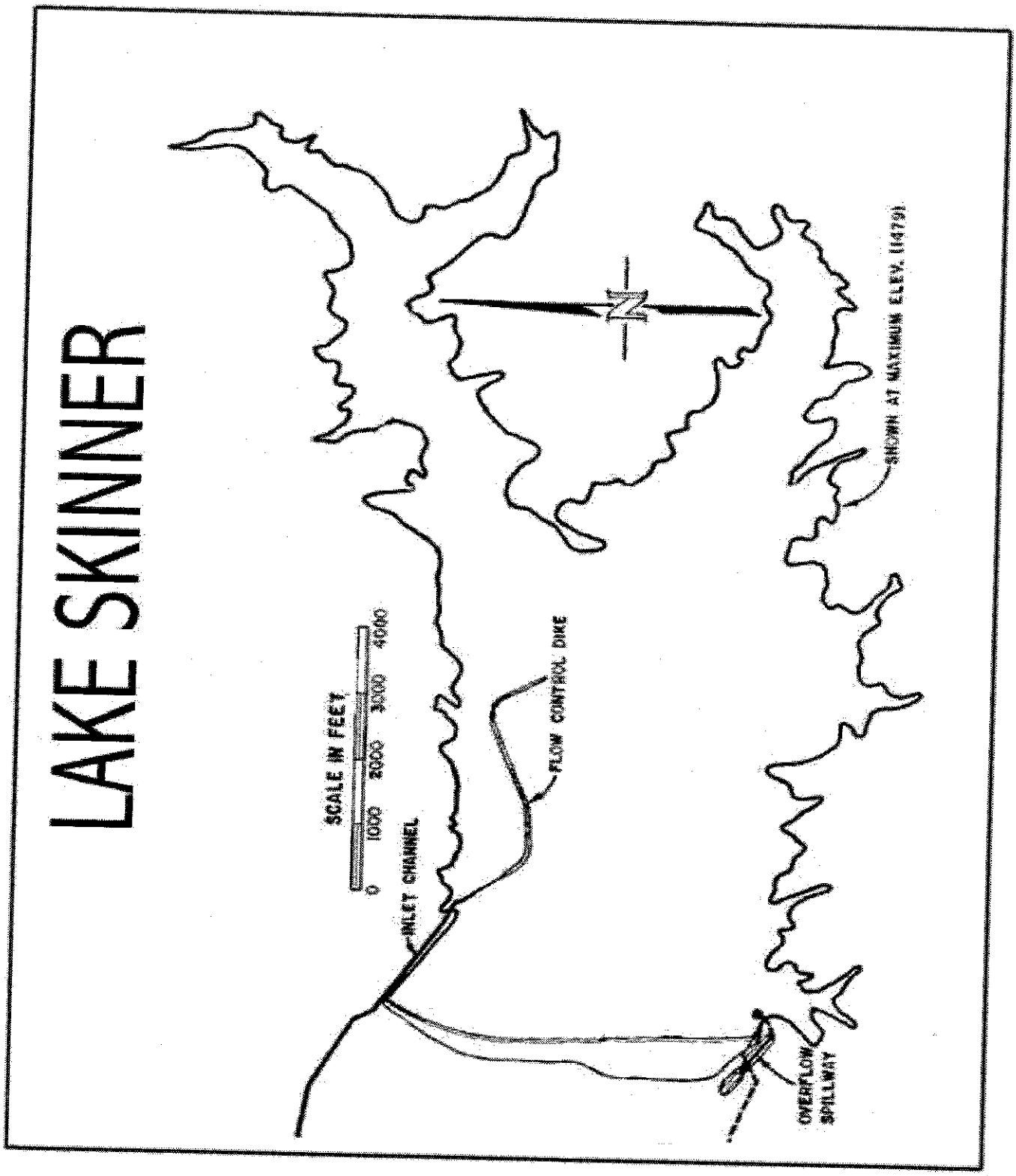
All data developed through the monitoring efforts described above shall be submitted to the appropriate Regional Water Quality Control Board (RWQCB) Executive Officer. A calendar-year annual report will also be submitted to the SWRCB. In reporting the monitoring data, Metropolitan shall arrange the data in tabular form so that the date, the site, the constituents and the concentrations are readily discernible. The monitoring data report shall include field documentation and a summary of the laboratory data including surface water and quality control sample results. Metropolitan will use the Laboratory Information Management System (LIMS) as the source of all laboratory data for reporting purposes. Reservoir profiles for depth, oxygen, temperature, conductivity and pH are recorded automatically in a data-logger for later electronic transfer to an independent database maintained at the laboratory. This limnology profile database will be used as the source of those field data.

Metropolitan shall submit monthly Pesticide Use Reports to the RWQCB on the 15th day of the following month. Metropolitan shall submit a calendar-year annual report to the Board by January 31 of the following year. The report shall contain both tabular and graphical summaries of the monitoring data obtained during the year of operation. The report will also review the objectives of the monitoring program, describe the monitoring results, and interpret the data in relation to frequency, duration, and magnitude of impacts to beneficial uses. This report shall also include any changes in protocol that have been incorporated into the program as a result of following an adaptive management approach.

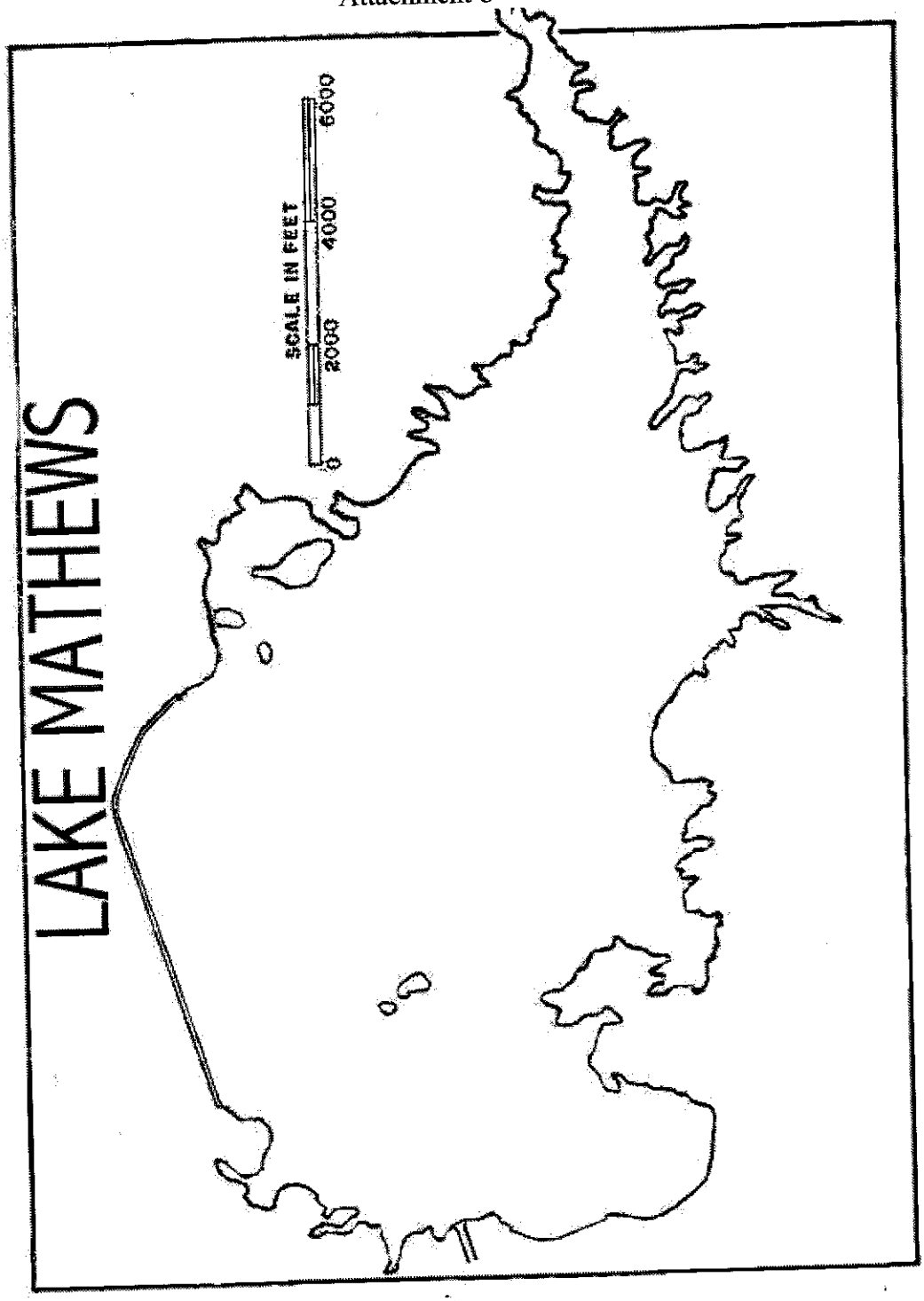
Table 1. MWDSC RESERVOIR CHARACTERISTICS

MWDSC		Lake Skinner	Lake Mathews	Diamond Valley Lake
Pool Data	Volume (Max) (AF)	44,423	182,000	800,000
	Max Pool Elev. (ft)	1,479	1,390	1,756
	Spillway Elev. (ft)	1,479	1,390	1,756
	Max Depth (ft)	89	180	260
	Mean Depth (vol./SA)	37	66	178
Surface Data	Max Surf Area (Acres)	1,200	2,750	4,500
	Shoreline length (MI)	14	25	26
	Watershed area (sq. mi.)	51	39	13
Flow Data	Typical Winter Inflow (cfs)	800	600	New
	Typical Summer Inflow (cfs)	1,200	800	New
	Typical Winter Outflow (cfs)	800	500	New
	Typical Summer Outflow (cfs)	1,200	1,200	New

