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 JUL 13 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. Change of ownership or responsibility: WDID# _____
WDID# 8 39AP00001

II. DISCHARGER INFORMATION

| | | | |
|---|--|------------------------------------|--------------------------|
| A. Name Riverside Public Utilities | | | |
| B. Mailing Address 2911 Adams Street | | | |
| C. City Riverside | D. County Riverside | E. State CA | F. Zip 92504 |
| G. Contact Person Habib Hariri | H. E-mail address HHariri@riversideca.gov | I. Title Water Field Manager | J. Phone 951-826-5304 |

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: Gage Canal and Riverside Canal

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 8
(List all regions where algaecide and aquatic herbicide application is proposed.)

V. ALGAECIDE AND AQUATIC HERBICIDE APPLICATION INFORMATION

A. Target Organisms: _____
Sago Pondweed, Algae

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

Product name - Magnicide H
Active ingredient - 92% Acrolein

Product name - Copper Sulfate Pentahydrate

C. Period of Application: Start Date 2015 (as needed) End Date Permit expiration (as needed)

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: Habib Hariri

B. Signature: [Handwritten Signature]

Date: 7/2/15

C. Title: Watershed Field Manager

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 _____ |

AQUATIC PESTICIDES APPLICATION PLAN (APAP)

For the 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
Water Quality Order No. 2013-0002-DWQ
General Permit # CAG990005

Prepared by:
The City of Riverside Public Utilities
July 2015

Submitted to:
State Water Resources Control Board
1001 I Street
Sacramento, CA 95814

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1. SCOPE:

The City of Riverside is proposing the treatment of its Gage and Riverside canal systems for the eradication of aquatic weeds. The section of Gage canal requiring treatment is approximately 6.8 miles in length and the section of the Riverside canal requiring treatment is approximately 7.2 miles in length. The Gage and Riverside canal systems are a combination of concrete lined open channel and concrete pipe. The water in these canal systems is used to supply water to agricultural growers, commercial nurseries, and for landscape irrigation. The canals are closed systems that are not operated to discharge to Waters of the United States. The purpose of this permit is to obtain coverage should the canal system unintentionally overflow during the treatment of aquatic weeds.

Cooper sulfate and Magnacide H treatment are proposed for both canal systems. The aquatic weeds being treated are the Sago Pondweed (*Potamogeton pectinatus*) and a common freshwater Charophyta Algae, of either submergent or floating type aquatic plants proliferating within the Gage and Riverside canal waters. Treatment dose, treatment cycles and growth conditions for the above mentioned aquatic weeds will be noted on the user application and addressed accordingly.

Detailed notes outlining the application process of the aquatic herbicides will be outlined in this document to ensure the safety of the applicator and waters treated with said chemicals.

2. EXECUTIVE SUMMARY:

The Riverside Public Utilities, Water Operations Division has prepared this Aquatic Pesticide Application Plan (APAP) in accordance with Water Quality Order No. 2013-0002-DWQ (Order) for the 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 (General Permit # CAG990005).

The purpose of this APAP is to provide detailed information of the use of aquatic pesticides (algaecides and herbicides) used within the Gage and Riverside canal systems to control the growth of submergent and floating aquatic weeds. This APAP provides a description of the facilities where the pesticide will be applied, a description of the targeted weeds, name and active ingredient of pesticide used, and other pertinent information as described in section 5 of the Order. The APAP is intended to be a living document that is revisited and updated on an annual basis to maintain compliance with General Permit #CAG990005 and any other amendments.

The APAP is intended to assist in the planning, maintenance, and application of aquatic herbicides and is not intended to imply that other issues or recommendations not covered in this scope may or may not exist during this permit period.

3. DESCRIPTION OF CANAL SYSTEMS:

The canal systems consist of a series of delivery points to supply irrigation water to agricultural growers and commercial nurseries. The canal systems are comprised of

combined piped and open concrete lined canal channels which receive groundwater from groundwater basins in Riverside and San Bernardino counties.

4. DESCRIPTION OF TREATMENT AREA:

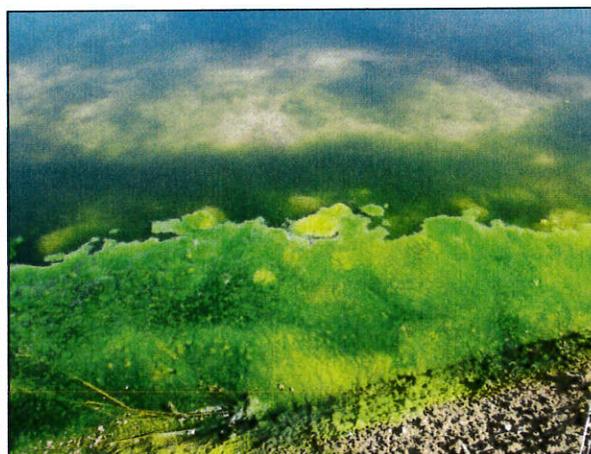
The proposed area of treatment to the canal systems are a combination of pipes and open concrete lined canal channels that traverse the North East to the South West boundaries of Riverside. An overview for each of the canal systems with application and monitoring points are shown in **Appendix A** and **Appendix E**. Details of the chemical injection site for the Gage canal are shown in **Appendix B**, with specific details of each monitoring point shown in **Appendix D (1-2)**. Details of the chemical application and monitoring points for the Riverside canal are shown in **Appendix E**. Growth conditions of aquatic weeds and effectiveness of aquatic pesticide will determine the frequency of treatment required as shown in **Table 3**.

5. TARGET WEEDS – DESCRIPTION OF INVASIVE PLANTS TO BE CONTROLLED:

The types of weeds being targeted are of the submergent and floating aquatic species as shown in **Table 1**.

