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DIVISION OF WATER QUALITY

Attachment E – Notice of Intent

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

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

I. NOTICE OF INTENT STATUS (see Instructions)

Mark only one item	A. New Applicator	B. Change of Information: WDID# 5B50NP00002
	C. ☐ Change of ownership or responsibility: WDID#	

II. DISCHARGER INFORMATION

A. Name OAKDALE IRRIGATION DISTRICT			
B. Mailing Address 1205 EAST "F" STREET			
C. City OAKDALE	D. County STANISLAUS	E. State CA	F. Zip 95350
G. Contact Person ERIC THORBURN	H. E-mail address ethorburn@oakdaleirrigation.com	I. Title WATER OPERATIONS MANAGER	J. Phone (209) 840-5525

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

A. Name			
B. Mailing Address			
C. City	D. County	E. State	F. Zip
G. E-mail address	H. Title	I. Phone	

IV. RECEIVING WATER INFORMATION

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

1. ☒ Canals, ditches, or other constructed conveyance facilities owned and controlled by Discharger.
   Name of the conveyance system: OAKDALE IRRIGATION DISTRICT
2. ☐ Canals, ditches, or other constructed conveyance facilities owned and controlled by an entity other than the Discharger.
   Owner's name: _____
   Name of the conveyance system: _____
3. Directly to river, lake, creek, stream, bay, ocean, etc.
   Name of water body: _____

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

V. ALGAECIDE AND AQUATIC HERBICIDE APPLICATION INFORMATION

A. Target Organisms: SAGO PONDWEED, AMERICAN PONDWEED, ELODEA, CURLY LEAF PONDWEED

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

MAGNACIDE H (ACTIVE INGREDIENT = ACROLEIN)

C. Period of Application: Start Date MARCH 15 End Date SEPTEMBER 15

D. Types of Adjuvants Used: NONE

VI. AQUATIC PESTICIDE APPLICATION PLAN

Has an Aquatic Pesticide Application Plan been prepared and is the applicator familiar with its contents?
☒ 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: STEVE KNELL

B. Signature: [signature] **Date:** 12/20/13

C. Title: GENERAL MANAGER

XI. FOR STATE WATER BOARD STAFF USE ONLY

WDID:	**Date NOI Received:**	**Date NOI Processed:**
Case Handler's Initial:	**Fee Amount Received:** **$**	**Check #:**
☐ **Lyris List Notification of Posting of APAP**	**Date** _____	**Confirmation Sent** _____

OAKDALE IRRIGATION DISTRICT

2014
AQUATIC PESTICIDE APPLICATION PLAN (APAP)

Prepared as:

A Condition of Water Quality Order No. 2013-0002-DWQ, Statewide General National Pollutant Discharge Elimination System Permit for Residual Aquatic Pesticide Discharges to Waters of the United States From Algae and Aquatic Weed Control Applications, General Permit No. CAG990005.

Preparation Date:

December 31, 2013

Prepared by:

Oakdale Irrigation District
1205 East F Street
Oakdale, Ca 95361
(209) 847-0341

PREFACE

This Aquatic Pesticide Application Plan (APAP) was prepared to comply with provisions of the State Water Resources Control Board's (SWRCB) Statewide General National Pollutant Discharge Elimination System (NPDES) Permit for Residual Aquatic Pesticide Discharges From Algae and Aquatic Weed Control Applications as adopted on March 5, 2013, referred to herein as the "General Permit".

The General Permit states that the APAP shall contain, but not be limited to, the following elements:

1. Description of the water system to which algaecides and aquatic herbicides are being applied;
2. Description of the treatment area in the water system;
3. Description of types of weed(s) and algae that are being controlled and why;
4. Algaecide and aquatic herbicide products or types of algaecides and aquatic herbicides expected to be used and if known their degradation byproducts, the method in which they are applied, and if applicable, the adjuvants and surfactants used;
5. Discussion of the factors influencing the decision to select algaecide and aquatic herbicide applications for algae and weed control;
6. If applicable, list the gates or control structures used to control the extent of receiving waters potentially affected by algaecide and aquatic herbicide application and provide an inspection schedule of those gates or control structures to ensure they are not leaking;
7. If the Discharger has been granted a short-term or seasonal exception under State Water Board *Policy for Implementation of Toxics Standards for Inland Surface Waters,* Enclosed Bays, and *Estuaries of California* (Policy) section 5.3 from meeting acrolein and copper receiving water limitations, provide the beginning and ending dates of the exception period, and justification for the needed time for the exception period, and justification for the needed time for the exception. If algaecide and aquatic herbicide applications occur outside of the exception period, describe plans to ensure that receiving water criteria are not exceeded because the Dischargers must comply with the acrolein and copper receiving water limitations for all applications that occur outside of the exception period;
8. Description of the monitoring program;
9. Description of procedures used to prevent sample contamination from persons, equipment, and vehicles associated with algaecide and aquatic herbicide application;
10. Description of the BMPs to be implemented. The BMPs shall include, at the minimum:
    a. Measures to prevent algaecide herbicide spill and for spill containment during the event of a spill;
    b. Measures to ensure that only an appropriate rate of application consistent with product label requirements is applied for the targeted weeds or algae;