Attachment a



Attachment b



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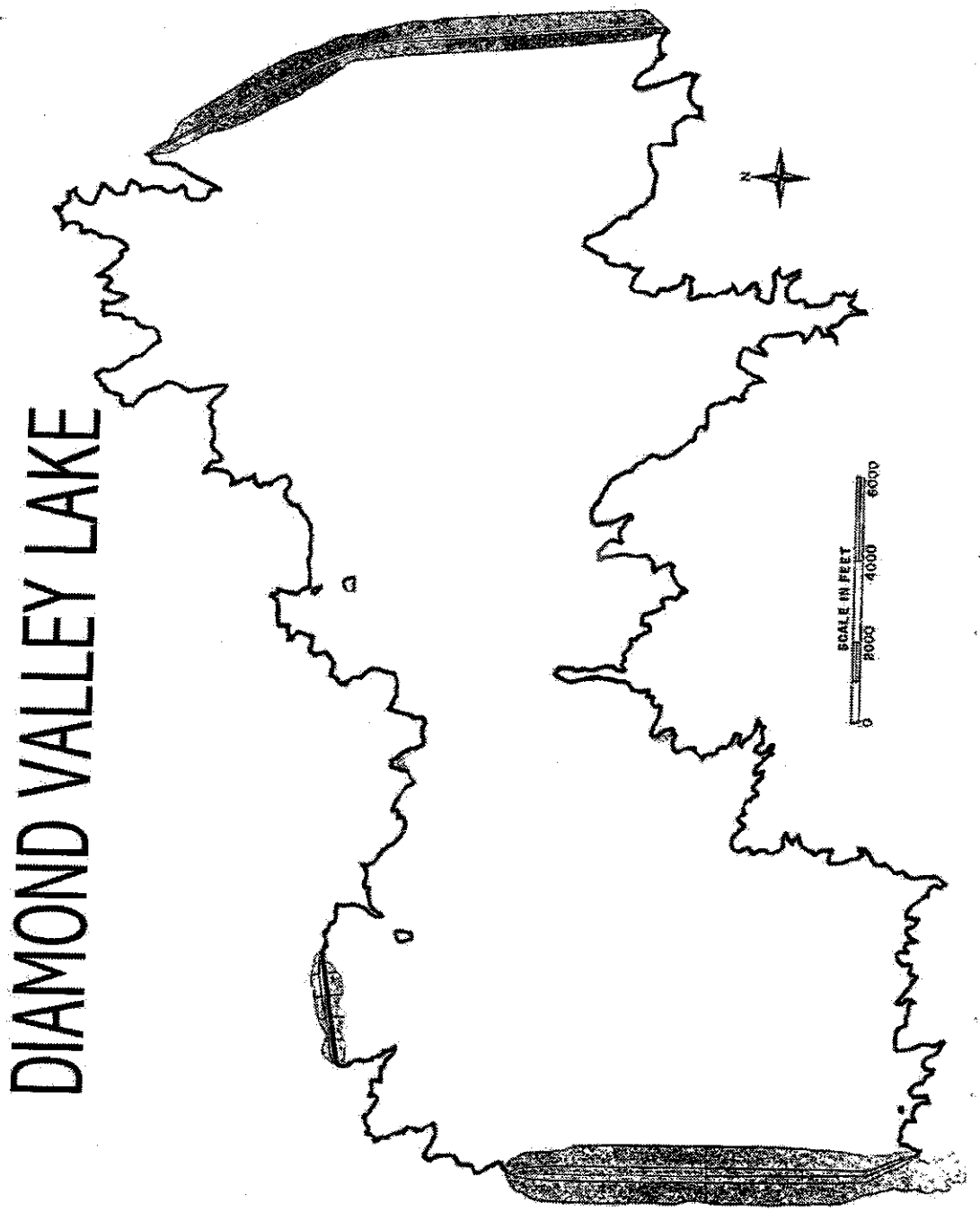

Attachment d

ALGAE CONTROL TREATMENT

Date: _____ Location: _____

Start Time: _____ Finish Time: _____ Duration: _____

Qualified Applicator (QAL): _____

Water Quality project manager: _____

Reservoir volume: _____

Reservoir surface area: _____

Depth, center of treatment: _____

Reservoir inflow: _____

Reservoir outflow: _____

Amount of $CuSO_4$-$5H_2O$ applied: _____

Crystal size: _____

Surface area treated: _____

Weather: _____

_____

APPENDIX B
AIR CALCULATION WORK SHEETS

ESTIMATED EMISSIONS FROM OPERATION

Operational Imports Inputs

Total days Allowed for Project	1
Total Days Allowed for Operation (Days)	1
Total Site Acres (Acres)	NA
Number of Employees	10
Average Trip Length One Way POV (Miles)	30
Total Work Hours Per Day (Hours/Day)	8
Daily Number of Haul Trucks	1
Average Trip Length One Way Haul Trucks (Miles)	20
Total VMT Water Trucks per day (Miles)	60

Total Number of Each Equipment used for Operation

	helicopter	forklift diesel				
# of equipment	1	1				
Hours per Day	8	2				
Days in Operation	1	1				
Miles Per Hour						

Assumptions Used in EMFAC2002

% LDA	66.00%		Daily VMT LDA & LDT	660.000
%LDT	34.00%		Daily VMT Haul Truck	40
Season	summer			

EMFAC2002 Inputs

	LDA Grams/Mile	LDT Grams/Mile	HDD Grams/Mile
Carbon Monoxide (CO)	3.02	3.6	2.9
Reactive Organic Compounds (ROC)	0.19	0.2	0.65
Nitrogen Oxides (NOx)	0.25	0.3	15.97
Particulates (PM10)	0.01	0.01	0.26

Source: EMFAC2002

Vehicle Exhaust Emissions from POV

Workers POV Emissions

	EMFAC Emissions Factor. Grams/Mile	Est. Emissions lbs/day
Carbon Monoxide (CO)	3.2172	4.68
Reactive Organic Compounds (ROC)	0.1934	0.28
Nitrogen Oxides (NOx)	0.267	0.39
Particulates (PM10)	0.01	0.01

Source: Emission Factors From EMFAC2002

Haul Truck Emissions

	EMFAC Emissions Factor. Grams/Mile	Est. Emissions lbs/day
Carbon Monoxide (CO)	2.9	0.26
Reactive Organic Compounds (ROC)	0.65	0.06
Nitrogen Oxides (NOx)	15.97	1.41
Sulfur Oxides (SOx)	NA	0
Particulates (PM10)	0.26	0.02

Source: EMFAC2002

Helicopter Emissions Factors

ENG_NAME	MODE ESCRIPTIO	TYPICAL ME IN MOI	KG/HR CO	HC	NOx	SOx	FUEL_KG/S
250B17B	Approach	6.5	1.868220	0.199800	0.085900	0.020800	0.0107
250B17B	Takeoff/Climb	6.5	1.001160	0.041040	0.662760	0.060070	0.0309
250B17B	Idle	7.0	2.766360	0.573180	0.040780	0.015350	0.0079
			LBS/HR				
250B17B	Idle	7	6.0986772	1.2636243	0.089903	0.0338404	0.0174162

Source: AP-42 1985 p.II- 1-8

Equipment Emissions

	helicopter lbs/hour	forklift 175 hp diesel lbs/hour	Total Emissions lbs/day
Carbon Monoxide (CO)	6.09	0.24	49.2
Reactive Organic Compounds (ROC)	1.26	0.13	10.3
Nitrogen Oxides (NOx)	0.90	2.24	11.7
Particulates (PM10)	0.10	0.05	0.9

Source: ARB Emission Inventory Publication Number MO99_32.3 Table 13 released: 2000

Source: ARB Inventory Publication MO99_32.5 App. B released: 2000

operations

Total PM10 Fugitive Dust Emissions

Air Pollutant	Emission Factor		Unmitigated Emissions		Mitigation Efficiency	Est. Emissions (lbs/day)
Particulates (PM10) pesticide drop application	0.03709262	lb/ton*	1.483704657	lb/day	NA	1.5
Particulates (PM10) POV & Haul Truck	0.42	gm/mile**			NA	0.65
				Total Particulates		2

* Source: Aggregate Batch Drop Equation AP-42, page 13.2.4-3 Assume mean wind speed = 35 mph, 1% soil moisture content & 5 tons per hour.

**Source: Table 11.9-1 EPA AP-42

Total Air Emissions Including POV, Helicopter, Forklift, and Fugitive Dust

Air Pollutant	Est. Emissions (lbs/day)	SCAQMD Thresholds (lbs/day)	Significant?
Carbon Monoxide (CO)	54.13	550.00	NO
Reactive Organic Compounds (ROC)	10.68	55.00	NO
Nitrogen Oxides (NOx)	13.47	55.00	NO
Particulates (PM10)	3.07	150.00	NO

operations

APPENDIX C
MATERIAL SAFETY DATA SHEET FOR COPPER SULFATE PENTAHYDRATE

Phelps Dodge Refining Corporation

Copper Sulfate Pentahydrate

Date Prepared: May 17, 2002

NFPA RATING

HEALTH	3
FLAMMABILITY	0
REACTIVITY	0
PROTECTIVE EQUIPN	

HMIS RATING

MATERIAL SAFETY DATA SHEET

SECTION I. PRODUCT IDENTIFICATION

Product Name: Copper Sulfate Pentahydrate

Synonyms: Triangle Brand Copper Sulfate; Triangle Brand Copper Sulfate Crystal; Triangle Brand Copper Sulfate Instant Powder; Triangle Brand Copper Sulfate Pentahydrate; Triangle Brand Cupric Sulfate Pentahydrate Technical; Phelps Dodge Copper Sulfate; Phelps Dodge Refining Corporation Triangle Brand Copper Sulfate; Phelps Dodge El Paso Triangle Brand; Cupric Sulfate; Copper Sulfate; Copper Sulfate Pentahydrate; Blue Vitrol; Triangle Brand Cupric Sulphate Pentahydrate Technical; Triangle Brand Copper Sulphate Instant Powder; Triangle Brand Copper Sulphate Crystal

Product Use: Industrial manufacturing, animal feed, algicide, fungicide, herbicide, pesticide or as a fertilizer.