TABLE 1: AQUATIC WEEDS TO BE CONTROLLED

| Weed Name | Description |
|---|--|
| Sago Pondweed (<i>Potamogeton pectinatus</i>) | Perennial plant with densely bunched, very thin filament-like submerged leaves, giving the appearance similar to that of a horse tail. |
| Algae - Common freshwater Charophyta | Algae cells that form threads into a floating mat-like surface. A branching, green filamentous alga, that forms a moss like structure with very thin and strong threads. |



The presence of aquatic weeds can impair the effectiveness of a waterways ability to transport water to the end user. Failure to adequately control weed growth significantly limits the amount of water that can be conveyed through a canal system whereas substantial weed growth can clog irrigation structures, increasing risk of flooding, cause property damage or result in canal failures. Consistent and effective weed control will

not only improve the ability to transport water, it also provides cleaner water and improves public safety during high flows. Controlling weed growth reduces the maintenance of racks, screens, filters, pumping and other irrigation equipment.

6. DESCRIPTION OF AQUATIC PESTICIDES USED AND APPLICATION METHODS:

The City of Riverside will be using the aquatic pesticides for weed abatement as shown in **Table 2**. Application of aquatic pesticide is in accordance with the regulations of the United States Environmental Protection Agency (USEPA), California EPA (Cal/EPA), and Department of Pesticide Regulation (DPR).

TABLE 2: AQUATIC PESTICIDES USED

| Active Ingredient Method | Product Trade Name | EPA Reg # | Application |
|----------------------------------|---------------------------|------------------|---------------------------------|
| 92% Acrolein | Magnacide H | 10707-9 | Gas injected into canal |
| Copper Sulfate Pentahydrate 9.0% | Copper Sulfate | 46923-4 | Granular application into canal |

Description of Aquatic Pesticide Used

Magnacide H is proposed for the treatment of aquatic weeds in the Gage and Riverside canals, which includes the active ingredient Acrolein. Acrolein is a non-selective algaecide and aquatic herbicide that reacts with various vital proteins causing the breakdown of cell walls. When used as an aquatic herbicide, Acrolein controls submersed and floating vegetation in irrigation canals, drainage ditches and other waterways. It is extremely water soluble; application is made by injecting the chemical into flowing water at a point of good mixing, such as downstream of a weir or siphon. The dead plant material gradually disintegrates and floats downstream, with complete disintegration taking place from three days to two weeks.

Acrolein is classified as a restricted chemical herbicide which requires a restricted use permit. The applicator must possess a license issued by the Department of Pesticide Regulations (DPR) or work under the supervision of someone who is licensed. Acrolein is a volatile, colorless, highly flammable liquid at ordinary temperature and pressure with a pungent odor and is a relatively electrophilic and reactive compound. Although Acrolein is used as an aquatic weed control of many varieties and species, it also has other commercial and industrial uses.

Extreme care should be taken in the presence of Acrolein due to its high toxicity. Please refer to product SDS for hazard identification and first aid measures.

Acrolein application Method

The aquatic pesticide Acrolein will be injected at points in the canal system, as shown in **Appendix B & E**, where adequate mixing can be accomplished. The chemical Acrolein will be injected in strict accordance to procedures outlined in the manufacturer's application and safety manual and product label.

Cooper Sulfate Pentahydrate is proposed for the treatment aquatic weeds in both the Gage and Riverside canal systems. Copper Sulfate Pentahydrate is an odorless blue crystal that is highly soluble in water. Course Crystal Copper Sulfate Pentahydrate, sometimes referred to as Blue Vitriol or Bluestone, can be used to destroy algae in water supplies and is a readily available and an economic source of copper.

Copper Sulfate in specific doses kills plants by disrupting photosynthesis – rendering the plant unable to survive. As plant dies it becomes dislodged and is transported to a collection point in the canal.

Cooper Sulfate Application Method

The aquatic pesticide Copper Sulfate Pentahydrate will be introduced in granular form at points in the canal systems, as shown in **Appendix B, and E** where adequate mixing can be accomplished. The chemicals will be applied in strict accordance to procedures outlined in the manufacturer's application and safety manual and product label.

Detailed descriptions of the chemical properties, degradation rates, environmental fate, and toxicity of Acrolein and Copper Sulfate are provided in the manufacturer's SDS.

7. AQUATIC PESTICIDE APPLICATION FACTORS:

One of the goals of this program is to establish a reasonable set of control measures that aid in the management of aquatic vegetation infestations. During periods when the canal systems are continuously transporting water, periodic visual inspections are performed to identify the formation of vegetation. Upon inspection it will be determined whether chemical or alternative measures should be taken to clear out vegetation. Growth thresholds for aquatic weeds, as shown in the manufacturer's application and safety manual – **Table 3**, will be established by the Gage canal staff and City of Riverside staff as to what control action best suits the condition. Control actions may be chemical or mechanical - depending on the rate of growth. If conditions allow, mechanical removal may be used between chemical treatment periods to help minimize chemical application cycles.

TABLE 3: WEED GROWTH CONDITION CHART

| <u>Condition Code</u> | <u>Magnacide H Herbicide per cfs</u> | <u>Copper Sulfate lbs/cfs</u> |
|--|--|---|
| A. Little algae and pondweed less than 6 inches long | 0.17 gallons per cfs (for preventive maintenance) | Refer to manufacturer's specifications for dose methods and calculations |
| B. Algae (non-floating) and pondweed less than 12 inches long | 0.25 gallons per cfs (for preventive maintenance) | " |
| C. Algae (some floating) and pondweed 12-24 inches long | 0.50 gallons per cfs | " |
| D. Algae (some floating) and mature pondweed | 1.0 gallons per cfs | " |
| E. Choked condition | 1.5 gallons per cfs | " |

(Courtesy of the Manufacturer's Application and Safety Guide)

8. MONITORING AND REPORTING PROGRAM:

In this section, all aspects of monitoring and reporting are performed in compliance with the Monitoring and Reporting Program (MRP) for Water Quality Order NO 2013-0002-DWQ.

- Receiving water limitations shall be in compliance with the National Pollutant Discharge Elimination System (NPDES) State-wide General Permit Requirements not to contribute or exceed the limitations of such waters as shown in **Table 4**.
- Monitoring requirements are shown in **Table 5** and shall be in compliance with the National Pollutant Discharge Elimination System (NPDES) State-wide General Permit Requirements.
- The pesticide application logs for each chemical shown in **Appendix C** and **F**.
- Monitoring field log shown in **Appendix G** will be kept by the applicator for each listed aquatic pesticide application.