c. The Discharger's plan in educating its staff and algaecide and aquatic herbicide applicators on how to avoid any potential adverse effects from the algaecide and aquatic herbicide applications;

d. Discussion on planning and coordination with nearby farmers and agencies with water rights diversion so that beneficial uses of water (irrigation, drinking water supply, domestic stock water, etc.) are not impacted during the treatment period; and

e. A description of measures that will be used for preventing fish kill when algaecides and aquatic herbicides will be used for algae and aquatic weed controls.

11. Examination of Possible Alternatives. Dischargers should examine the alternatives to algaecide and aquatic herbicide use to reduce the need for applying algaecides and herbicides. Such methods include:

    a. Evaluating the following management options, in which the impact to water quality, impact to non-target organisms including plants, algaecide and aquatic herbicide resistance, feasibility, and cost effectiveness should be considered:

        i. No action;

        ii. Prevention;

        iii. Mechanical or physical methods;

        iv. Cultural methods;

        v. Biological control agents; and

        vi. Algaecides and aquatic herbicides;

        If there are no alternatives to algaecides and aquatic herbicides, Dischargers shall use the minimum amount of algaecides and aquatic herbicides that is necessary to have an effective control program and is consistent with the algaecide and aquatic herbicide product label requirements.

    b. Using the least intrusive method of algaecide and aquatic herbicide application; and

    c. Applying a decision matrix concept to the choice of the most appropriate formulation.

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Acronyms and Abbreviations

APAP	Aquatic Pesticide Application Plan
BMPs	Best Management Practices
CAC	County Agricultural Commissioner
CEQA	California Environmental Quality Act
CFS	Cubic Feet per Second
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
DDT	Dichlorodiphenyltrichloroethane
DFG	California Department of Fish and Game
DPR	California Department of Pesticide Regulation
EC	Electrical Conductivity
ID	Irrigation District
NPDES	National Pollutant Discharge Elimination System
OID	Oakdale Irrigation District
PPM	Part(s) Per Million
SWRCB	California State Water Resources Control Board
USFWS	U.S. Fish and Wildlife Service
WQOs	Water Quality Objectives

1 SYSTEM DESCRIPTION

1.1 OAKDALE IRRIGATION DISTRICT LOCATION

The main office of Oakdale Irrigation District is located at:

1205 East F Street

Oakdale, Ca 95361

(209) 847-0341

1.2 LAND USE AND SYSTEM DESCRIPTION

The Oakdale Irrigation District encompasses approximately 74,600 acres of land in northern Stanislaus and eastern San Joaquin Counties. Of the 74,600 acres inside the Oakdale Irrigation District, approximately 76.5% or 57,100 acres were under irrigation during the 2012 water season. The Oakdale Irrigation District has a right to divert up to 300,000 acre-feet of surface water from the Stanislaus River for irrigation purposes. The diverted river water flows through roughly 330 miles of distribution laterals. There are approximately 100 miles of low-head gravity flow pipelines and 230 miles of open ditches. There are short sections of lined canals, but most open ditches are unlined earth channels. The water is diverted from the Stanislaus River at Goodwin Dam, upstream of the town of Knights Ferry. The canal system consists of the Oakdale Irrigation District North and South Main Canals, approximately seven large lateral canals and numerous smaller lateral canals.

The Oakdale Irrigation District has operational spills, which return a mix of river water and drainage water to the Stanislaus River, Dry Creek, Lone Tree Creek, and the Main Canals of both the Modesto and South San Joaquin Irrigation Districts. In addition to the river and drainage waters, the canals contain groundwater from agricultural deep wells. Between 2005 and 2011, Oakdale Irrigation District pumped an average of approximately 7,100 acre-feet of groundwater from 25 agricultural deep wells. The Oakdale Irrigation District also pumps, on average, 9,300 acre-feet of recaptured water from 42 reclamation pumps. These pumping plants recover drain water and, in most cases, return it to the OID distribution system for supply to water users. In some cases the pumps are used to lift water into the adjacent Modesto Irrigation District (MID) and South San Joaquin Irrigation District (SSJID) distribution system

The Oakdale Irrigation District maintains approximately 90 miles of drainage ways that return irrigation and agricultural runoff water to Oakdale Irrigation District conduits and other facilities. The waters that pass through the aforementioned pathways are primarily runoff or drainage water resulting from the activities and operations of individual water users. However, storm water also enters Oakdale Irrigation District maintained drains during the non-irrigation season. After the irrigation season ends the facilities are winterized, meaning that the facilities allow for the free-flow of storm water through and out of the Oakdale Irrigation District. Additionally, Cities within the boundaries of the Oakdale Irrigation District, through agreements, use Oakdale Irrigation District facilities for storm water draining purposes.