Manufacturer/Vendor Information: PHELPS DODGE REFINING CORP.
P.O Box 20001
El Paso, Texas

Chemtrec 24-Hour Emergency Phone:
In USA or Canada (800)424-9300
Other Information Phone: (915)778-9881

SECTION II. COMPOSITION / INFORMATION ON INGREDIENTS

CAS No.	Chemical Name	Exposure Limits	% by wt.
7758-99-8	Copper sulfate pentahydrate ($CuSO_4 \cdot 5H_2O$), (Cupric sulfate), (Blue Vitriol), (Bluestone)	ACGIH TLV TWA: 1.0 mg/m^3 (as copper dust/mist) OSHA PEL TWA: 1.0 mg/m^3 (as copper dust/mist)	99
	Anhydrous Cupric Sulfate (CAS# 7758-98-7)	*Phelps Dodge Triangle Brand Copper Sulfate* *Copper Sulfate Pentahydrate (CAS 7758-99-8)* *Contains anhydrous copper sulfate* *Contains water of crystallization* *Metallic copper equivalent*	=99% =63.3% =35.7% =25.2%

SECTION III. HAZARDS IDENTIFICATION

Emergency Overview: Odorless, transparent blue crystals, granules or powder. Can cause irreversible eye damage and slight skin irritation. Harmful if swallowed. Avoid breathing mist or dust and contact with skin, eyes or clothing.
Route(s) of Entry: Inhalation, eye contact, skin contact and ingestion.
Acute Exposure: Can cause skin, eye and respiratory irritation.
Chronic Exposure: Prolonged or repeated skin contact may cause dermatitis. Prolonged or repeated eye contact may cause conjunctivitis. Prolonged excessive inhalation of mists containing copper sulfate may cause adverse effects on the liver and kidneys.
Carcinogenicity (NTP) (IARC) (OSHA) (ACGIH): Not listed
Eye: Corrosive and may result in irreversible eye damage.
Skin Contact: Can cause slight skin irritation. May cause localized discoloration of the skin. Product specific tests in accordance with USEPA standards do not indicate skin sensitization is likely to occur.
Inhalation: Can result in irritation of the upper respiratory tract and in excessive quantities may cause ulceration and perforation of the nasal septum.
Ingestion: Can result in digestive tract irritation, nausea, vomiting, diarrhea and abdominal pain.

SECTION IV. FIRST AID MEASURES

Eyes: Immediately flush eyes with plenty of water. Hold eye open and rinse slowly and gently for at least 15-20 minutes. Contact physician for treatment advice.
Skin: Wash skin with soap and plenty of water. If irritation persists contact a physician.

SECTION IV. FIRST AID MEASURES (Continued)

Ingestion: Contact a poison control center or physician for treatment advice. Have person sip a glass of water if able to swallow. Do not give anything by mouth to an unconscious person. Do not induce vomiting unless told to do so by the poison control center or physician. If vomiting occurs spontaneously, avoid aspiration.

Inhalation: Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get immediate medical attention.

SECTION V. FIRE FIGHTING MEASURES

Flash Pt:	Not applicable
Flammable Limits in Air-Lower:	Not applicable
Flammable Limits in Air – Upper:	Not applicable
Auto Ignition Temperature:	Not applicable
Fire Fighting Extinguishing Media:	Does not burn or support combustion. Use extinguishing media appropriate for surrounding fire (CO_2, dry chemical or water).
Fire Fighting Equipment:	As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.
Fire Fighting Instructions:	Evacuate area and fight fire from a safe distance.
Fire and Explosion Hazards:	Sealed containers may rupture when heated due to release of water from crystals.
Hazardous Combustion Products:	Not applicable
Explosion Data - Mechanical Impact / Static Discharge:	Not available
Unusual Hazards:	Material is acidic when dissolved in water, contact with magnesium metal may evolve hydrogen gas. Anhydrous cupric sulfate formed on water loss (white color). Anhydrous salt will ignite hydroxylamine, if present.

SECTION VI. ACCIDENTAL RELEASE MEASURES

Accidental Release Measures: Use clean-up methods that avoid dust generation (vacuum, wet). Wear a NIOSH approved respirator if dust will be generated in clean-up. Use protective clothing if skin contact is likely. If material is diluted in a water solution, and a spill occurs in a confined area, introduce lime or soda ash to form insoluble copper salts and dispose of by approved method. Prevent accidental entry of solution into streams and other water bodies. Shovel any spills into plastic bags and seal with tape. Copper sulfate solution may deteriorate concrete.

SECTION VII. HANDLING AND STORAGE

Signal Word: Danger.

Handling Information: Avoid breathing dust or solution mist. Sweep up crystals or powder, vacuum is preferred. Eye wash stations should be available in work areas. Users should wash hands before eating, drinking, chewing gum, using tobacco or using the toilet. Remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

Storage Information: Store in closed containers in a cool, dry, well-ventilated area away from heat sources and reducing agents. Store copper sulfate in stainless steel, fiberglass, polypropylene, PVC's or plastic equipment. Keep away from galvanized pipe and nylon equipment. If container or bag is damaged, place the container or bag in a plastic bag. Use good housekeeping practices to prevent dust accumulation.

SECTION VIII. EXPOSURE CONTROLS / PERSONAL PROTECTION

Engineering Controls: Use adequate general or local ventilation to keep airborne concentrations below the exposure limits.

Eye Protection: Use protective goggles or a face-shield.

Skin Protection: Use protective clothing to prevent repeated or prolonged skin contact. Applicators and other handlers must wear long-sleeved shirt and long pants, waterproof gloves, shoes plus socks, and protective eyewear. Discard clothing and other absorbent materials that have been drenched or heavily contaminated with product's concentrate. Do not reuse them. Keep and wash PPE separately from other laundry.

SECTION VIII. EXPOSURE CONTROLS / PERSONAL PROTECTION (Continued)

Respiratory Protection: A respiratory protection program that meets OSHA 29 CFR 1910.134 requirements must be followed whenever workplace conditions warrant respirator use. For concentrations up to 10 times the exposure limit, use NIOSH approved half- or full-face, air-purifying respirator. For higher concentrations, consult a professional industrial hygienist.

SECTION IX. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Transparent blue crystals, granules or powder.
Melting Point:	Not available
Boiling Point:	-5H2O @ 150 °C (760 mmHg)
Decomposition Temperature:	Decomposition above 110 °C with –4 H_2O
Density/Specific Gravity:	2.284 @ 15.6 °C
Odor/Odor Threshold:	Not available
Evaporation rate:	Not applicable
pH:	Not available
Coefficient of water/oil distribution:	Not available
Vapor Pressure:	Not applicable
Vapor Density:	Not applicable
Solubility in Water:	83.1 g/100 cc water @ 30 °C
Molecular Weight:	249.68

SECTION X. STABILITY AND REACTIVITY

Stability: Stable.
Incompatibility: Acetylene gas, aluminum powder, hydroxylamine, magnesium. moist air. Contact with magnesium metal can generate dangerous levels of hydrogen gas.
Conditions under which product is chemically unstable: Not applicable
Hazardous decomposition products: At temperatures >600 °C material decomposes to cupric oxide and sulfur dioxide.
Conditions of reactivity: Not applicable
Hazardous Polymerization: Will not occur.

SECTION XI. TOXICOLOGICAL INFORMATION

Toxicology Tests: (Triangle Brand Copper Sulfate Crystal)

Test : 1
LD/LC : LD_{50}
Test Type : Acute
Test Route : Dermal
Test Species : Rabbit
Results Amounts : >5050 mg/kg

Test : 2
LD/LC : LD_{50}
Test Type : Acute
Test Route : Oral
Test Species : Rat
Results Amounts : 352 mg/kg*
*Results based on toxicity evaluation of this product.

Test : 3
LD/LC : LC_{50}
Test Type : Acute, 4 hr
Test Route : Inhalation
Test Species : Rats
Results Amounts : >2.95 mg/L

Primary Eye Irritation: Corrosive, irreversible eye damage
Primary Skin Irritation: Slightly irritating.
Skin Sensitization: Product-specific tests in accordance with USEPA standards did not indicate that this product would cause skin sensitization.
Respiratory Tract Sensitization: Not available.
Carcinogenicity: Not listed as a carcinogen by NTP, IARC, OSHA, or ACGIH.

SECTION XI. TOXICOLOGICAL INFORMATION (Continued)

Mutagenicity: A study performed with copper sulphate on mice showed mutagenicity in a chromosomal aberration test; however, the route of exposure (*i.e.*, intraperitoneal) is not likely to be applicable to workplace use of this product.
Reproductive Toxicity: No reproductive effects were shown in a feeding test performed with copper sulphate on rats and mice.
Teratogenicity: Embryotoxicity was not seen at non-maternally toxic doses of copper sulphate in the relevant studies reviewed.
Toxicologically Synergistic Materials: Not available.
Other Chronic Effects: Long term inhalation of copper sulfate containing mists (*i.e.*, Bordeaux mixture) may cause adverse effects to the liver and kidneys. A sub-chronic test performed on rats and mice showed that at high exposure levels in feed (>4000 ppm) cupric sulfate is toxic to the liver and kidneys.

Additional Information: Inhalation of dust and mists of copper salts can result in irritation of nasal mucous membranes, sometimes of the pharynx and, on occasion ulceration with perforation of the nasal septum. Exposure to copper duet causes discoloration of the skin.
Note to Physician: Probable mucosal damage may contraindicate the use of gastric lavage. Measures against circulatory shock, respiratory depression and convulsions may be needed. Wilson's disease or G6PD deficiency (individual who absorbs, retains and stores copper) can be aggravated by excessive exposure. Symptoms may include nausea, vomiting, epigastric pain, diarrhea, dizziness, jaundice, and general debility.

SECTION XII. ECOLOGICAL INFORMATION

Subacute dietary LC_{50}: >10,000 ppm (quail and duck).
96 hr acute toxicity LC_{50}: 0.65 ppm (bluegill), 0.056 ppm (trout), 16 ppm (pink shrimp)
48 hr EC_{50}: 54 ppb (eastern oysters)
48 hr LC_{50}: 17 ppm (pink shrimp), 600 ppb (daphnia)
24 hr LC_{50}: 6.9 ppm (blue crab), 600 ppb (daphnia)
Bioaccumulation: Not available
Biodegradability: Not applicable

SECTION XIII. DISPOSAL CONSIDERATIONS

Waste Disposal Method: Waste must be disposed of in accordance with federal, state/provincial and local environmental control regulations. Improper disposal is a violation of law. Do not reuse empty container. If allowed by federal, state/provincial and local authorities, dispose of container in a sanitary landfill or by incineration.