TABLE 4: RECEIVING WATER LIMITATIONS

| Constituent/ Parameter | BENEFICIAL USE ¹ | | | Basis |
|---------------------------|-----------------------------|--------------------------|---|---|
| | MUN, µg/L | WARM or COLD, µg/L | Other than MUN, WARM, or COLD, µg/L | |
| 2,4-D | 70 | | | U.S. EPA MCL |
| Acrolein ² | 320 | 21 | 780 | U.S. EPA Water Quality Criteria, 1986. |
| Copper ² | | | | Dissolved Freshwater ³ Copper Chronic = $0.960 \exp\{0.8545 [\ln(\text{hardness}^4)] - 1.702\}$ ^{5,6} Dissolved saltwater ³ Copper Chronic = $0.83 \exp\{0.8545 [\ln(\text{hardness}^4)] - 1.702\}$ ^{5,6} California Toxics Rule |

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.

(Courtesy of the State Water Resource Control Board)

Table 5: MONITORING REQUIREMENTS

| Sample Type | Constituent/Parameter | Units | Sample Method | Minimum Sampling Frequency | Sample Type Requirement | Required Analytical Test Method |
|-------------|---|----------------|--------------------|----------------------------|---|---------------------------------|
| Visual | 1. Monitoring area description (pond, lake, open waterway, channel, etc.) 2. Appearance of waterway (sheen, color, clarity, etc.) 3. Weather conditions (fog, rain, wind, etc.) | Not applicable | Visual observation | 1 | Background, Event and Post-event monitoring | Not applicable |
| Physical | 1. Temperature ² | °F | Grab ⁴ | 5 | Background, Event and Post-event monitoring | 6 |
| | 2. pH ³ | Number | | | | |
| | 3. Turbidity ³ | NTU | | | | |
| | 4. Electric Conductivity ³ @ 25°C | µmhos/cm | | | | |
| Chemical | 1. Active Ingredient ⁷ | µg/L | Grab ⁴ | 5 | Background, Event and Post-event monitoring | 6 |
| | 2. Nonylphenol ⁸ | µg/L | | | | |
| | 3. Hardness (if copper is monitored) | mg/L | | | | |
| | 4. Dissolved Oxygen ² | mg/L | | | | |

¹ All applications at all sites.

² Field testing.

³ Field or laboratory testing.

⁴ Samples shall be collected at three feet below the surface of the water body or at mid water column depth if the depth is less than three feet.

⁵ Collect samples from a minimum of six application events for each active ingredient in each environmental setting (flowing and non-flowing water) per year, except for glyphosate. If there are less than six application events in a year, collect samples during each application event for each active ingredient in each environmental setting (flowing and non-flowing water). If the results from six consecutive sampling events show concentrations that are less than the receiving water limitations/trigger for an active ingredient in an environmental setting, sampling shall be reduced to one application event per year for that active ingredient in that environmental setting. If the yearly sampling event shows exceedance of the receiving water limitation/trigger for an active ingredient in an environmental setting, then sampling shall return to six application events for that active ingredient in each environmental setting. For glyphosate, collect samples from one application event from each environmental setting (flowing and non-flowing water) per year.

⁶ Pollutants shall be analyzed using the analytical methods described in 40 C.F.R. part 136.

⁷ 2,4-D, acrolein, dissolved copper, diquat, endothall, fluridone, glyphosate, imazamox, imazapyr, penoxsulam, and triclopyr.

⁸ It is required only when a surfactant is used.

(Courtesy of the State Water Resource Control Board)

Representative Monitoring Sites

Monitoring Locations shown in **Appendix D (1-2)** and **Appendix E** will be selected to represent the variations in treatment that occur, which may include: environmental settings, impound or conveyance type, hydrology, aquatic herbicide use, seasonal and regional variations.

Monitoring Approach

Since much of the canal system is open channel, background concentrations of non related constituents may be present prior to or after the application event, therefore the representative monitoring site shall be sampled at multiple locations. Collection of

three samples at the designated representative monitoring site shall be taken in accordance with the NPDES general permit schedule as follows:

- **Pre-Event Background Monitoring**
Pre event monitoring samples will be collected upstream or adjacent to the application point at time of application or at application point no more than 24 hours preceding application event.
- **Event Monitoring**
Event monitoring samples shall be collected immediately downstream of treatment area in flowing waters or adjacent to treatment area in non flowing waters, immediately after the application event, but after sufficient time has elapsed such that treated water will have entered the adjacent or downstream area.
- **Post-Event Monitoring**
Post event monitoring samples shall be collected within the treatment area within one week after application.

Sample Collection and Analysis

The sampling and analysis program will confirm absence or presence of the target aquatic pesticide in the environment. Sampling will be conducted by a competent person using sampling bottles provided by an approved laboratory. To collect the sample, removed sealed cap from the sample bottle and protect it from being contaminated. Sample bottle will be lowered to 50% of water depth using a sampling rod with a clamp if necessary. When full, the sample bottle will be pulled back out of water and cap affixed to the mouth of the bottle, being careful as to not allow dust or debris to enter the bottle or cap. The bottle shall then be labeled and identified in permanent ink indicating unique sample site I.D. or number, pesticide constituents being sampled, location of sample, date and time of sample, water temperature, pH, and initials of sampler. Samples will then be arranged in a closed transporting cooler containing ice packs with protection between sample containers to protect from damage during shipping to the laboratory.

Subsequently, a Chain of Custody (COC) will be filled out by the sampler for each sample event and submitted to the laboratory requesting analysis of pesticide constituents and turbidity. Additionally, the COC shall indicate a unique sample site I.D. or number, location, date and time of sample for each sample, and samplers name and signature.

The COC record will be employed as physical evidence of sample custody. The sampler will complete a COC record to accompany each sample shipment from the field to the laboratory.

In addition to the water sample collection, a visual inspection of canal parameters such as weather conditions, water body description, appearance of waterways, etc. and physical readings (with the exception of turbidity) will be done at the sample site and recorded on the monitoring field log (**Appendix G**).