2 TREATMENT AREA DESCRIPTION

Access to areas of the aforementioned conveyance system is restricted for a variety of reasons (i.e. unauthorized encroachments, undulating topography, unaccommodating landowners, etc.), but it has been made a priority in and of itself and as part of other improvement projects that are made to the system. Without adequate access, maintaining a safe, economical, and efficient distribution system is arduous at best given the limited number feasible maintenance methods in those scenarios. In regard to the control of aquatic weeds, the most feasible control method available during the irrigation season is the use of aquatic pesticides, and in some instances it is the only choice.

In an effort to minimize the number of days that applications must occur, a treatment area is often deliberately designated to extend from an upstream application area down to the next downstream application area. Historical observations throughout each season have proven this to be an effective control method and the required amount of aquatic pesticides has been minimized as a result. These observations dictated the proper placement of the application sites listed in the following table.

Table 2-1
Magnacide-H Application Sites

Application Site	Location	Type of Facility
South Main Canal @ Cashman Dam	Section 12 – T2S – R11E	Unlined Main Canal
South Main Canal @ RVL Reservoir	Section 19 – T2S – R11E	Unlined Main Canal
Brichetto Lateral @ Headgate	Section 25 – T2S – R10E	Unlined Lateral
South Lateral @ Headgate	Section 25 – T2S – R10E	Unlined Lateral
Palmer Lateral @ Headgate	Section 36 – T2S – R10E	Unlined Lateral
Claribel Lateral @ Headgate	Section 25 – T2S – R10E	Unlined Lateral
Kearney Lateral @ Headgate	Section 19 – T2S – R11E	Unlined Lateral
Mootz Lateral @ Headgate	Section 35 – T2S – R10E	Unlined Lateral
Paulsell Lateral @ Headgate	Section 12 – T2S – R11E	Unlined Lateral
North Main Canal @ Rodden Lake	Section 28 – T1S – R11E	Unlined Main Canal
Cometa Lateral @ Headgate	Section 25 – T1S – R10E	Unlined Lateral
Burnett Lateral @ Headgate	Section 35 – T1S – R10E	Unlined Lateral
Tulloch Lateral @ Headgate	Section 35 – T1S – R10E	Unlined Lateral
Campbell Lateral @ Headgate	Section 32 – T1S – R10E	Unlined Lateral
Lesnini Lateral @ Headgate	Section 28 – T1S – R11E	Unlined Lateral
Fairbanks Lateral @ Headgate	Section 19 – T1S – R10E	Unlined Lateral
Hirschfeld Lateral @ Headgate	Section 19 – T1S – R10E	Unlined Lateral
Sweet Lateral @ Headgate	Section 22 – T1S – R9E	Unlined Lateral

3 AQUATIC WEED CONTROL

3.1 CONTROLLED SPECIES

The Oakdale Irrigation District applies aquatic pesticides to control weeds and algae that restrict and impact the operations of the irrigation conveyance systems and obstruct irrigation delivery systems. Some of the most problematic aquatic weeds include American Pondweed, Sago Pondweed, Elodea, and Curly Leaf Pondweed. In an effort to conserve water and increase irrigation efficiency, many Oakdale Irrigation District water users have decided to change from surface irrigation methods to more specialized systems, such as a micro-spray sprinkler system. Consequently, these systems require that irrigation water be clean and free of vegetative debris.

3.2 CONTROL TOLERANCES

The amount of tolerable vegetative growth of the target species between treatments is variable. Factors that cause this variability include; the species to be treated, the chemical used to treat, the time of year, and the physical characteristics of the system (i.e. channel shape, freeboard, etc…). The typical growth tolerances for the targeted species are listed in Table 3-1:

Table 3-1
Vegetative Growth Tolerances & Determination

Target Species	Growth Tolerance	Method of Determining Growth Stage
American Pondweed	Up to 12 inches in length	Visual Inspection
Sago Pondweed	Up to 12 inches in length	Visual Inspection
Elodea	Up to 12 inches in length	Visual Inspection
Curly Leaf Pondweed	Up to 12 inches in length	Visual Inspection

3.3 TOLERANCE JUSTIFICATION

The control tolerances listed in Section 3.2 were developed based on recommendations on product labels and field application experience. The Oakdale Irrigation District has been applying aquatic pesticides for over 20 years and has found that controlling the Pondweeds to less than 12-inches in length and allowing only minimal floating algae, through frequent, low concentration treatments, requires a lower volume of aquatic pesticides than if weeds were allowed to grow longer with less frequent treatments.