SECTION XIV. TRANSPORT INFORMATION

	Proper Shipping Name:	Technical Name (If N.O.S.):	Hazard Class:	ID:	PG:
DOT:	*Environmentally Hazardous Substance, Solid, n.o.s., (Cupric Sulfate)**		9	UN3077	III

Reportable Quantity (RQ) = 10 pounds (4.54 kg).
*Applicable when product is shipped in packaging of 10 pounds or greater.

SECTION XV. REGULATORY INFORMATION

US Federal

Federal Drinking Water Standards: *(Copper)* EPA 1300µg/L (action level), 1000 µg/L
Clean Water Act: This product contains compounds identified in 40 CFR 116.4.
TSCA: Listed
EPCRA, SARA Title III, Section 313 (40 CFR 372) Chemicals subject to reporting requirements (see Section II for CAS number and percentage in mixture): Section 312 and/or 313 reporting may be required for this product, depending of the amount used and/or stored on site.
CERCLA Hazardous Substances: RQ is not assigned to the broad class of copper compounds.
DOT: RQ 10 pounds (4.54 kg), See Section XIV TRANSPORT INFORMATION

Canada

This product has been classified in accordance with the hazard criteria of the *Controlled Products Regulations* and the MSDS contains all of the information required by the *Controlled Products Regulations*.

SECTION XVI. OTHER INFORMATION

Prepared By:	Phelps Dodge Corporation Department of Occupational Health and Safety One North Central Avenue Phoenix, AZ 85004 Telephone number (602.366.8398)
Reason for Revision:	Added use statement in Section I. Revised Section III and XI to reflect recent toxicity tests, Updated/revised information in other Sections with addition of Section XII in accordance with WHMIS.

APPENDIX D
ANNUAL 2002 MONITORING REPORT

Annual Report 2002

January 23, 2003

Mr. John H. Robertus
Executive Officer
California Regional Water Quality
Control Board
San Diego Region
9174 Sky Park Court, Suite 100
San Diego, Ca 92123

CERTIFIED MAIL REQUIRED
RETURN RECEIPT REQUESTED
NPDES No. CAG99003

Dear Mr. Robertus:

Annual 2002 Monitoring Report Aquatic Pesticides to Surface Waters Permit No. CAG99003

This letter serves as the monitoring report for Annual 2002, as required in NPDES No. CAG99003.

The objective of Metropolitan's monitoring plan is plan is to track copper concentrations in source water reservoirs after treatment with granulated copper sulfate to control problem algae. The goal is to ensure that treatment occurs in a manner to control the aerial extent and duration of impacts caused by the discharge of copper and to allow full restoration of water quality and protection of beneficial uses of the receiving waters following completion of the algae management treatment.

Sampling intervals: Post-treatment samples will be collected at the following intervals until the soluble copper concentration returns to pre-treatment levels:

- within 2 days,
- 7-10 days,
- 15-20 days,
- If required, sampling will continue at ≤14-day intervals after the first 20 days until the soluble copper concentration returns to pre-treatment levels.

Lake Skinner Treatment

Metropolitan applied 10 tons of copper sulfate to Lake Skinner to treat a planktonic algae bloom on May 28, 2002.

Samples	Collection Date	LIMS #
Pretreatment	5/28/02	M25963
>2 days	5/30/02	M25964
7-10 days	6/05/02	M26264
15-20 days	6/17/02	M26497

see attached report.

On August 2, 2002, Lake Skinner was treated with 10 tons of copper sulfate ($CuSO_4$) as follows:

- Five tons were spread in the water along the dam face to kill taste and odor producing benthic algae
- Five tons were spread on 1/2 of the surface of the lake to control a planktonic Microcystis/Aphanizomenon bloom.

Samples	Collection Date	LIMS #
Pretreatment	8/02/02	M27642
>2 days	8/02/02	M27641
7-10 days	8/09/02	M27709
15-20 days	8/19/02	M28022

see attached report.

Lake Mathews Treatment

On July 6, 2002 Metropolitan applied 10 tons of copper sulfate to Lake Mathews to treat a blue-green algae growing on the sediment around the lake.

Samples	Collection Date	LIMS #
Pretreatment	7/06/02	M27005
>2 days	7/08/02	M27021
7-10 days	7/15/02	M27152
15-20 days	7/26/02	M27468

see attached report.

In summary, for all treatments there were no fish kills and copper levels returned to baseline within 9 to 20 days.

I declare under penalty of perjury that the above information is true and correct.

If you have any questions, please call George Muse at (213) 217-6287, or I can be reached at (213) 217-5504.

Very truly yours,

John E. Clark, P.E.
Manager, Environmental Support Services

GWM/pwr-R-03-035

cc:
Mr. Larry Nash
Regulations Unit
Division of Water Quality
State Water Resources Control Board
P. O Box 100
Sacramento, California 92124-1331

California Regional Water Quality Control Board
San Diego Region
9174 Sky Park Court, Suite 100
San Diego, Ca 92123
Attention: Mr. Pete Michael

Mr. Gerard J. Thibeault
Executive Officer
California Regional Water
Quality Control Board
Santa Ana Region
3737 Main Street, Suite 500
Riverside, California 92501-3339

California Regional Water
Quality Control Board Santa Ana Region
3737 Main Street, Suite 500
Riverside, California 92501-3339
Attention: Ms. Nikki Outwin

Copper/Dissolved Copper Results from CuSO4 Treatment Lake Skinner 05-28-02

Sample Site	LOCATOR	Sample ID	Sample Date	Parameter	Results (ug/L)
LSKINCENT	3M PRETREATMENT	M25963-1	5/28/2002	Copper	ND
LSKINCENT	9M PRETREATMENT	M25963-3	5/28/2002	Copper	ND
LSKINCENT	18M PRETREATMENT	M25963-5	5/28/2002	Copper	ND
LSKINOUTCON	PRETREATMENT	M25963-7	5/28/2002	Copper	ND
LSKINCENT	3M POSTTREATMENT	M25964-1	5/30/2002	Copper	40
LSKINCENT	6M POSTTREATMENT	M25964-3	5/30/2002	Copper	40
LSKINCENT	9M POSTTREATMENT	M25964-5	5/30/2002	Copper	44
LSKINOUTCON	POSTTREATMENT	M25964-7	5/30/2002	Copper	44
LSKINOUTCON		M26264-12	6/5/2002	Copper	21
LSKININLET	RADIAL GATE	M26264-2	6/5/2002	Copper	ND
LSKINCENT	3M	M26264-5	6/5/2002	Copper	22
LSKINCENT	6M	M26264-7	6/5/2002	Copper	22
LSKINCENT	9M	M26264-9	6/5/2002	Copper	23
LSKININLET	RADIAL GATE	M26497-1	6/17/2002	Copper	ND
LSKINCENT	9M	M26497-10	6/17/2002	Copper	ND
LSKINOUTCON		M26497-13	6/17/2002	Copper	ND
LSKINCENT	3M	M26497-4	6/17/2002	Copper	ND
LSKINCENT	6M	M26497-7	6/17/2002	Copper	ND

ND = Not Detected
at 10 ug/L.

Copper is Total Copper

Copper/Dissolved Copper Results from CuSO4 Treatment Lake
Mathews 07-06-02

Sample Site	LOCATOR	Sample ID	Sample Date	Parameter	Results (ug/L)
LMATHINL		M27005-1	7/6/2002	Cu Dissolved	ND
LMATHCENT	3M	M27005-3	7/6/2002	Cu Dissolved	ND
LMATHCENT	12M	M27005-5	7/6/2002	Cu Dissolved	ND
LMATHCENT	21M	M27005-7	7/6/2002	Cu Dissolved	ND
LMATHHDWKS		M27005-9	7/6/2002	Cu Dissolved	ND
LMATHINL		M27021-1	7/8/2002	Cu Dissolved	ND
LMATHCENT	3M	M27021-3	7/8/2002	Cu Dissolved	12
LMATHCENT	12M	M27021-5	7/8/2002	Cu Dissolved	13
LMATHCENT	21M	M27021-7	7/8/2002	Cu Dissolved	ND
LMATHHDWKS		M27021-9	7/8/2002	Cu Dissolved	ND
LMATHCENT	3M	M27152-1	7/15/2002	Cu Dissolved	ND
LMATHCENT	12M	M27152-3	7/15/2002	Cu Dissolved	ND
LMATHCENT	21M	M27152-5	7/15/2002	Cu Dissolved	ND
LMATHINL		M27152-7	7/15/2002	Cu Dissolved	ND
LMATHHDWKS		M27152-9	7/15/2002	Cu Dissolved	ND
LMATHINL		M27468-1	7/26/2002	Cu Dissolved	ND
LMATHCENT	3M	M27468-3	7/26/2002	Cu Dissolved	ND

ND = Not Detected
at 10 ug/L.