All field metering equipment will be calibrated according to manufacturer's specifications at the recommended frequency and checked with a control sample prior to start of the sampling session.

Reporting

A report shall be submitted annually to the appropriate Regional Water Quality Control Board (RWQCB) by March 1 of the year following treatment. If no treatments were administered in that year, a letter stating that no treatments were required will be drafted and submitted to the appropriate RWQCB in lieu of an annual report.

Report shall comply with the following provisions:

- Attachment-D in the General Permit, "Standard Provisions and Reporting for Waste Discharge Requirements".
- Attachment-B in the Signatory requirements of the General Permit, detailed in Section B1, "Monitoring and Reporting Requirements / Signatory Requirements".

9. SAMPLE CONTAMINATION PREVENTION:

Samples shall be, if possible, collected upwind and not in close proximity to chemical application equipment. There shall not be any contact with aquatic herbicide application equipment, containers or personal protective equipment. If sampling in more than one location, the equipment will be thoroughly cleaned with a non-phosphate cleaner, triple rinsed with distilled water, then rinsed once with water being sampled prior to its first use at a new sample collection site. Gloves will be changed between sample collection sites.

10. BEST MANGEMENT PRACTICES (BMP's):

The following Best Management Practices (BMP's) have been identified by RPU and will be implemented in conjunction with the herbicide application plan and manufacturer's application and safety manual.

Spill Prevention and Containment

Certified applicator will strictly adhere to the manufacturers application and safety manual for spill control and handling of spills as outlined in 29 CFR 1910.120 (q), Emergency Response to Hazardous Substance Releases. Canal flows will be reduced during treatment periods to lower of possibility of accidental canal overflow during treatment. In addition, treatment will not occur during rain events.

Pesticide Application

All applications of the aquatic pesticide Acrolein shall be directly supervised or applied by a California Department of Pesticide Regulation (DPR) certified applicator who has received training specific to the chemical being used. For application of Copper Sulfate, applicator shall follow manufacturer's guidelines.

Staff Training and Education

All certified applicators are required to stay current on pesticide issues through continued education and training. In accordance with the State of California DPR, employees with a Qualified Applicator Certificate are required to maintain 20 hours of continuing education every two years for certificate renewal. Training should cover topics such as safe application techniques, environmental protection, proper use of

application equipment, applicable laws and regulations, and specific information about the use of aquatic pesticides being used.

Outreach / Public Notification

Every calendar year, at least 15 days prior to the first application of algaecide or aquatic herbicide, the City of Riverside will notify its MS-4 Operator for Gage canal treatment, and Western Municipal Water District and the MS-4 Operator for the Riverside canal prior to each treatment.

Fish Kill Prevention

Fish do not reside in the concrete canal system. The Gage canal and Riverside canal systems are not suitable for maintaining fish habitats because they are periodically shut down for maintenance and low water demand conditions.

Certification, Pesticide Labels, and Permits

Certified applicators shall be familiar with the product SDS and the manufacturer's application and safety manual for each specific product being used.

11. EVALUATION OF ALTERNATIVE CONTROL METHODS:

Application of aquatic pesticides for weed control in the Gage and Riverside canal systems have proven to be the most effective method of control for aquatic weeds with the lowest impact to habitat and water quality. Although alternative methods of control such as mechanical dredging have been explored, they have proven to be labor intensive and not very effective in the mitigation of aquatic weeds. Mechanical methods also present excessive erosion to canal surface, causing premature breakdown of concrete. Both aquatic herbicides – Acrolein and Copper Sulfate have proven to be an effective and efficient method of controlling weed growth in the canal with minimal impact on the environment. **Table 3** illustrates the manufactures calculated chemical dose based on weed growth conditions. Based on this chart, the applicator will be able to properly evaluate the condition and frequency of waters being treated.