4 AQUATIC PESTICIDES

The Oakdale Irrigation District has found the aquatic pesticide listed in Table 4-1 to be essential in maintaining a safe, economical, and efficient water distribution system.

Table 4-1
Aquatic Pesticides applied to Oakdale Irrigation District Facilities

Product	Active Ingredient	Application Method	Adjuvants Used
Magnacide H	Acrolein	Applied directly to the water through use of an application hose placed into the water of the canal, downstream of a drop or other turbulent location, to ensure thorough mixing	None
Note: Non-Aquatic Pesticides are not listed in Table 4-1. Non-Aquatic Pesticides are monitored under the Central Valley Regional Water Quality Control Board's Ag. Waiver Program.			

4.1 APPLICATION RATES

4.1.1 Magnacide-H (Acrolein)

Determinations of Magnacide-H applications are made in terms of rates (gallons per hour) based on site-specific information, such as flow, temperature, and weed condition. The procedures for determining the application rate is specifically detailed on the product's label as well as in the product's safety manual. Those guides are followed in the field. A summary of the application rate determination is presented below.

Once it has been determined that an application is necessary, the first procedure is to determine the weed condition in the treatment area. Weed condition is standardized in the label's application guide as follows:

Table 4-2
Weed Growth Condition Chart for Temperatures above 60º F

Condition Code	Condition Description	Magnacide-H Gal per CFS (Dosage)
A	Little algae and pondweed Less than 6 inches long	0.17
B	Algae (non-floating) and Pondweed less than 12 inches long	0.25
C	Algae (some floating) and Pondweed 12 to 24 inches long	0.50
D	Algae (some floating) and Mature pondweed (over 24 inches)	1.0
E	Choked Condition	1.5

The Condition Codes were used to describe the general treatment level. Once the dosage is determined from the weed condition chart, it is multiplied by the canal flow to determine the total gallons of Magnacide-H to be applied to the canal.

Magnacide-H is less soluble and plant reactivity is lower in cold waters, which will require higher amounts of Magnacide-H for treatment. If the water temperature is below 60ºF, the application volume is increased, based on the products label. Once the treatment amount and increased amount for temperature (if needed) is determined, then the application time is determined. Application times range from 1 to 4 hours in length. Faster velocities require longer application times to ensure good contact of the herbicide with the aquatic vegetation. The tables on pages 17-21 of the *Magnacide-H Application and Safety Manual* assist in determining appropriate application times. The treatment amount is then divided by the application time to determine an application rate in gallons of Magnacide-H per hour. The average treatment time for Oakdale Irrigation District was 3 hours and 35 minutes, depending on velocity and weed growth.

5 ALTERNATIVE VEGETATION CONTROL METHODS

The Oakdale Irrigation District has experimented with various methods of weed control over the decades and continues to evaluate alternative control methods on an annual basis as well as prior to each application when completing the BMP checklist. The no action alternative is considered first and foremost, but in most circumstances this is not a viable option as weed growth can severally obstruct the flow of water in OID conveyance facilities, create operational issues for high efficiency irrigation systems and provide exposure to a great amount of liability with the respect to safety, flooding and any associated damages caused therefrom. The following alternative control methods continue to also be considered and implemented to the extent possible:

- Preventative measures such as dyes that block ultraviolet light are sometimes used to control growth of aquatic weeds. Unfortunately, these dyes must remain in the water for long periods of time to be effective so this method has been found to be impractical in irrigation facilities due to the high flow rates required for water distribution. Sedimentation removal in concrete lined or hard pan areas of open ditches is another preventative maintenance technique that has been used to the extent possible to help prevent growth in the bottom of the canals both before and during each irrigation season.
- Mechanical vegetation removal, such as raking and chaining, has been used in the past and is still used to an extent. However, application of this method is limited due to the varying facility type and orientation, access, and operating conditions. In addition, mechanical vegetation removal often results in generation of high levels of turbidity in the water. When highly turbid water is released to natural water bodies, fish and other aquatic organisms may be adversely affected. Increased sedimentation from mechanical vegetation removal can also result in increased wear and tear on flow meters and pumps and clogging of irrigation equipment.
- Cultural methods of control such as manipulation of water levels can be an effective method of controlling aquatic vegetation. However, in order for this method to work, canals must be kept dry for a long enough period of time to completely kill the vegetation. During the irrigation season, this is not always feasible as many of the upper reaches and larger laterals are never dewatered because they are used continuously to convey water to the smaller facilities throughout the entire season.
- Biological methods such as the use of fish that consume aquatic weeds have been considered. However, OID facilities are dewatered from October to March and thus do not provide a practical application for this alternative control method.
- The use of pesticides and any alternatives to those products currently being used continues to be evaluated on an annual basis and as new products/techniques become available.