Copper is Dissolved Copper

Copper/Dissolved Copper Results from CuSO4 Treatment Lake Skinner 08-02-02

Sample Site	LOCATOR	Sample ID	Sample Date	Parameter	Results (ug/L)
LSKININLET	PRE TREATMENT	M27641-1	8/2/2002	Cu Dissolved	ND
LKSININBUOYAREA	PRE TREATMENT 3M	M27641-3	8/2/2002	Cu Dissolved	ND
LKSININBUOYAREA	PRE TREATMENT 12M	M27641-5	8/2/2002	Cu Dissolved	ND
LKSININBUOYAREA	PRE TREATMENT 21M	M27641-7	8/2/2002	Cu Dissolved	ND
LSKINOUTCON	PRE TREATMENT	M27641-9	8/2/2002	Cu Dissolved	ND
LSKININLET	POST TREATMENT	M27642-1	8/2/2002	Cu Dissolved	ND
LKSININBUOYAREA	POST TREATMENT 3M	M27642-3	8/2/2002	Cu Dissolved	197
LKSININBUOYAREA	POST TREATMENT 12M	M27642-5	8/2/2002	Cu Dissolved	17
LKSININBUOYAREA	POST TREATMENT 21M	M27642-7	8/2/2002	Cu Dissolved	10
LSKINOUTCON	POST TREATMENT	M27642-9	8/2/2002	Cu Dissolved	28
LSKININLET		M27709-1	8/9/2002	Cu Dissolved	ND
FIELDBLANK_LS50	FILTER BLANK	M27709-11	8/9/2002	Cu Dissolved	ND
LKSININBUOYAREA	3M	M27709-3	8/9/2002	Cu Dissolved	16
LKSININBUOYAREA	12M	M27709-5	8/9/2002	Cu Dissolved	15
LKSININBUOYAREA	21M	M27709-7	8/9/2002	Cu Dissolved	15
LSKINOUTCON		M27709-9	8/9/2002	Cu Dissolved	15
LSKININLET	POST TREATMENT	M28022-1	8/19/2002	Cu Dissolved	ND
LSKINOUTCON	POST TREATMENT	M28022-3	8/19/2002	Cu Dissolved	ND
LKSININBUOYAREA	POST TREATMENT 3M	M28022-5	8/19/2002	Cu Dissolved	ND
LKSININBUOYAREA	POST TREATMENT 12M	M28022-7	8/19/2002	Cu Dissolved	ND
LKSININBUOYAREA	POST TREATMENT 21M	M28022-9	8/19/2002	Cu Dissolved	ND

ND = Not Detected
at 10 ug/L.

Copper is Dissolved Copper

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APPENDIX E
DISSOLVED COPPER CONCENTRATIONS (PRE- AND POST-TREATMENT, 2002-2003)

LAKE SKINNER COPPER SULFATE TREATMENT: 06/26/2003

BENTHIC TASTE-AND-ODOR ALGAE (SHORELINE) -- 1.5 tons "C" and 7.0 tons "B" crystal

DATE	TREATMENT	RESERVOIR	LOCATOR	DEPTH (m)	DISSOLVED COPPER (ug/L)	TOTAL HARDNESS (mg/L)	CCC	CMC
26-Jun-03	PRE - 1 hour	LAKE SKINNER	INLET		ND	190	15	25
26-Jun-03	PRE - 1 hour	LAKE SKINNER	SITE 06	3	ND	210	17	27
26-Jun-03	PRE - 1 hour	LAKE SKINNER	SITE 06	6	ND	210	17	27
26-Jun-03	PRE - 1 hour	LAKE SKINNER	SITE 06	9	ND	208	17	27
26-Jun-03	PRE - 1 hour	LAKE SKINNER	OUTLET CONDUIT		ND	209	17	27
26-Jun-03	POST - 1 hour	LAKE SKINNER	SITE 06	3	224	214	17	28
26-Jun-03	POST - 1 hour	LAKE SKINNER	SITE 06	6	11	210	17	27
26-Jun-03	POST - 1 hour	LAKE SKINNER	SITE 06	9	126	218	17	28
26-Jun-03	POST - 1 hour	LAKE SKINNER	OUTLET CONDUIT		30	212	17	27
28-Jun-03	POST - 2 days	LAKE SKINNER	SITE 06	3	65	214	17	28
28-Jun-03	POST - 2 days	LAKE SKINNER	SITE 06	6	82	210	17	27
28-Jun-03	POST - 2 days	LAKE SKINNER	SITE 06	9	36	207	17	27
28-Jun-03	POST - 2 days	LAKE SKINNER	OUTLET CONDUIT		68	214	17	28
03-Jul-03	POST - 7 days	LAKE SKINNER	SITE 06	3	32	210	17	27
03-Jul-03	POST - 7 days	LAKE SKINNER	SITE 06	6	27	210	17	27
03-Jul-03	POST - 7 days	LAKE SKINNER	SITE 06	9	26	209	17	27
03-Jul-03	POST - 7 days	LAKE SKINNER	OUTLET CONDUIT		20	210	17	27
16-Jul-03	POST - 20 days	LAKE SKINNER	SITE 06	3	ND	216	17	28
16-Jul-03	POST - 20 days	LAKE SKINNER	SITE 06	6	ND	216	17	28
16-Jul-03	POST - 20 days	LAKE SKINNER	SITE 06	9	ND	216	17	28
16-Jul-03	POST - 20 days	LAKE SKINNER	OUTLET CONDUIT		ND	216	17	28

ND - NOT DETECTED (< 10 ug/L)

LAKE SKINNER COPPER SULFATE TREATMENT: 6-26-2003

Date	Time	Reservoir	Location	Depth (m)	Temp (deg C)	DO (mg/L)	pH (units)	EC (umho/cm)	Elevation (ft)
6/26/2003	7:30	Lake Skinner	Site 06	0.0	21.3	8.4	8.19	557	1476.79
6/26/2003	7:30	Lake Skinner	Site 06	1.0	21.3	8.3	8.19	554	
6/26/2003	7:30	Lake Skinner	Site 06	2.0	21.3	8.0	8.19	554	
6/26/2003	7:30	Lake Skinner	Site 06	3.0	21.3	8.0	8.19	554	
6/26/2003	7:30	Lake Skinner	Site 06	4.0	21.3	7.9	8.19	554	
6/26/2003	7:30	Lake Skinner	Site 06	5.0	21.2	7.9	8.18	554	
6/26/2003	7:30	Lake Skinner	Site 06	6.0	21.2	7.8	8.17	553	
6/26/2003	7:30	Lake Skinner	Site 06	7.0	21.2	7.8	8.16	553	
6/26/2003	7:30	Lake Skinner	Site 06	8.0	21.1	7.7	8.14	553	
6/26/2003	7:30	Lake Skinner	Site 06	9.0	21.0	7.7	8.13	553	
6/26/2003	7:30	Lake Skinner	Site 06	10.0	21.0	7.6	8.12	553	
6/26/2003	15:30	Lake Skinner	Site 06	0.0	22.3	9.2	8.02	558	1476.79
6/26/2003	15:30	Lake Skinner	Site 06	1.0	21.9	9.1	8.16	558	
6/26/2003	15:30	Lake Skinner	Site 06	2.0	21.6	8.8	8.12	556	
6/26/2003	15:30	Lake Skinner	Site 06	3.0	21.2	8.7	8.06	555	
6/26/2003	15:30	Lake Skinner	Site 06	4.0	21.1	8.5	8.03	555	
6/26/2003	15:30	Lake Skinner	Site 06	5.0	21.0	8.3	8.01	555	
6/26/2003	15:30	Lake Skinner	Site 06	6.0	21.0	8.1	7.99	556	
6/26/2003	15:30	Lake Skinner	Site 06	7.0	20.9	7.8	7.97	556	
6/26/2003	15:30	Lake Skinner	Site 06	8.0	20.9	7.8	7.95	556	
6/26/2003	15:30	Lake Skinner	Site 06	9.0	20.8	7.8	7.94	556	
6/26/2003	15:30	Lake Skinner	Site 06	10.0	20.8	7.8	7.94	556	
6/28/2003	11:15	Lake Skinner	Site 06	0.0	26.0	8.5	8.66	588	1472.23
6/28/2003	11:15	Lake Skinner	Site 06	1.0	25.9	8.4	8.66	588	
6/28/2003	11:15	Lake Skinner	Site 06	2.0	25.6	8.2	8.60	589	
6/28/2003	11:15	Lake Skinner	Site 06	3.0	25.6	8.1	8.59	589	
6/28/2003	11:15	Lake Skinner	Site 06	4.0	25.6	8.1	8.59	589	
6/28/2003	11:15	Lake Skinner	Site 06	5.0	25.6	8.1	8.59	589	
6/28/2003	11:15	Lake Skinner	Site 06	6.0	25.6	8.1	8.59	588	
6/28/2003	11:15	Lake Skinner	Site 06	7.0	25.6	8.1	8.58	588	
6/28/2003	11:15	Lake Skinner	Site 06	8.0	25.5	8.0	8.57	588	
6/28/2003	11:15	Lake Skinner	Site 06	9.0	25.5	7.9	8.56	587	
6/28/2003	11:15	Lake Skinner	Site 06	10.0	25.4	7.8	8.54	588	
7/3/2003	10:00	Lake Skinner	Site 06	0.0	24.2	10.5	8.73	553	1473.55
7/3/2003	10:00	Lake Skinner	Site 06	1.0	23.8	10.6	8.71	554	
7/3/2003	10:00	Lake Skinner	Site 06	2.0	23.4	10.2	8.68	554	
7/3/2003	10:00	Lake Skinner	Site 06	3.0	22.7	9.8	8.49	555	
7/3/2003	10:00	Lake Skinner	Site 06	4.0	22.6	9.4	8.48	555	
7/3/2003	10:00	Lake Skinner	Site 06	5.0	22.5	9.1	8.46	556	
7/3/2003	10:00	Lake Skinner	Site 06	6.0	22.4	8.8	8.41	557	
7/3/2003	10:00	Lake Skinner	Site 06	7.0	22.4	8.8	8.41	556	
7/3/2003	10:00	Lake Skinner	Site 06	8.0	22.1	8.2	8.26	556	
7/3/2003	10:00	Lake Skinner	Site 06	9.0	22.1	8.1	8.28	555	
7/3/2003	10:00	Lake Skinner	Site 06	10.0	22.1	8.0	8.25	555	
7/16/2003	11:00	Lake Skinner	Site 06	0.0	23.6	8.5	8.33	568	1472.23
7/16/2003	11:00	Lake Skinner	Site 06	1.0	23.2	7.9	8.29	568	
7/16/2003	11:00	Lake Skinner	Site 06	2.0	23.1	7.8	8.28	569	
7/16/2003	11:00	Lake Skinner	Site 06	3.0	22.9	7.7	8.27	569	
7/16/2003	11:00	Lake Skinner	Site 06	4.0	22.9	7.7	8.26	569	
7/16/2003	11:00	Lake Skinner	Site 06	5.0	22.9	7.6	8.26	569	
7/16/2003	11:00	Lake Skinner	Site 06	6.0	22.8	7.6	8.25	569	
7/16/2003	11:00	Lake Skinner	Site 06	7.0	22.7	7.6	8.24	568	
7/16/2003	11:00	Lake Skinner	Site 06	8.0	22.7	7.6	8.24	568	
7/16/2003	11:00	Lake Skinner	Site 06	9.0	22.7	7.5	8.23	568	
7/16/2003	11:00	Lake Skinner	Site 06	10.0	22.6	7.5	8.22	568	

