

RECEIVED

JAN 26 2015

Attachment E – Notice of Intent

WATER QUALITY ORDER NO. 2013-0002-DWQ  
GENERAL PERMIT NO. CAG990005

DIVISION OF WATER QUALITY

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

I. NOTICE OF INTENT STATUS (see Instructions)

Mark only one item	A. New Applicator	B. Change of Information: WDID# _____
	C. <input type="checkbox"/> Change of ownership or responsibility: WDID# _____	

II. DISCHARGER INFORMATION

A. Name Santa Fe Irrigation District			
B. Mailing Address 5920 Linea Del Cielo			
C. City Rancho Santa Fe	D. County San Diego	E. State California	F. Zip 92067
G. Contact Person Timothy Bailey	H. E-mail address Tbailey@SFIDWater.org	I. Title W.Q. Analyst	J. Phone 858-756-2424

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

A. Name Santa Fe Irrigation District			
B. Mailing Address P.O.Box 409			
C. City Rancho Santa Fe	D. County San Diego	E. State California	F. Zip 92067
G. E-mail address Esaenz@SFIDWater.org	H. Title Accounting Technician	I. Phone 858-756-2424	

**IV. RECEIVING WATER INFORMATION**

A. Algaecide and aquatic herbicides are used to treat (check all that apply):

1.  Canals, ditches, or other constructed conveyance facilities owned and controlled by Discharger.  
Name of the conveyance system: \_\_\_\_\_

2.  Canals, ditches, or other constructed conveyance facilities owned and controlled by an entity other than the Discharger.  
Owner's name: \_\_\_\_\_  
Name of the conveyance system: \_\_\_\_\_

3. Directly to river, lake, creek, stream, bay, ocean, etc.  
Name of water body: San Dieguito Reservoir

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

**V. ALGAECIDE AND AQUATIC HERBICIDE APPLICATION INFORMATION**

A. Target Organisms: Blue Green Algae

B. Algaecide and Aquatic Herbicide Used: List Name and Active ingredients  
Copper; Copper Sulfate Pentahydrate

C. Period of Application: Start Date March 1 End Date September 30

D. Types of Adjuvants Used:

**VI. AQUATIC PESTICIDE APPLICATION PLAN**

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

If not, when will it be prepared? \_\_\_\_\_

**VII. NOTIFICATION**

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

**VIII. FEE**

Have you included payment of the filing fee (for first-time enrollees only) with this submittal?  
 YES  NO  NA

**IX. CERTIFICATION**

"I certify under penalty of law that this document and all attachments were prepared under my direction and supervision in accordance with a system designed to ensure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine or imprisonment. Additionally, I certify that the provisions of the General Permit, including developing and implementing a monitoring program, will be complied with."

A. Printed Name: Timothy Bailey

B. Signature:  Date: 01/08/2014

C. Title: Water Quality Analyst

**XI. FOR STATE WATER BOARD STAFF USE ONLY**

WDID:	Date NOI Received:	Date NOI Processed:
Case Handler's Initial:	Fee Amount Received: \$	Check #:
<input type="checkbox"/> Lyris List Notification of Posting of APAP	Date _____	Confirmation Sent _____

**Santa Fe Irrigation District**  
**R.E. Badger Filtration Plant**



**Aquatic Pesticide Application Plan**  
**WQ Order No. 2013-0002-DWQ**

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

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## Introduction

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

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

## Description of Santa Fe Irrigation District

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

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

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

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

The management of the San Dieguito Reservoir primarily consists of oxygen control via aeration, level manipulation, nutrient control and selective withdrawals from Lake Hodges. These strategies are effective at minimizing algae blooms and their associated adverse effects Within SDR, however occasionally an aquatic pesticide application may be necessary to maintain acceptable water quality within the reservoir by treating the transfers out of Lake Hodges into SDR or through the chemical feed system within the SDR pump station which would both be permitted under Order number 2013\_002\_DWQ; general permit number CAG990005.

## Description of Treatment areas

### San Dieguito Reservoir:

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

### Application:

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

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

### Water Transfers:

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

### Application:

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

### Control Structure:

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

<b>Santa Fe Irrigation District Aquatic Pesticide Treatment Areas</b>	
<b>Target Organism</b>	<b>Treatment Area</b>
Cyanobacteria	Water Transfers
Cyanobacteria	SDR Body