Based on the above and the lack of other effective methods of control in certain areas of the system, the Oakdale Irrigation District has elected to continue to utilize Magnacide-H for aquatic vegetation control.

6 APPLICATION & TREATMENT AREAS

Due to the complexity of the OID conveyance system and variability of aquatic weed growth within this system, it is very difficult to specifically define the application and treatment areas. The application areas within the system are often selected on varying schedules as operations allow and sometimes an application site may only be used one time per irrigation season. Furthermore, treatment areas change according to flow, weed growth and temperature. Although the same application area may be used on multiple occasions throughout a single irrigation season, if any of the aforementioned factors are different, the length of the effective treatment area may not be the same.

When Magnacide-H is applied to irrigation canals it is imperative that no treated water releases to fish bearing waters occur. Given the OID canal system is completely dewatered each fall following the conclusion of the irrigation season, OID facilities do not provide continuous or suitable habitat for fish. Fishing and swimming in OID facilities is also prohibited by OID, reported by OID staff, enforced by the County Sheriff and clearly indicated through the posted "No Trespassing" and "No Swimming" signs along OID facilities. In an effort to take all precautions to prevent spill to fish bearing waters a treatment area is defined and coordinated amongst staff and applicable water users before each event with multiple downstream isolation points for redundancy. Other preventative measures are also taken to account for unscheduled changes that could occur during treatment such as the pre-designation and notification of associated landowners for alternative irrigation outlets and delivery points. Deep wells are also typically operated intermittently as a supply point that could be immediately shutoff at any time to decrease the inflow to a treatment area should the need arise.

During application events it may be necessary to close control gates or lower the water level in a stretch of canal to prevent treated water from flowing into a downstream water body. This is generally the situation in lower reaches of canals. Gates and control structures are continually monitored and maintained for adequate control and proper seal before, during and after the application period. If any signs of deterioration are observed, a work order is generated by Water Department staff and the site is scheduled for inspection, adjustment and/or replacement as necessary prior to treatment. During the non-irrigation season two separate crews are assigned solely to gate inspection. One is specifically assigned to automated gate maintenance and inspection and the other specifically to manually operated gate maintenance and inspection. Visual inspection of the gates prior to the end of the irrigation season, automated alarms and other remotely monitored performance indicators assist in generating a work order to initiate an inspection as a means of preventative maintenance.

Table 6-1 documents the gates and structures that are used to control the flow into the treatment area and those used to prevent outflow from the treatment area on laterals that aquatic pesticide applications have historically occurred. Gates and control structures between these points have been omitted for clarity.

Table 6-1
Gates / Control Structures Used in Receiving Water Treated with Aquatic Pesticides

Application Site	Coordinates
South Main Canal @ Cashman Dam	37.7657°N, 120.7449°W
South Main Canal @ RVL Reservoir	37.7447°N, 120.8088°W
Brichetto Lateral @ Headgate	37.7396°N, 120.8231°W
Brichetto Lateral @ McGee Road	37.7015°N, 120.9077°W
South Lateral @ Headgate	37.7403°N, 120.8183°W
South Lateral @ Oakdale Waterford Hwy.	37.6615°N, 120.7830°W
Palmer Lateral @ Headgate	37.7255°N, 120.8156°W
Palmer Lateral @ Milnes Road	37.6820°N, 120.8087°W
Claribel Lateral @ Headgate	37.7396°N, 120.8231°W
Claribel Lateral @ Dusty Lane	37.6602°N, 120.8457°W
Kearney Lateral @ Headgate	37.7454°N, 120.8014°W
Kearney Lateral @ Claribel Road	37.7109°N, 120.7761°W
Mootz Lateral @ Headgate	37.7251°N, 120.8403°W
Mootz Lateral @ Langworth Road	37.7054°N, 120.8942°W
Paulsell Lateral @ Headgate	37.7758°N, 120.7109°W
Paulsell Lateral @ Tim Bell Road	37.7085°N, 120.6920°W
North Main Canal @ Rodden Lake	37.8154°N, 120.7697°W
Cometa Lateral @ Headgate	37.8374°N, 120.8697°W
Burnett Lateral @ Headgate	37.8033°N, 120.8410°W
Burnett Lateral @ Pioneer Road	37.7986°N, 120.9141°W
Tulloch Lateral @ Headgate	37.8040°N, 120.8413°W
Campbell Lateral @ Headgate	37.8011°N, 120.8989°W
Campbell Lateral @ Escalon Bellota Road	37.8200°N, 120.9975°W
Lesnini Lateral @ Headgate	37.8092°N, 120.7651°W
Lesnini Lateral @ Mc Leod Road	37.7948°N, 120.7706°W
Fairbanks Lateral @ Headgate	37.8262°N, 120.9387°W
Fairbanks Lateral @ Escalon Bellota Road	37.8530°N, 120.9986°W
Hirschfeld Lateral @ Headgate	37.8385°N, 120.9134°W
Hirschfeld Lateral @ Escalon Bellota Road	37.8421°N, 120.9982°W
Sweet Lateral @ Headgate	37.8349°N, 120.9649°W
Sweet Lateral @ Lone Tree Road	37.8275°N, 121.0020°W