LAKE SKINNER COPPER SULFATE TREATMENT: 08/02/2002

BENTHIC TASTE-AND-ODOR ALGAE (DAM) AND PLANKTONIC MICROCYSTIS BLOOM -- 5 tons "C" and 5 tons "B" crystal

DATE	TREATMENT	RESERVOIR	LOCATOR	DEPTH (m)	DISSOLVED COPPER (ug/L)	TOTAL HARDNESS (mg/L)	CCC	CMC
02-Aug-02	PRE - 1 hour	LAKE SKINNER	INLET		ND	244	19	31
02-Aug-02	PRE - 1 hour	LAKE SKINNER	OUTLET CONDUIT		ND			
02-Aug-02	POST - 1 hour	LAKE SKINNER	INLET		ND	243	19	31
02-Aug-02	POST - 1 hour	LAKE SKINNER	OUTLET CONDUIT		28			
09-Aug-02	POST - 7 days	LAKE SKINNER	INLET		ND	254	20	32
09-Aug-02	POST - 7 days	LAKE SKINNER	OUTLET CONDUIT		15			
19-Aug-02	POST - 17 days	LAKE SKINNER	INLET		ND	236	19	30
19-Aug-02	POST - 17 days	LAKE SKINNER	OUTLET CONDUIT		ND			

ND - NOT DETECTED (<10 ug/L)

LAKE SKINNER COPPER SULFATE TREATMENT: 8-2-2002

Date	Time	Reservoir	Location	Depth (m)	Temp (deg C)	DO (mg/L)	pH (units)	EC (umho/cm)	Elevation (ft)
7/15/2002	12:21	Lake Skinner	Outlet Tower	0.0	26.0	8.6	8.38	833	1473.15
7/15/2002	12:21	Lake Skinner	Outlet Tower	1.0	26.0	8.6	8.39	834	
7/15/2002	12:21	Lake Skinner	Outlet Tower	2.0	26.0	8.6	8.39	833	
7/15/2002	12:21	Lake Skinner	Outlet Tower	3.0	26.0	8.5	8.39	833	
7/15/2002	12:21	Lake Skinner	Outlet Tower	4.0	25.9	8.4	8.41	832	
7/15/2002	12:21	Lake Skinner	Outlet Tower	5.0	25.9	8.3	8.40	832	
7/15/2002	12:21	Lake Skinner	Outlet Tower	6.0	25.8	8.3	8.38	831	
7/15/2002	12:21	Lake Skinner	Outlet Tower	7.0	25.7	8.1	8.36	832	
7/15/2002	12:21	Lake Skinner	Outlet Tower	8.0	25.7	8.1	8.35	832	
7/15/2002	12:21	Lake Skinner	Outlet Tower	9.0	25.7	8.2	8.34	832	
7/15/2002	12:21	Lake Skinner	Outlet Tower	10.0	25.7	8.2	8.33	832	
7/15/2002	12:21	Lake Skinner	Outlet Tower	11.0	25.7	8.2	8.32	832	
7/15/2002	12:21	Lake Skinner	Outlet Tower	12.0	25.7	8.1	8.31	832	
7/15/2002	12:21	Lake Skinner	Outlet Tower	13.0	25.7	8.0	8.30	832	
7/15/2002	12:21	Lake Skinner	Outlet Tower	14.0	25.7	8.1	8.30	832	
7/15/2002	12:21	Lake Skinner	Outlet Tower	15.0	25.7	8.2	8.30	832	
7/15/2002	12:21	Lake Skinner	Outlet Tower	16.0	25.7	8.1	8.29	832	
7/15/2002	12:21	Lake Skinner	Outlet Tower	17.0	25.7	8.1	8.29	832	
7/15/2002	12:21	Lake Skinner	Outlet Tower	18.0	25.7	8.0	8.28	832	
7/15/2002	12:21	Lake Skinner	Outlet Tower	19.0	25.7	7.9	8.28	832	
7/15/2002	12:21	Lake Skinner	Outlet Tower	20.0	25.7	7.9	8.27	832	
7/15/2002	12:21	Lake Skinner	Outlet Tower	21.0	25.7	8.0	8.26	832	
7/15/2002	12:21	Lake Skinner	Outlet Tower	22.0	25.7	7.8	8.26	832	
7/15/2002	12:21	Lake Skinner	Outlet Tower	23.0	25.6	7.8	8.25	832	
				24.0	25.7	7.7	8.23	831	
8/19/2002	12:01	Lake Skinner	Outlet Tower	0.0	25.5	7.7	8.06	801	1474.50
8/19/2002	12:01	Lake Skinner	Outlet Tower	1.0	25.4	7.8	8.09	801	
8/19/2002	12:01	Lake Skinner	Outlet Tower	2.0	25.4	7.6	8.10	801	
8/19/2002	12:01	Lake Skinner	Outlet Tower	3.0	25.3	7.5	8.12	801	
8/19/2002	12:01	Lake Skinner	Outlet Tower	4.0	25.2	7.5	8.14	800	
8/19/2002	12:01	Lake Skinner	Outlet Tower	5.0	25.2	7.5	8.16	800	
8/19/2002	12:01	Lake Skinner	Outlet Tower	6.0	25.2	7.6	8.17	800	
8/19/2002	12:01	Lake Skinner	Outlet Tower	7.0	25.2	7.5	8.17	800	
8/19/2002	12:01	Lake Skinner	Outlet Tower	8.0	25.2	7.4	8.17	800	
8/19/2002	12:01	Lake Skinner	Outlet Tower	9.0	25.2	7.6	8.18	800	
8/19/2002	12:01	Lake Skinner	Outlet Tower	10.0	25.2	7.4	8.17	800	
8/19/2002	12:01	Lake Skinner	Outlet Tower	11.0	25.2	7.3	8.18	800	
8/19/2002	12:01	Lake Skinner	Outlet Tower	12.0	25.1	7.4	8.18	800	
8/19/2002	12:01	Lake Skinner	Outlet Tower	13.0	25.1	7.3	8.18	800	
8/19/2002	12:01	Lake Skinner	Outlet Tower	14.0	25.1	7.3	8.18	799	
8/19/2002	12:01	Lake Skinner	Outlet Tower	15.0	25.1	7.3	8.17	799	
8/19/2002	12:01	Lake Skinner	Outlet Tower	16.0	25.1	7.3	8.17	799	
8/19/2002	12:01	Lake Skinner	Outlet Tower	17.0	25.1	7.3	8.17	799	
8/19/2002	12:01	Lake Skinner	Outlet Tower	18.0	25.1	7.4	8.17	799	
8/19/2002	12:01	Lake Skinner	Outlet Tower	19.0	25.1	7.4	8.17	799	
8/19/2002	12:01	Lake Skinner	Outlet Tower	20.0	25.1	7.4	8.17	799	
8/19/2002	12:01	Lake Skinner	Outlet Tower	21.0	25.1	7.2	8.17	799	
8/19/2002	12:01	Lake Skinner	Outlet Tower	22.0	25.1	7.3	8.17	799	
8/19/2002	12:01	Lake Skinner	Outlet Tower	23.0	25.1	7.4	8.16	799	
8/19/2002	12:01	Lake Skinner	Outlet Tower	24.0	25.1	7.3	8.16	799	
				25.0	25.1	7.2	8.14	798	

LAKE MATHEWS COPPER SULFATE TREATMENT: 7-6-2002

PLANKTONIC TASTE-AND-ODOR ALGAE BLOOM -- 10 tons "C" Crystal

DATE	TREATMENT	RESERVOIR	LOCATOR	DEPTH (m)	DISSOLVED COPPER (ug/L)	TOTAL HARDNESS (mg/L)	CCC	CMC
06-Jul-02	PRE - 1 hour	LMATHINL	INLET		ND	288	22	36
06-Jul-02	PRE - 1 hour	LMATHCENT	CENTER	3	ND	269	21	34
06-Jul-02	PRE - 1 hour	LMATHCENT	CENTER	12	ND	276	21	35
06-Jul-02	PRE - 1 hour	LMATHCENT	CENTER	21	ND	285	22	36
06-Jul-02	PRE - 1 hour	LMATHHDWKS	HEADWORKS		ND	284	22	36
08-Jul-02	POST - 2 days	LMATHINL	INLET		ND	286	22	36
08-Jul-02	POST - 2 days	LMATHCENT	CENTER	3	12	272	21	35
08-Jul-02	POST - 2 days	LMATHCENT	CENTER	12	13	272	21	35
08-Jul-02	POST - 2 days	LMATHCENT	CENTER	21	ND	282	22	36
08-Jul-02	POST - 2 days	LMATHHDWKS	HEADWORKS		ND	278	21	35
15-Jul-02	POST - 9 days	LMATHINL	INLET		ND			
15-Jul-02	POST - 9 days	LMATHCENT	CENTER	3	ND			
15-Jul-02	POST - 9 days	LMATHCENT	CENTER	12	ND			
15-Jul-02	POST - 9 days	LMATHCENT	CENTER	21	ND			
15-Jul-02	POST - 9 days	LMATHHDWKS	HEADWORKS		ND	286	22	36
26-Jul-02	POST - 20 days	LMATHINL	INLET		ND	295	23	37
26-Jul-02	POST - 20 days	LMATHCENT	CENTER	3	ND	282	22	36
26-Jul-02	POST - 20 days	LMATHCENT	CENTER	12	ND	278	21	35
26-Jul-02	POST - 20 days	LMATHCENT	CENTER	21	ND	282	22	36
26-Jul-02	POST - 20 days	LMATHHDWKS	HEADWORKS		ND	284	22	36

ND - NOT DETECTED (<10ug/L)