### Algae Subject to Control

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

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

### Factors Influencing Algaecide Usage

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

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

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

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

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

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

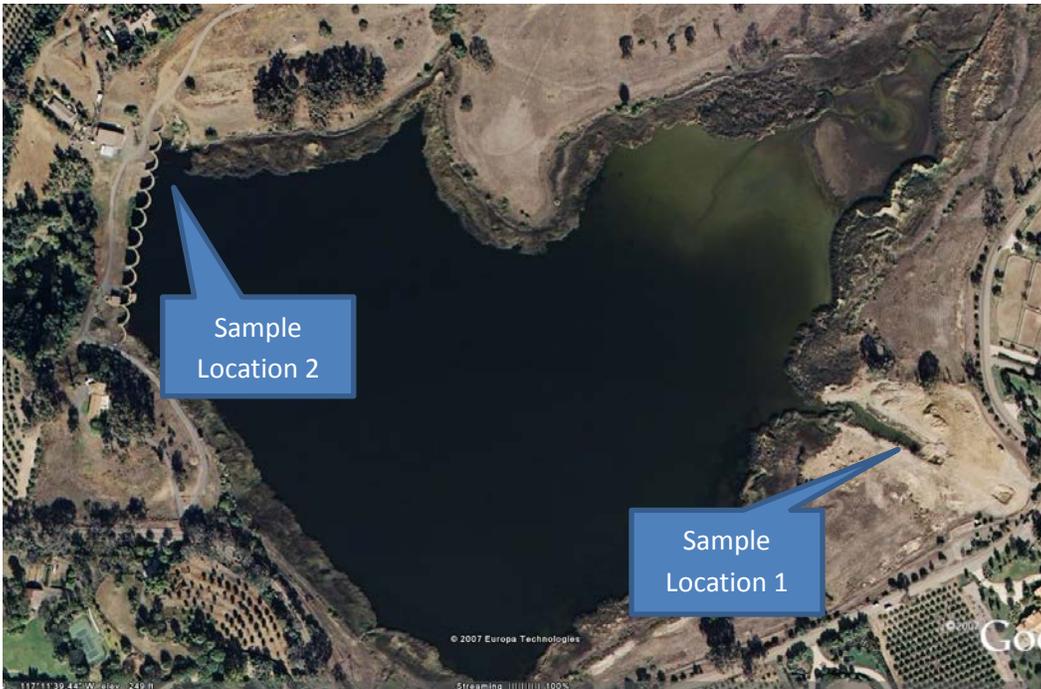
## Monitoring Program

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

### Monitoring locations:

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

Figure 1:



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

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

### General Monitoring Provisions:

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

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

Copper Sulfate (copper):

[http://www.epa.gov/oppsrrd1/REDs/copper\\_red.pdf](http://www.epa.gov/oppsrrd1/REDs/copper_red.pdf)

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

### Baseline Monitoring:

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

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

### Event Monitoring:

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

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

### Receiving Water Limitations

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

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

Notes:

1. See Regional Water Boards' Water Quality Control Plans (Basin Plans) for beneficial use definitions.
2. Public entities and mutual water companies\* listed in Attachment G are not required to meet these limitations in receiving waters during the exception period described in the APAP and Section VIII.C.10 below.
3. For waters in which the salinity is equal to or less than 1 part per thousand 95% or more of the time, the freshwater criteria apply. For waters in which the salinity is equal to or greater than 10 parts per thousand 95% or more of the time, saltwater criteria apply. For waters in which the salinity is between 1 and 10 parts per thousand, the applicable criteria are the more stringent of the freshwater or saltwater criteria.
4. For freshwater aquatic life criteria, waters with a hardness 400 mg/L or less as calcium carbonate, the actual ambient hardness of surface water shall be used. For waters with a hardness of over 400 mg/L as calcium carbonate, a hardness of 400 mg/L as calcium carbonate shall be used with a default Water-Effect Ratio of 1.
5. Values should be rounded to two significant figures.
6. This limitation does not apply to the Sacramento River and its tributaries above the State Highway 32 Bridge at Hamilton City. See Table III-1 of the Basin Plan for the Sacramento and San Joaquin River Basins for copper limitation.

## Laboratory Quality Assurance Program

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

## Examination of Possible Alternatives

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

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

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

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

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

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

## Best Management Practices

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

### Spill prevention and mitigation:

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

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

### Appropriate rate of application:

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

### Education:

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

## Monitoring Reports

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

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

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

# Attachment A

## MATERIAL SAFETY DATA SHEET

### EARTH SCIENCE LABORATORIES, INC.

113 SE 22<sup>nd</sup> St., Suite 1  
Bentonville, AR 72712  
earthsciencelabs.com

Emergency Phone Number:  
Information Phone Number:

1-800-535-5053 (Infotrac)  
1-479-271-7381

Material Name: *EarthTec*®

Page: 1 of 2  
Issue Date: 12/93  
Revision Date: 5/08

### Section 1 – PRODUCT IDENTIFICATION

Product Name: EarthTec®

EPA No: 64962-1

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

### Section 2 – HAZARDOUS INGREDIENTS

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

### Section 3 – HEALTH HAZARDS IDENTIFICATION

**Primary Routes of Entry:** *Inhalation, Absorption, and Ingestion.*

**Eyes:** *Corrosive.* Exposure may cause severe burns, destruction of eye tissue and possible permanent injury or blindness.