7 SECTION 5.3 EXCEPTION

Section 5.3 of the State Water Resources Control Board's *Policy for Implementation of Toxic Standards for Inland Surface Waters, Enclosed Bays and Estuaries of California* allows for short-term or seasonal exceptions from certain requirements for public entities that discharge aquatic pesticides to waters of the United States. Canals and other man-made waterways are considered waters of the United States because they are tributary to other waters of the United States, in the case of Oakdale Irrigation District, the Stanislaus River.

As waters of the United States and waters of the State, receiving water limitations and quality standards apply to the canals. In the case of acrolein, active ingredient of Magnacide-H, the receiving water limitation is 21 ug/L. This means that water outside of the treatment area cannot exceed 21 ug/L acrolein at any time and water inside the treatment area cannot exceed 21 ug/L acrolein after completion of the treatment event. The ability to effectively treat Oakdale Irrigation District canals with Magnacide-H and comply with the receiving water limitations is extremely arduous.

The Section 5.3 exception allows for short-term or seasonal exceptions to the receiving water limitations. A concrete definition of "short-term" has not been provided, but the permit implies that the intent is for some period of time up to several months. The Oakdale Irrigation District does not intend to exceed the water quality standards from any one treatment for more than several days. Past experience indicates that the residual acrolein in the canal system is gone, either due to its own reactiveness or due to being irrigated out of the system, within one to two days of being applied. The intent is to utilize the exception to allow for the transport of treated water with residual concentrations through stretches of canal outside the treatment area to the locations where the water will be used for irrigation.

8 MONITORING AND REPORTING PROGRAM

The Monitoring and Reporting Plan for this APAP will follow the guidelines established in Attachment D of the General Permit for 2013. A list of representative sampling locations is presented in Table 8-1.

Table 8-1
Representative Monitoring Sites

Application Site	Site ID	Pesticide Monitored	Location	Type of Facility
South Main @ Cashman Dam	SM	Magnacide – H	Section 12 – T2S – R11E	Unlined Main Canal
Claribel Lateral @ Headgate	CL	Magnacide – H	Section 25 – T2S – R10E	Unlined Lateral
Sweet Lateral @ Headgate	SL	Magnacide – H	Section 22 – T1S – R9E	Unlined Lateral
Fairbanks Lateral @ Headgate	FL	Magnacide – H	Section 19 – T1S – R10E	Unlined Lateral

For each representative monitoring project, samples must be collected as follows:

- Background – A sample must be collected upstream of the application area during the application or may be collected in the treatment area up to 24-hours before the application.
- Event – A sample must be collected immediately downstream of the treatment area when sufficient time has elapsed to allow the treated water to enter the downstream area.
- Post-Event – Samples must be collected within the treatment area and immediately downstream of the treatment area within one week of the application event.

The calculations of site-specific times that the Magnacide H is expected to be in the downstream area (for event monitoring) and gone from the system (for post-event monitoring) are based on application rates, flow rates, and other factors such as temperature. The calculations will be performed to determine the appropriate time for sample collection and will be included in the annual report. The data from each monitoring event will be reviewed and the calculations will be modified, if necessary, so that future monitoring events show when background water quality has been achieved after a treatment. Per the updated 2013 Permit, Oakdale Irrigation District will endeavor to follow the new permit guidelines to the best of its ability.

9 PREVENTING SAMPLE CONTAMINATION

9.1 SAMPLE COLLECTION METHODS

Oakdale Irrigation District has established a protocol for data-collection activities. All sampling events were coordinated through a Project Manager. Samples are collected by in-house staff that have been trained in the proper techniques of water sample collection. Oakdale Irrigation District staff requests the appropriate sample bottles and water quality analyses from North Coast in advance. The number of samples to be collected for each event, internal QC samples required, analysis method numbers, reporting limits, and QC requirements are communicated to the laboratory prior to sample collection.