LAKE MATHEWS COPPER SULFATE TREATMENT: 7-6-2002

Date	Time	Reservoir	Location	Depth (m)	Temp (deg C)	DO (mg/L)	pH (units)	EC (umho/cm)	Elevation (ft)
7/8/2002	10:45	Lake Mathews	Center	0.0	26.6	9.4	8.56	913	1359.00
7/8/2002	10:45	Lake Mathews	Center	1.0	26.1	9.5	8.57	910	
7/8/2002	10:45	Lake Mathews	Center	2.0	25.9	9.5	8.55	909	
7/8/2002	10:45	Lake Mathews	Center	3.0	25.8	9.6	8.54	910	
7/8/2002	10:45	Lake Mathews	Center	4.0	25.6	9.5	8.53	905	
7/8/2002	10:45	Lake Mathews	Center	5.0	25.0	9.6	8.51	905	
7/8/2002	10:45	Lake Mathews	Center	6.0	24.8	9.7	8.48	906	
7/8/2002	10:45	Lake Mathews	Center	7.0	24.6	9.5	8.45	906	
7/8/2002	10:45	Lake Mathews	Center	8.0	24.5	10.0	8.45	905	
7/8/2002	10:45	Lake Mathews	Center	9.0	24.2	9.9	8.43	906	
7/8/2002	10:45	Lake Mathews	Center	10.0	24.1	9.5	8.40	908	
7/8/2002	10:45	Lake Mathews	Center	11.0	24.0	9.4	8.38	908	
7/8/2002	10:45	Lake Mathews	Center	12.0	23.8	9.5	8.37	908	
7/8/2002	10:45	Lake Mathews	Center	13.0	23.6	9.4	8.34	909	
7/8/2002	10:45	Lake Mathews	Center	14.0	23.4	8.7	8.28	911	
7/8/2002	10:45	Lake Mathews	Center	15.0	23.3	8.4	8.25	912	
7/8/2002	10:45	Lake Mathews	Center	16.0	23.1	8.3	8.25	912	
7/8/2002	10:45	Lake Mathews	Center	17.0	22.6	8.0	8.19	916	
7/8/2002	10:45	Lake Mathews	Center	18.0	22.2	7.3	8.16	911	
7/8/2002	10:45	Lake Mathews	Center	19.0	21.6	6.7	8.11	913	
7/8/2002	10:45	Lake Mathews	Center	20.0	20.9	5.6	8.03	919	
7/8/2002	10:45	Lake Mathews	Center	21.0	19.5	4.0	7.95	920	
7/8/2002	10:45	Lake Mathews	Center	22.0	18.8	3.2	7.87	918	
7/8/2002	10:45	Lake Mathews	Center	23.0	16.7	1.7	7.80	910	
7/8/2002	10:45	Lake Mathews	Center	24.0	15.4	0.7	7.75	909	
7/8/2002	10:45	Lake Mathews	Center	25.0	14.6	0.5	7.70	908	
				26.0	14.1	0.5	7.68	913	
7/15/2002	10:45	Lake Mathews	Center	0.00	27.2	7.7	8.47	945	1356.80
7/15/2002	10:45	Lake Mathews	Center	1.00	27.0	7.7	8.47	945	
7/15/2002	10:45	Lake Mathews	Center	2.00	26.9	7.7	8.47	945	
7/15/2002	10:45	Lake Mathews	Center	3.00	26.7	7.6	8.45	942	
7/15/2002	10:45	Lake Mathews	Center	4.00	26.3	7.7	8.41	943	
7/15/2002	10:45	Lake Mathews	Center	5.00	25.9	7.7	8.40	943	
7/15/2002	10:45	Lake Mathews	Center	6.00	25.8	7.7	8.38	941	
7/15/2002	10:45	Lake Mathews	Center	7.00	25.6	7.9	8.37	939	
7/15/2002	10:45	Lake Mathews	Center	8.00	25.3	8.4	8.38	936	
7/15/2002	10:45	Lake Mathews	Center	9.00	25.1	8.4	8.36	937	
7/15/2002	10:45	Lake Mathews	Center	10.00	24.9	8.4	8.35	937	
7/15/2002	10:45	Lake Mathews	Center	11.00	24.7	8.5	8.35	937	
7/15/2002	10:45	Lake Mathews	Center	12.00	24.5	8.5	8.32	936	
7/15/2002	10:45	Lake Mathews	Center	13.00	24.3	8.5	8.30	937	
7/15/2002	10:45	Lake Mathews	Center	14.00	24.0	8.2	8.26	939	
7/15/2002	10:45	Lake Mathews	Center	15.00	23.6	7.6	8.19	942	
7/15/2002	10:45	Lake Mathews	Center	16.00	23.2	7.2	8.14	943	
7/15/2002	10:45	Lake Mathews	Center	17.00	23.0	7.0	8.10	944	
7/15/2002	10:45	Lake Mathews	Center	18.00	22.8	6.7	8.07	945	
7/15/2002	10:45	Lake Mathews	Center	19.00	22.0	5.7	7.98	948	
7/15/2002	10:45	Lake Mathews	Center	20.00	21.3	4.7	7.87	951	
				21.00	20.1	3.6	7.78	951	

LAKE SKINNER COPPER SULFATE TREATMENT: 05-28-2002

PLANKTONIC TASTE-AND-ODOR ALGAE BLOOM -- 10 tons "B" Crystal

DATE	TREATMENT	RESERVOIR	LOCATOR	DEPTH (m)	DISSOLVED COPPER (ug/L)	TOTAL HARDNESS (mg/L)	CCC	CMC
28-May-02	PRE - 1 hour	LAKE SKINNER	CENTER	3	ND			
28-May-02	PRE - 1 hour	LAKE SKINNER	CENTER	9	ND			
28-May-02	PRE - 1 hour	LAKE SKINNER	CENTER	18	ND			
28-May-02	PRE - 1 hour	LAKE SKINNER	OUTLET CONDUIT		ND	243	19	31
30-May-02	POST - 2 days	LAKE SKINNER	CENTER	3	40			
30-May-02	POST - 2 days	LAKE SKINNER	CENTER	6	40			
30-May-02	POST - 2 days	LAKE SKINNER	CENTER	9	44			
30-May-02	POST - 2 days	LAKE SKINNER	OUTLET CONDUIT		44	246	19	31
05-Jun-02	POST - 8 days	LAKE SKINNER	CENTER	3	22			
05-Jun-02	POST - 8 days	LAKE SKINNER	CENTER	6	22			
05-Jun-02	POST - 8 days	LAKE SKINNER	CENTER	9	23			
05-Jun-02	POST - 8 days	LAKE SKINNER	OUTLET CONDUIT		21	246	19	31
17-Jun-02	POST - 20 days	LAKE SKINNER	CENTER	3	ND			
17-Jun-02	POST - 20 days	LAKE SKINNER	CENTER	6	ND			
17-Jun-02	POST - 20 days	LAKE SKINNER	CENTER	9	ND			
17-Jun-02	POST - 20 days	LAKE SKINNER	OUTLET CONDUIT		ND	248	19	32

ND - NOT DETECTED (<10 ug/L)

LAKE SKINNER COPPER SULFATE TREATMENT: 5-28-2002

Date	Time	Reservoir	Location	Depth (m)	Temp (deg C)	DO (mg/L)	pH (units)	EC (umho/cm)	Elevation (ft)
5/28/2002	9:30	Lake Skinner	Center	0.0	21.1	8.8	8.39	826	1469.50
5/28/2002	9:30	Lake Skinner	Center	1.0	21.0	8.7	8.39	826	
5/28/2002	9:30	Lake Skinner	Center	2.0	20.9	8.8	8.39	826	
5/28/2002	9:30	Lake Skinner	Center	3.0	20.9	8.8	8.39	826	
5/28/2002	9:30	Lake Skinner	Center	4.0	20.9	8.7	8.38	826	
5/28/2002	9:30	Lake Skinner	Center	5.0	20.8	8.5	8.35	827	
5/28/2002	9:30	Lake Skinner	Center	6.0	20.8	8.4	8.36	827	
5/28/2002	9:30	Lake Skinner	Center	7.0	20.8	8.4	8.36	827	
5/28/2002	9:30	Lake Skinner	Center	8.0	20.8	8.5	8.36	827	
5/28/2002	9:30	Lake Skinner	Center	9.0	20.8	8.9	8.34	827	
5/28/2002	9:30	Lake Skinner	Center	10.0	20.7	8.3	8.34	827	
5/28/2002	9:30	Lake Skinner	Center	11.0	20.7	8.3	8.34	828	
5/28/2002	9:30	Lake Skinner	Center	12.0	20.7	8.2	8.34	828	
5/28/2002	9:30	Lake Skinner	Center	13.0	20.7	8.2	8.33	827	
				14.0	20.7	8.0	8.32	828	
5/30/2002	13:00	Lake Skinner	Center	0.0	22.2	9.3	8.41	852	1468.55
5/30/2002	13:00	Lake Skinner	Center	1.0	21.6	9.1	8.41	851	
5/30/2002	13:00	Lake Skinner	Center	2.0	21.5	9.0	8.40	852	
5/30/2002	13:00	Lake Skinner	Center	3.0	21.5	9.0	8.39	852	
5/30/2002	13:00	Lake Skinner	Center	4.0	21.5	8.9	8.38	852	
5/30/2002	13:00	Lake Skinner	Center	5.0	21.5	8.7	8.38	852	
5/30/2002	13:00	Lake Skinner	Center	6.0	21.5	8.7	8.37	852	
5/30/2002	13:00	Lake Skinner	Center	7.0	21.5	8.8	8.37	852	
5/30/2002	13:00	Lake Skinner	Center	8.0	21.5	8.8	8.36	853	
5/30/2002	13:00	Lake Skinner	Center	9.0	21.5	8.8	8.36	853	
5/30/2002	13:00	Lake Skinner	Center	10.0	21.5	8.8	8.36	853	
5/30/2002	13:00	Lake Skinner	Center	11.0	21.5	8.8	8.36	852	
5/30/2002	13:00	Lake Skinner	Center	12.0	21.4	8.7	8.36	853	
5/30/2002	13:00	Lake Skinner	Center	13.0	21.4	8.7	8.35	853	
				14.0	21.4	8.7	8.35	853	
6/5/2002	11:30	Lake Skinner	Center	1.0	23.4	10.7	8.63	850	1469.84
6/5/2002	11:30	Lake Skinner	Center	1.0	22.9	10.4	8.58	851	
6/5/2002	11:30	Lake Skinner	Center	2.0	22.4	9.9	8.50	854	
6/5/2002	11:30	Lake Skinner	Center	3.0	22.2	9.4	8.42	854	
6/5/2002	11:30	Lake Skinner	Center	4.0	22.2	9.2	8.41	854	
6/5/2002	11:30	Lake Skinner	Center	5.0	22.2	9.2	8.41	854	
6/5/2002	11:30	Lake Skinner	Center	6.0	22.2	9.2	8.39	854	
6/5/2002	11:30	Lake Skinner	Center	7.0	22.2	9.1	8.38	854	
6/5/2002	11:30	Lake Skinner	Center	8.0	22.2	9.0	8.37	854	
6/5/2002	11:30	Lake Skinner	Center	9.0	22.2	9.0	8.35	854	
6/5/2002	11:30	Lake Skinner	Center	10.0	22.1	8.8	8.33	854	
6/5/2002	11:30	Lake Skinner	Center	11.0	22.1	8.8	8.33	854	
6/5/2002	11:30	Lake Skinner	Center	12.0	22.1	8.8	8.32	854	
6/5/2002	11:30	Lake Skinner	Center	13.0	22.1	8.7	8.29	854	
				14.0	22.0	8.3	8.23	854	
6/17/2002	11:58	Lake Skinner	Center	0.00	24.8	8.3	8.38	817	1470.00
6/17/2002	11:58	Lake Skinner	Center	1.00	24.1	8.3	8.40	815	
6/17/2002	11:58	Lake Skinner	Center	2.00	23.7	8.2	8.40	815	
6/17/2002	11:58	Lake Skinner	Center	3.00	23.6	8.3	8.41	814	
6/17/2002	11:58	Lake Skinner	Center	4.00	23.6	8.3	8.39	814	
6/17/2002	11:58	Lake Skinner	Center	5.00	23.6	8.3	8.38	814	
6/17/2002	11:58	Lake Skinner	Center	6.00	23.5	8.1	8.37	814	
6/17/2002	11:58	Lake Skinner	Center	7.00	23.4	8.0	8.36	813	
6/17/2002	11:58	Lake Skinner	Center	8.00	23.4	8.1	8.35	814	
6/17/2002	11:58	Lake Skinner	Center	9.00	23.3	8.1	8.34	813	
6/17/2002	11:58	Lake Skinner	Center	10.00	23.3	8.0	8.33	813	
6/17/2002	11:58	Lake Skinner	Center	11.00	23.3	7.9	8.32	812	
6/17/2002	11:58	Lake Skinner	Center	12.00	23.2	7.8	8.30	812	
6/17/2002	11:58	Lake Skinner	Center	13.00	23.2	7.7	8.28	812	
				14.00	23.1	7.5	8.25	812	