12. REFERENCES:

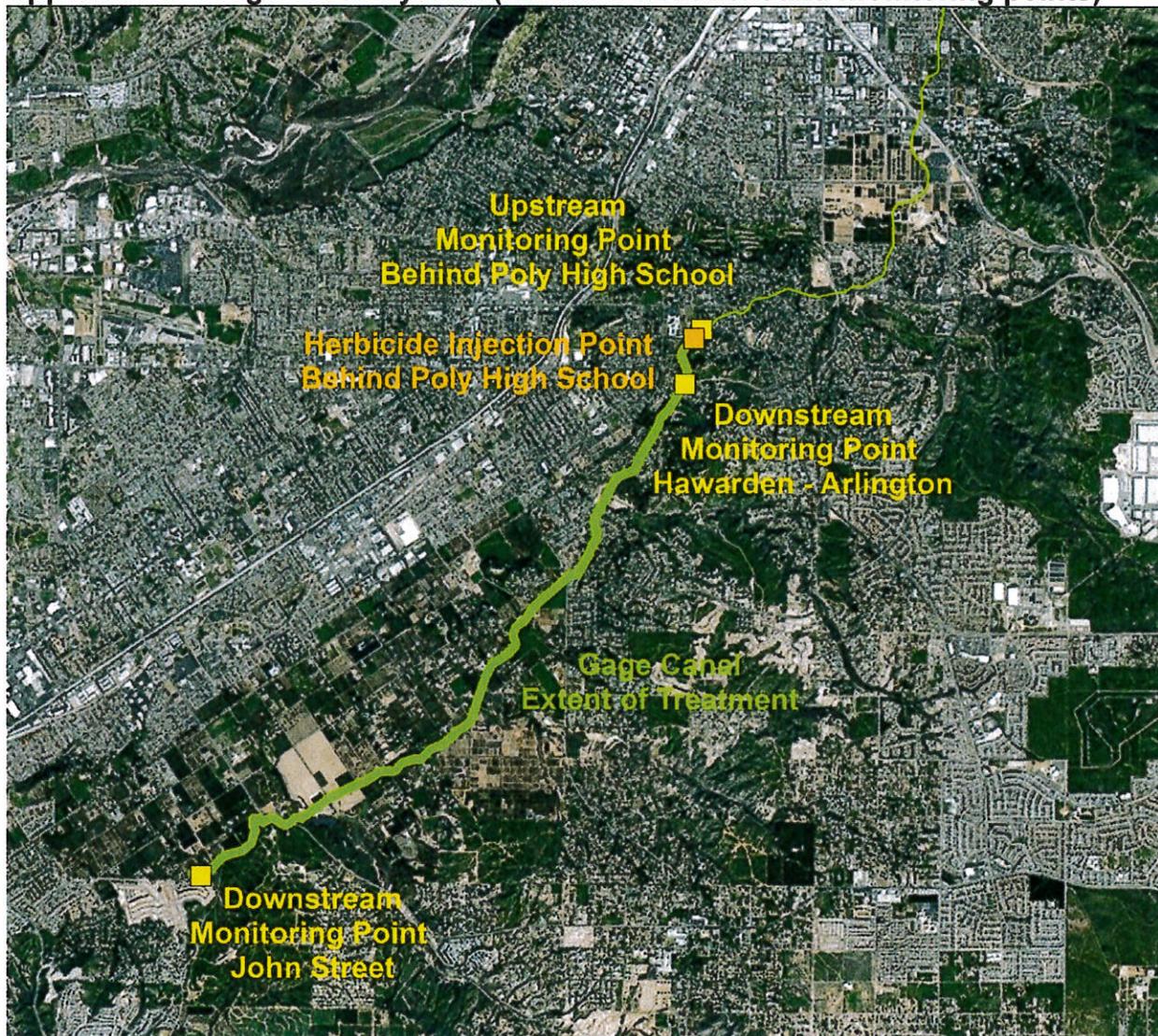
- California Department of Fish and Wildlife. 2014. Aquatic Pesticide Application Plan: For the Statewide General NPDES Permit for Residual Aquatic Pesticide Discharges to the Waters of the United States from Aquatic Weed Control Applications, Water Order No. 2013-0002-DWQ, General Permit #CAG990005.
- California Park Association. 2012. Aquatic Pesticide Application Plan (APAP): Water Quality Order (# 2004-0009-DWQ) Statewide General National Pollutant Elimination System (NPDES) Permit for the Discharge of Aquatic Pesticide for Aquatic Weed Control in Waters of the United States, General Permit #CAG990005
- County of San Bernardino County Parks and the San Bernardino County Flood Control. 2014. Weed Control Aquatic Pesticide Plan.
- Madera Irrigation District. 2014. Aquatic Pesticide Plan: Water Quality No. 2013-0002-DWQ (Order) for Statewide General National Pollutant Elimination System (NPDES) Permit for Residual Aquatic Pesticide Discharges to Waters of the United States from Aquatic Weed Control Applications (General Permit #CAG990005).
- Resources Conservation District of Monterey County. 2014. Application of Aquatic Pesticides to Portions of the Salinas River Watershed: Statewide General NPDES Permit for the Discharge of Aquatic Pesticide for Aquatic Weed Control in Waters of the United States, Water Quality Order No. 2013-0002-DWQ.
- Siemering, Geoff. 2005. Aquatic Herbicides: Overview of Usage, Fate and Transport, Potential Environmental Risk, and Future Recommendations for the Sacramento-San Joaquin Delta and Central Valley White Paper for the Interagency Ecological Program. SFEI Contribution 414. San Francisco Estuary Institute, Oakland, CA.