**Skin:** *Corrosive.* Contact may cause reddening, itching or inflammation.

**Ingestion:** *Corrosive.* May cause painful irritation and burning of the mouth and throat, painful swallowing, labored breathing, burns or perforation of the gastrointestinal tract leading to ulceration and secondary infection.

**Inhalation:** *Irritating.* Overexposure may cause burns and tissue damage.

### Section 4 – FIRST AID MEASURES

**Eyes:** Flush immediately with large amounts of water for at least 20 minutes. Eyelids should be held away from the eyeball to ensure thorough rinsing. Get immediate medical attention.

**Skin:** Immediately flush skin with plenty of water for at least 20 minutes while removing contaminated clothing and shoes. Get immediate medical attention.

**Ingestion:** If victim is conscious and alert, give 1-3 glasses of water to dilute stomach contents. Rinse mouth out with water. Do not induce vomiting unless directed by medical personnel. Get immediate medical attention.

**Inhalation:** Remove to fresh air. If not breathing, institute cardiopulmonary resuscitation (CPR). If breathing is difficult, ensure clear airway and give oxygen. Keep affected person warm and at rest. Get immediate medical attention.

### Section 5 – FIRE AND EXPLOSION HAZARDS

Flash Point: N/E

UFL: N/E

LFL: N/E

**Hazardous Combustion Products:** May react with high carbon metals to produce hydrogen gas, which can form an explosive mixture.

**Fire Fighting Equipment/Instructions:** Firefighters must wear MSHA/NIOSH approved positive pressure breathing apparatus (SCBA) with full face mask and full protective equipment.

NFPA Ratings: Fire: 0

Health: 2

Reactivity: 1

Other: X

HMIS III Ratings: Fire: 0

Health: 2

Reactivity: 1

Personal Protection: X

### Section 6 – ACCIDENTAL RELEASE MEASURES

**Containment Procedures:** Flush with water into retaining area or container. Caution should be exercised regarding personal safety and exposure to released product.

**Clean-Up Procedures:** Neutralize solution with bicarbonate of soda.

**Evacuation Procedures:** Keep unnecessary people away; isolate hazard area and deny entry. Stay upwind.

**Special Instructions:** Notify local authorities and the National Response Center, if required.

#### Section 7 – HANDLING AND STORAGE

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

#### Section 8 – PERSONAL PROTECTION

**Respiratory Protection:** Ventilation and other forms of engineering controls are the preferred means for controlling exposures. A NIOSH/MSHA approved air-purifying respirator with an appropriate acid gas cartridge or canister may be appropriate under certain circumstances where airborne concentrations are expected to exceed exposure limits.

**Protective Gloves:** Use appropriate chemical gloves that are in usable order.

**Other Protective Clothing or Equipment:** Eye and face protection is necessary, long sleeved shirts, long pants, socks and shoes.

**Work/Hygienic Practices:** Use good personal hygiene. Body shower for prolonged skin contact.

#### Section 9 – PHYSICAL & CHEMICAL PROPERTIES

**Appearance:** Clear blue liquid

**Physical State:** Liquid

**pH:** 0.5

**Vapor Pressure:** 0.1mm 68° F

**Boiling Point:** 220° F

**Melting Point:** N/A

**Odor:** Minimal odor

**Vapor Density (Air=1):** 1.0

**Evaporation Rate:** N/A

**Solubility in Water:** Complete

**Specific Gravity (H<sub>2</sub>O=1):** 1.2

#### Section 10 – REACTIVITY INFORMATION

**Chemical Stability:** Stable.

**Conditions to Avoid:** Avoid mixing with strong bases and strong reducing agents.

**Incompatibility:** Incompatible with strong bases and strong reducing agents.

**Hazardous Decomposition Products:** Sulfur dioxide and sulfur trioxide may be produced with decomposition.

**Hazardous Polymerization:** Will not occur.

#### Section 11 - TOXICOLOGICAL INFORMATION

**Acute Toxicity / Chronic Toxicity:** Continued overexposure to this solution may cause systemic toxicity.

**Carcinogenicity:** N/A

**Signs and Symptoms of Exposure:** Overexposure may cause the following specific symptoms, depending on the concentration and duration of exposure: vomiting, shallow respiration and lung function changes.

#### Section 12 – DISPOSAL CONSIDERATIONS

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

#### Section 13 – TRANSPORTATION INFORMATION

##### DOT Information

**Proper Shipping Name:** Corrosive liquid, acidic, inorganic, n.o.s., (contains cupric sulfate)

**Hazard Class:** 8

**UN/NA #:** UN3264

**Packing Group:** III

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

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