9.2 FIELD MEASUREMENTS

For all water bodies sampled the following water quality parameters are measured and documented prior to sample collection at each site:

- pH
- Electrical conductivity
- Dissolved oxygen
- Temperature
- Flow Rate

9.3 FIELD DOCUMENTATION

All field activities are documented to ensure defensibility of any data used for decision making and to support data interpretation. Field logs are completed for each sampling event and generally include, at a minimum, the following information:

- Date and time of sample collection
- Sample identification of all samples collected
- Analyses requested
- Record of all field measurements collected
- Photo of the sampling location

9.4 CHAIN-OF-CUSTODY PROCEDURES AND FORM

A Chan-of-Custody (COC) form is completed at sample collection and prior to sample shipment. The COC form, sample labels, and field documentation is cross-checked to verify sample identification, analyses requested, number and type of containers, sample volume, and preservative.

9.5 SAMPLE SHIPMENTS AND HANDLING

All sample shipments were accompanied by the COC form, which identified the contents. The original COC form accompanied the shipment and a copy was retained in the project file. The samples are packed with ice to maintain a temperature of between 2° and 4°C. Samples are shipped to the laboratory in accordance with Department of Transportation standards.

10 BEST MANAGEMENT PRACTICES (BMPS)

This section includes a description of the Best Management Practices (BMPs) implemented by the Oakdale Irrigation District. The General Permit requires that descriptions of all BMPs, to be implemented, are included in the APAP.

10.1 BMP IDENTIFICATION AND IMPLEMENTATION

The following steps are followed to identify and implement appropriate BMPs that are designed to maximize efficacy of control efforts and minimize potential adverse impacts to the environment:

1. ***Preliminary site evaluations*.** Verify the need for treatment, options to treatment (including non-toxic and less toxic alternatives), and suitability of the site for treatment.
2. ***Secondary site evaluations and pre-treatment monitoring*.** Determine the type and intensity of treatment needed. Includes measurement and analysis of indicators to provide information on potential efficacy and water quality impacts.
3. ***Alternative Control Measures.*** Evaluate other available BMPs and alternative control measures to determine if there are feasible alternatives to the selected aquatic pesticide application project that could reduce potential water quality impacts.
4. ***Treatment.*** Immediately prior to treatment, examine a series of indicators and modify treatment plans accordingly. These indicators may include day length, precipitation, recreational activity, sunlight, tidal water exchange, water depth, water flows, water turbidity, and wind.
5. ***Post-treatment*.** Assess control efficacy and water quality impacts.

10.2 GENERAL BMPS

The following general best management practices (BMPs) are utilized for all aquatic pesticide applications:

- Obtain an annual permit from the County Agricultural Commissioner (CAC) and submit a Notice of Intent to the CAC 24 hours before applying a restricted pesticide.
- File a Notice of Intent form, including an annual application schedule, with Region 4 of the California Department of Fish and Game (DFG). If a deviation of the schedule occurs or another treatment site is identified, duly notify both the DFG and CAC offices at least 24 hours prior to treatment.
- Follow all pesticide label instructions.
- Environmental awareness training. District personnel will review training prior to the application of aquatic pesticides including the special-status species issues associated with water conveyance facilities in Oakdale Irrigation District and the sensitivity of aquatic resources that receive discharges from these conveyance facilities as well as safety, reviewing pesticide label instructions and operational issues.
- Comply with DPR and Department of Health Services regulations, and Use Permits issued by the CAC.

- Ensure that all personnel applying restricted aquatic pesticides are trained and licensed (State of California Qualified Applicator Certificates from DPR).
- Treat aquatic vegetation frequently when vegetation is small, to minimize buildup of vegetation and potential dissolved oxygen depletion due to decaying vegetation.
- Evaluate options to treatment (including nontoxic and less toxic alternatives).

10.2.1 Magnacide-H Specific BMPs

The following section describes the specific BMPs utilized for application of Magnacide-H, including a BMP checklist to be completed with each application project. The checklist is used to document that the Oakdale Irrigation District is conducting the five BMP steps and all of these steps are conducted with each application.