13. Tables:

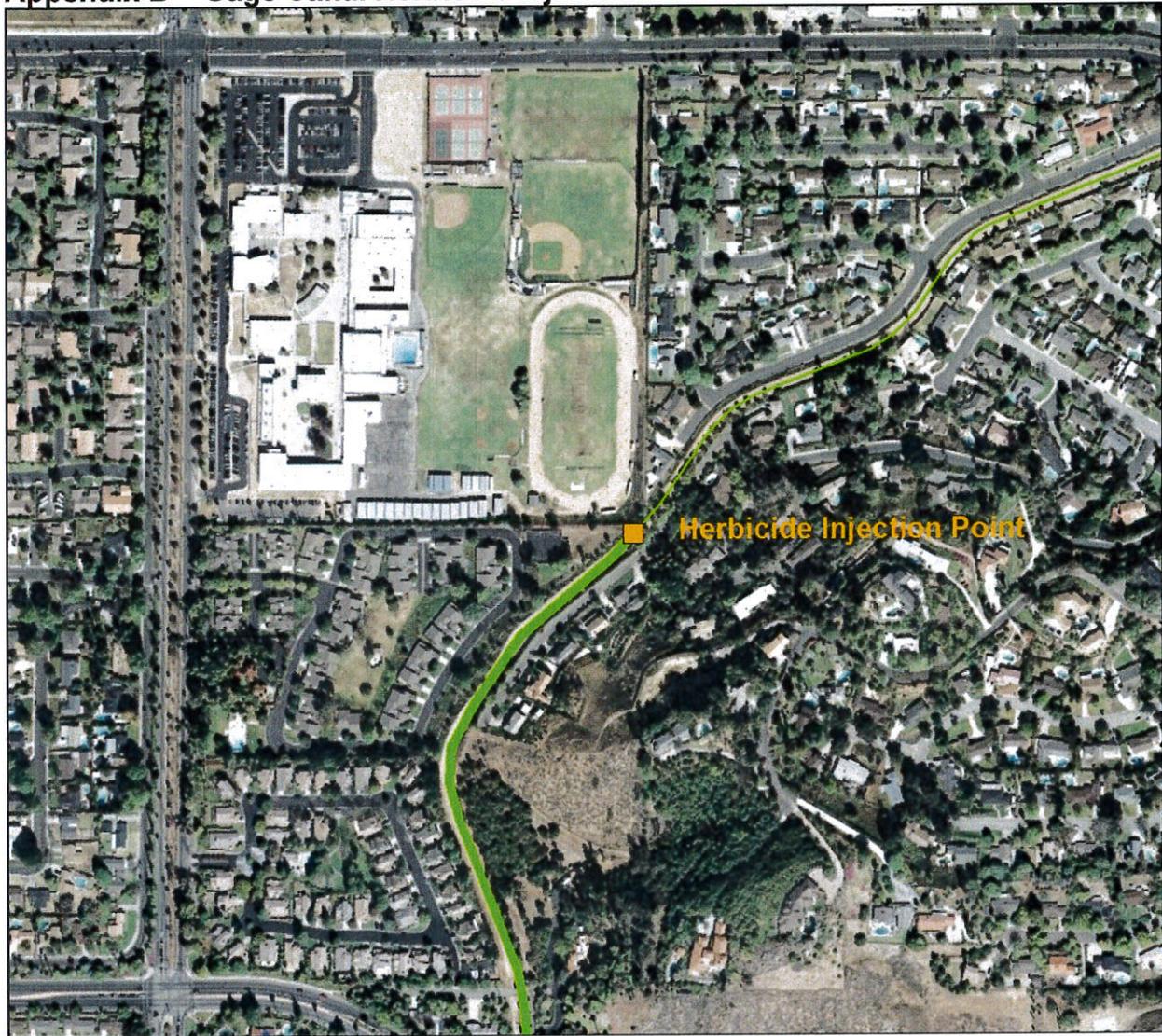
Tables within document

14. APPENDICES:

Appendix A – Gage Canal System (extent of treatment and monitoring points)



Appendix B – Gage Canal Herbicide Injection Point



Appendix C – Aquatic pesticide Application Log

MAGNACIDE – H* APPLICATION RECORD

DATE OF APPLICATION

IRRIGATION COMPANY

LOCATION OF APPLICATION,

| CANAL | TOWNSHIP/RANGE (or identifiable landmark) | COUNTY | STATE |
|-------|--|--------|-------|
|-------|--|--------|-------|

Aquatic weed(s) present: _____

Growth condition:
(A,B,C,etc.) _____

Application concentration: _____ gal/cfs

Flow rate in canal: _____ cfs

Anticipated treatment time: _____ hours

Water temperature: _____ *F

Gallons per hour:
(calculated)** _____ GPH

$$\frac{\text{cfs} \times \text{gal/cfs}}{\text{time (hrs)}}$$

Gallons per hour:
(from chart) _____ GPH

Orifice size: _____ in.

Pressure setting: _____ p.s.i.g.

Application concentration: _____ ppm. (not to exceed 15ppm)

Container No. _____

Start contents: 1 _____ gal.

Quantity Used: _____ gal.
(gph x hours)

Time Started: _____

Time Ended: _____

Time (actual): _____ hrs.