MWD
METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA

Executive Office

November 12, 2003

Adam Laputz
State Water Resources Control Board
Division of Water Quality – Regulations Unit
P.O. Box 944213
Sacramento, California 94244-2130

State of California

Notice of Availability and Notice of Intent to
Adopt a Mitigated Negative Declaration for the Application of Copper Sulfate to
Lake Mathews, Lake Skinner, and Diamond Valley Lake to Control Algal Blooms

This letter is to advise you that pursuant to the California Environmental Quality Act (CEQA), The Metropolitan Water District of Southern California (Metropolitan) has prepared a Mitigated Negative Declaration to continue application of an aquatic pesticide (copper sulfate) to three of its reservoirs in Riverside County, California: Lake Mathews, Lake Skinner, and Diamond Valley Lake (Project). Metropolitan currently applies copper sulfate on an as-needed basis to control algal blooms so that such blooms do not degrade drinking water quality through elevated taste and odor problems, production of algal toxins, and filter clogging.

Metropolitan's copper sulfate applications are currently authorized under the State Water Resources Control Board's (SWRCB's) Water Quality Order No. 2001-12-DWQ, Statewide General National Pollutant Discharge Elimination System (NPDES) Permit for Discharges of Aquatic Pesticides to Waters of the United States (General Permit No. CAG990003). This General Permit expires on January 31, 2004. The SWRCB has notified interested parties that it intends to develop a new general NPDES permit for application of aquatic pesticides to replace the expiring General Permit. This Mitigated Negative Declaration was prepared in support of the new NPDES permit and to comply with CEQA requirements associated with new regulatory requirements recently established by the SWRCB.

The Mitigated Negative Declaration describes the proposed Project, its location, and probable environmental effects. This environmental review concludes that, with the implementation of proposed mitigation measures for hazards and hazardous materials, and hydrology and water quality, the proposed Project would not have a significant effect on the environment. None of the sites within the Project have been identified on any hazardous waste list as identified in Government Code Section 65962.5.

Metropolitan is interested in your comments regarding the information contained in the Mitigated Negative Declaration. The public comment period begins on November 13, 2003; however, in accordance with time limits mandated by State Law, responses must be sent at the earliest possible date but no later than 30 days after receipt of this Notice. Enclosed please find one copy of the Mitigated Negative Declaration for the proposed Project. Additional copies of the Mitigated Negative Declaration are available for review at the following locations:

The Metropolitan Water
District of Southern California
Reference and Research Center
700 N. Alameda Street
Los Angeles, CA 90012
(213) 217-6788

Hemet Public Library
300 E. Latham
Avenue
Hemet, CA 92543
(909) 765-2440

Temecula Library
41000 County Center
Temecula, CA 92591
(909) 600-6263

Riverside Central Library
3581 Mission Inn Avenue
Riverside, CA 92501
(909) 826-5201

Please direct any comments to Metropolitan at the address shown below, and provide the name and telephone number of a contact person:

Mr. Anthony Klecha
The Metropolitan Water District of Southern California
Corporate Resources Group, Environmental Planning Team
P.O. Box 54153
Los Angeles, CA 90054-0153

If you have any questions regarding the proposed Project, please contact Mr. Anthony Klecha at (213) 217-5528.

Very truly yours,

Laura J. Simonek

Laura J. Simonek
Manager, Environmental Planning Team

Enclosures:
One (1) copy of the Mitigated Negative Declaration

Metropolitan Water District of Southern California
Contingency Plans

If Metropolitan were not granted a categorical exception for the use of copper sulfate, then we would continue to rely on operational strategies that are already part of our best management practices and would consider additional treatment at the water treatment plants. Metropolitan is installing ozone/peroxone at its five treatment plants which will help in destroying taste and odor compounds. The implementation of ozone/peroxone, which will be fully implemented at all of the treatment plants by 2009, is expected to reduce Metropolitan's use of copper sulfate in the future.

Operational strategies

Over the short term and without copper sulfate, Metropolitan would rely exclusively on operational options such as selective withdrawal of water from our reservoirs, bypass and blending strategies. The utilization of these options, however, are constrained by water demand and supply conditions, season, facilities status (e.g., pipeline shutdowns or plant repairs), construction activities, limnological conditions within the reservoirs, and requirements to meet drinking water standards for disinfection byproducts. There is no guarantee that these options would be adequate to ensure an aesthetically acceptable water supply. These options have already been used to greatly reduce, but not eliminate, Metropolitan's reliance on the copper sulfate option.

Treatment Options

Metropolitan would consider additional treatment at the water treatment plants, if the operational options are inadequate for taste and odor control. Powdered activated carbon (PAC) could be used to achieve reduction in taste and odor compounds, although it would take approximately 12 months to install the facilities necessary to minimize worker safety hazards. Also, the treatment plants' sludge handling capabilities limit the amount of PAC that can be applied, which limits the ability to remove taste and odor compounds. Without copper sulfate to control algal growth, the concentration of taste and odor compounds can easily exceed the capacity of PAC to adequately control the problem. Lastly, PAC can leach out from the filter bed and into the distribution system, causing a different type of aesthetic problem, i.e., carbon particles that are visible in the water.

The installation of ozone/peroxone at Metropolitan's treatment plants will help in destroying taste and odor compounds in water that is treated. However, in order to control the formation of bromate, one of the regulated disinfection by-products in drinking water, the pH of the plant's influent must be lowered. The lowering of the pH reduces the effectiveness of ozone for controlling tastes and odors. PAC can be used in conjunction with ozone, but without the ability to control taste and odor algae in source waters, taste and odor compound levels will at times increase in source waters beyond the

capacity to control at the treatment plant, even with the combined use of ozone and PAC. The same may be true for algal toxins.

The only other treatment option Metropolitan can consider is granulated activated carbon, either as a replacement for the top few inches of the existing filter media or as a separate treatment unit post-filtration. Cost and, in the case of a separate GAC unit, space constraints make this the least desirable treatment option. Even then, absent the ability to control algal growth in our reservoirs, there may instances where GAC in conjunction with ozone is inadequate to remove/destroy the taste and odor compounds.

Other Options for Controlling Algal Blooms

Metropolitan has also considered alternatives to copper sulfate for the control of algal growth in our reservoirs but these alternatives are either impractical, not approved for use in drinking water reservoirs, or not demonstrated effective in Metropolitan's reservoirs. Alternatives considered include:

Mechanical / physical methods.

Mechanical harvesting cannot be used for benthic algae which are often the source of taste and odor compounds. Mechanical harvesting can be used for control of planktonic algae but is only practical when there is a thick algal scum. Frequently, the taste and odor producing algae are only minor components of the bloom. Thick algal blooms are not likely in Metropolitan's reservoirs, and if they did occur, the drinking use would likely already be impaired. Additionally, this method has only been successful in relatively small water bodies or in coves and embayments.

Reservoir covers are not feasible because of the size of Metropolitans reservoirs.

Application of alum to the reservoir is not effective for reservoirs such as Metropolitan's where the main source of nutrients is largely in the water supply delivered to the reservoir rather than in the sediments.

Other chemicals for algal control

We are not aware of other chemicals approved and effective for the control of algae in drinking water reservoirs.