- Verify that gates at all potential release points downstream of the point of application are closed prior to treatment, and are kept closed until Magnacide H is no longer in the system.
- Prior to each treatment, notify all potentially affected water users, make arrangements and schedules to irrigate out the treated water to appropriate sites. Verify that there will be no potential for crop damage, or for field runoff or drainage discharges to waters of the state (all irrigation water must be retained on site).
- If treated water is not irrigated out, hold water for a minimum of 6 days before releasing, per label instructions.
- Prior to opening gates, conduct the Magnacide H Baker Petrolite Field Test at potential release points. This field test should be used as a tool to assist in pesticide management practices, but is not a substitute for laboratory analysis. Results are generally accurate to approximately 0.1 ppm when acrolein concentrations are in the range of 0.1 to 5 ppm, but the field test does not have the ability to distinguish between active and degraded acrolein. Acrolein is toxic to aquatic life at levels down to 0.021 ppm, far below the levels of the test kit. If there is any doubt that the acrolein has been irrigated from the system, the gate will remain closed and additional water will be irrigated from the system.
- Accuracy may be reduced in water with a high turbidity or organic matter content. The Baker Petrolite Company recommends first filtering the sample using a disposable 0.2 micron filter, with a luer lock to facilitate attachment to the sampling syringe, and then analyzing the sample according to the test kit instructions. Filtering the sample helps to avoid interference from other organics which may cause false positive readings. If test interference is suspected, follow filtration and calibration instructions provided by the Baker Petrolite Company. Statistical review of data may identify a correlation between of field test results and corresponding laboratory results, and may assist in the interpretation of field test results for future monitoring and reporting.
- Complete the BMP checklist with each application. The following is a sample BMP checklist:

SAMPLE BMP Checklist for Magnacide H Application

	Application Point:	**Application Date:**
Section 1	Preliminary Site Evaluation/Alternative Control Measures	
	☐ Verify need for treatment -vegetative growth stage_____	
Name:	☐ Inspection completed by (name)_____	
	Consider/Recommend options	
Date:	☐ Mechanical	
Time:	☐ Chemical	
	☐ No treatment	
	☐ Other	
	Comments:	
	Prepare for treatment	
	☐ CAC notified ☐ Appropriate OID Staff notified ☐ Appropriate downstream Agencies notified ☐ Potentially impacted water users notified	
	☐ Treated water to be irrigated out? ☐ Or held? ☐	
	If irrigated out…. Where and When?	
	☐ List gates that will be closed prior to application	
	Comments:	
Section 2	Secondary Site Evaluation / Pre-Treatment Monitoring	
	Verify that canal is set for treatment	
Name:	☐ Pumps are turned off as necessary	
Date:	☐ Gates are closed	
Time:	☐ Fish bearing waters isolated from treated water by above BMP's ☐ Other:	
	Comments:	
Section 3	Treatment Monitoring	
	☐ Precipitation Potential? ___Yes___No	
	☐ Weather Conditions _____ Air Temperature_____	
Date:	☐ Flow rate_____ Water Temperature:_____ Water Color_____	
Time:	☐ Treatment rate determined:_____	
	☐ Predicted time for treated water to exit system:_____ Explain:	
	Comments:	
	☐ Verify suitable for treatment	
	☐ Reschedule if necessary due to site conditions	
Section 4	Post-Treatment	
	Vegetative control effective?____Yes____No	
Name:	Baker test kit results	
Date:	Date/time tested_____Results_____Location_____	
Time:	Date/time tested_____Results_____Location_____	
	Date/time tested_____Results_____Location_____	
	Test interference suspected?____Yes____No If yes, list reason_____ (potential reasons could include turbidity, organic matter)	
	Gates opened – date_____time_____	
	Comments:	

10.3 BMP EFFECTIVENESS EVALUATION

The effectiveness of BMPs will be continuously evaluated during the year, as well as in a comprehensive evaluation at the end of the year. The following will be used to evaluate BMP effectiveness:

- Results of field testing
- Water quality monitoring laboratory analytical data
- BMP implementation success based on BMP inspection forms and checklists
- Feedback from field and technical staff, including staff resource requirements and practicality of implementation

The BMP checklists shall be completed with each pesticide application, and shall be reviewed on a monthly basis, when the monthly Pesticide Use Reports are completed. Although individual checklists will not be submitted with the Pesticide Use Reports, they will be reviewed by the Oakdale Irrigation District, Pest Control Coordinator, to ensure that BMPs are being implemented appropriately. If problems are identified, procedures will be reviewed and changes made as necessary. Results of field tests (such as the Baker Test Kit for Magnacide-H) will be included in the checklists and will be checked to verify that pesticide is no longer present in water that is released.

Subsequent to each round of water quality monitoring, the laboratory results will be reviewed. If results indicate that pesticide may have been present in water at time of release or that the water quality in the treatment area and downstream areas does not return to pre-treatment conditions, the BMPs will be reevaluated and additional monitoring will be conducted during the next sampling round.

An annual effectiveness evaluation will be conducted in conjunction with submittal of the Annual Report. The annual effectiveness evaluation will include an analysis of water quality monitoring data collected during the year. In addition, feedback from field and technical staff will be solicited during this annual review. Based on the results, BMPs and/or monitoring practices may be modified for implementation the following year. BMPs may also be modified on an as-need basis if evaluation indicates that revisions are appropriate. If BMPs are modified, a revised BMP description will be submitted to the RWQCB.