Remarks: _____

$\frac{\text{gal/cfs} \times 1884}{\text{time (min)}} = \text{ppm}$

Operator's Name

QAC Number

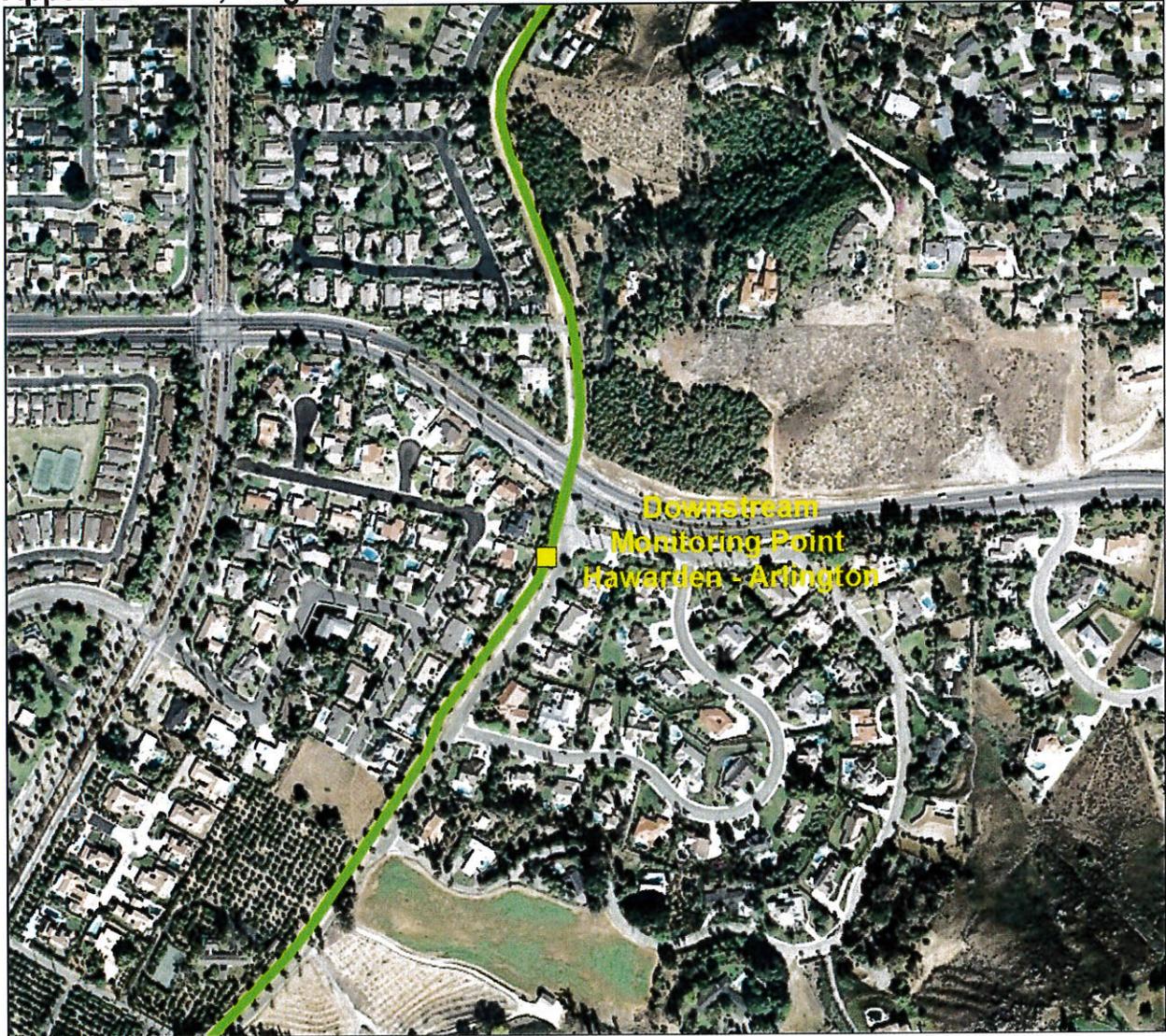
Certified Applicators Name

License Number

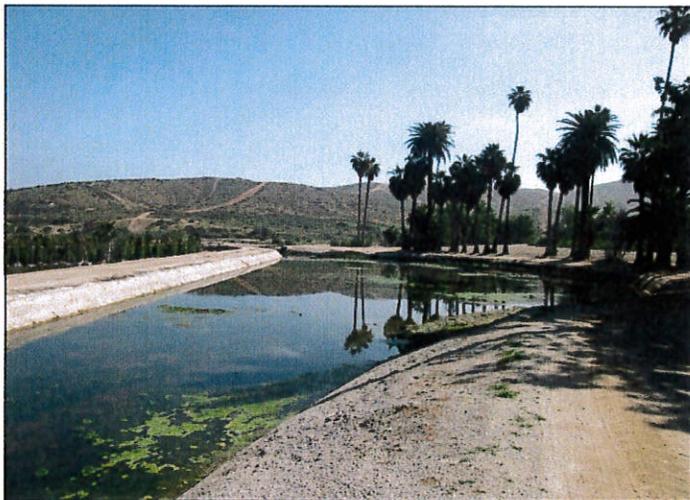
*Active Ingredient – Acrolein 92% w/w.

**Approximation for choosing figure in orifice flow table only. Do not use to calculate total chemical applied. Use chart value for that purpose.

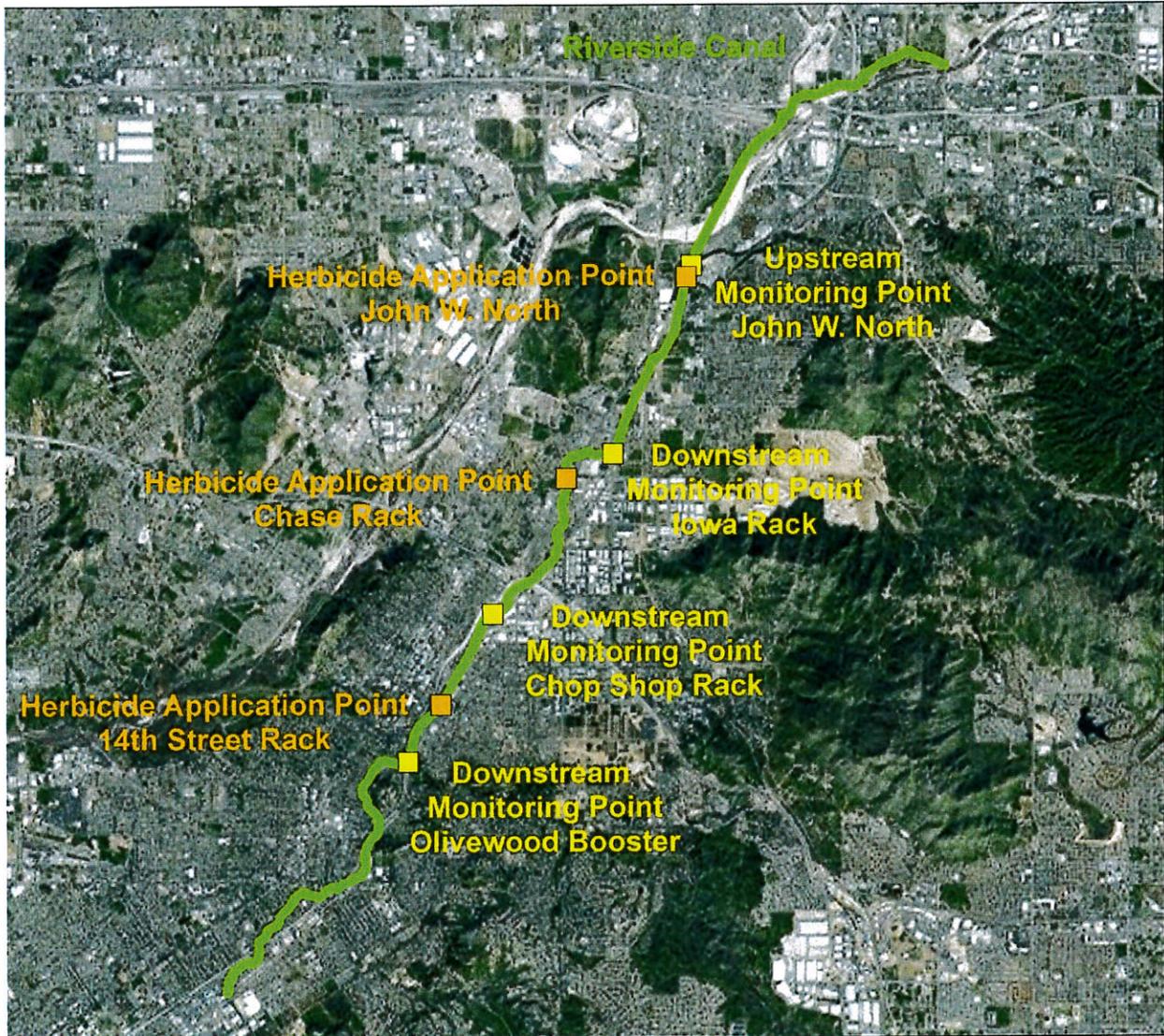
Appendix D – 1, Gage Canal Downstream Monitoring Point (Hawarden-Arlington)



Appendix D – 2, Gage Canal Downstream Monitoring Point (John Street Pond)



Appendix E – Riverside Canal System (extent of treatment and monitoring points)



Appendix F – Riverside Canal Herbicide Injection / Monitoring Point



Appendix G – Aquatic pesticide Application Log

COPPER SULFATE PENTAHYDRATE APPLICATION RECORD

DATE OF APPLICATION

IRRIGATION COMPANY

LOCATION OF APPLICATION,

| CANAL | TOWNSHIP/RANGE (or identifiable landmark) | COUNTY | STATE |
|-------|--|--------|-------|
|-------|--|--------|-------|

Aquatic weed(s) present: _____

Growth condition:
(A,B,C,etc.) _____

Application concentration: _____ gal/cfs

Flow rate in canal: _____ cfs

Anticipated treatment time: _____ hours

Water temperature: _____ *F

Gallons per hour:
(calculated)** _____ GPH
 $\frac{\text{cfs} \times \text{gal/cfs}}{\text{time (hrs)}}$

Gallons per hour:
(from chart) _____ GPH

Orifice size: _____ in.

Pressure setting: _____ p.s.i.g.

Application concentration: _____ ppm. (not to exceed 15ppm)
 $\frac{\text{gal/cfs} \times 1884}{\text{time (min)}} = \text{ppm}$

| |
|--|
| Container No. _____ |
| Start contents: 1 _____ gal. |
| Quantity Used: _____ gal. (gph x hours) |
| Time Started: _____ |
| Time Ended: _____ |
| Time (actual): _____ hrs. |

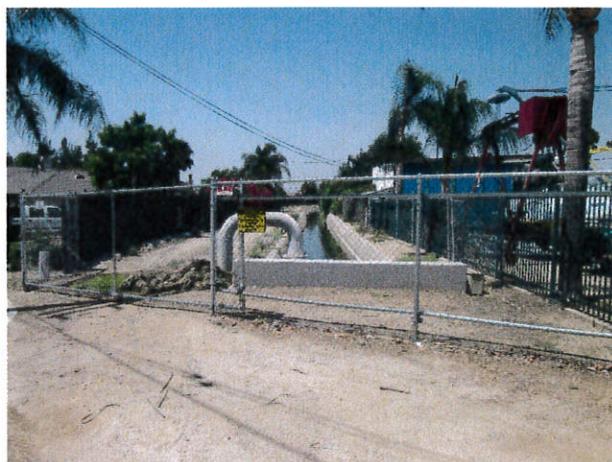
Remarks: _____

Operator's Name

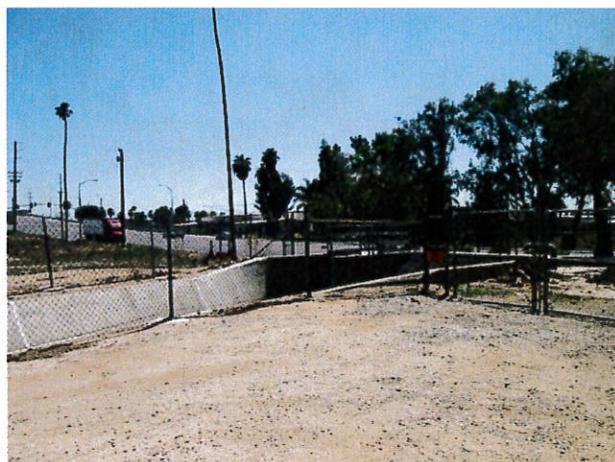
*Active Ingredient Pentahydrate– 9.0%, Other Ingredients = 1%

**Approximation for choosing figure based on visible growth levels. Use chart value for approximating dose.

Appendix H – 1, Riverside Canal Herbicide Injection / Monitoring Point



Chase Rack



Iowa Rack

Appendix H – 2, Riverside Canal Herbicide Injection / Monitoring Point



14th Street Rack

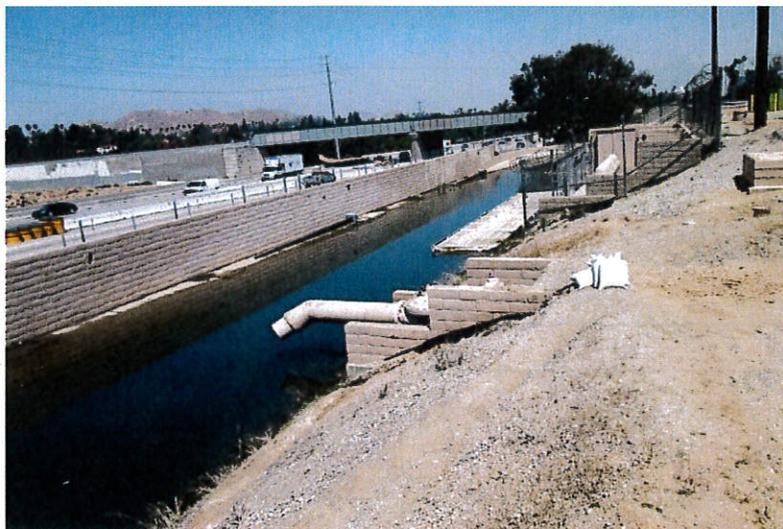


Chop Shop Rack

Appendix H – 3, Riverside Canal Monitoring Point (Olivewood Booster)



**Downstream
Monitoring Point
Olivewood Booster**



Olivewood Booster Station

Appendix I – Aquatic Pesticide Field Monitoring & Sampling Form
AQUATIC PESTICIDE MONITORING FIELD LOG

Monitoring Site: _____ / Date: _____ / Field Personnel: _____

GPS Coord/Loc: _____ / Loc Description: _____

Event Type

Pre - Background / Event / Post - Background / Post - Treatment Area / Post - Downstream

WATER QUALITY SAMPLES (LAB)

Sample Collection Time: _____ / Sample I.D.(s): _____

Water Quality Samples Collected

Acrolein / pH / Turbidity (NTU) / Surfactant yes no

QA/QC Samples Collected

Field Blank / MS/MSD / Post – Field Duplicate / Lab Duplicate

FIELD MEASUREMENTS

Measurement Time: _____ / pH: _____ / Field Lab

Dissolved Oxygen (mg/L): _____ / Spec. Cond. (uS/cm): _____ / Temp *C: _____

VISUAL OBSERVATIONS

Site Description (lake, pond, channel, etc.): _____

Observations of waterway (color, clarity, odors, etc.): _____

Weather conditions: _____ / Flow conditions: _____

(approx.. velocity): _____

Additional observations:

Appendix J – SDS

Refer to product manufacturer for current SDS documentation.

