UNITED STATES MARINE CORPS
MARINE CORPS INSTALLATIONS WEST-MARINE CORPS BASE
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ENV/WQB
February 28, 2013

MAR 01 2013

Deputy Director
Division of Water Quality
State Water Resources Control Board
P.O. Box 100
Sacramento, California 95812-0100

SUBJECT: 2012 ANNUAL SELF MONITORING REPORT FOR VECTOR CONTROL APPLICATIONS AT MARINE CORPS BASE CAMP PENDELTON, CALIFORNIA.

Enclosed is the 2012 Self Monitoring Report (SMR) for vector control applications at MCB Camp Pendleton. This report is being submitted in accordance with Reporting Requirements prescribed by the State Water Resources Control Board Order No. 2012-0003-DWQ and NPDES No. CAG 990004 for Biological and Residual Pesticide Discharges to Waters of the United States from Vector Control Applications. The enclosure includes: the annual report; discussions of compliance with discharge and monitoring specifications and Best Management Practices; summarized and full laboratory monitoring results; application site location maps; pesticide product specifications, and; the approved Pesticide Application Plan (PAP). If there are any questions please contact Mr. Kyle Cook at 760-763-7881.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure 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 and imprisonment for knowing violations.

Sincerely,

M. J. BONSAVAGE, P.E.
Head, Environmental Engineering Division
Environmental Security
By direction of the
Commanding General

Enclosure: 1. 2012 Annual SMR for SWRCB Order No. 2012-0003-DWQ
Copy: San Diego Regional Water Quality Control Board Executive Officer

2012 ANNUAL SELF MONITORING REPORT FOR VECTOR CONTROL APPLICATIONS AT MARINE CORPS BASE CAMP PENDELTON, CALIFORNIA.

This Annual Self Monitoring Report assures compliance with the Monitoring and Reporting Requirements set forth in the National Pollutant Discharge Elimination System (NPDES) General Permit NO. CAG 990004 (Order NO. 2012-0003-DWQ). This Self Monitoring Report was prepared in accordance with the Reporting Requirements set forth in Attachment C (Monitoring and Reporting Program) of the NPDES General Permit.

This Self Monitoring Report includes:

1. Annual report
2. Discussions of compliance with discharge and monitoring specifications
3. Best Management Practices
4. Summarized and full laboratory monitoring results
5. Application site location maps
6. Pesticide product specifications
7. Approved Pesticide Application Plan

Based on the analytical results of representative samples collected during Background, Event and Post-Event sampling, there are no periods of non-compliance for this reporting period.

2012 Annual Self Monitoring Report

WATER QUALITY ORDER NO. 2012-0003-DWQ

GENERAL PERMIT NO. CAG 990004

General Permit for Biological and Residual Pesticide Discharges to Waters of the United States from Vector Control Applications

Marine Corps Base Camp Pendleton, California

March 2013

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Annual Self Monitoring Report for

ORDER NO. 2012-0002-DWQ, NPDES NO. CAG 990004

General Permit for Biological and Residual Pesticide Discharges to Waters of the United States from Vector Control Applications

1. Compliance with the General Permit and the Effectiveness of the Pesticide Application Plan to Reduce or Prevent the Discharge of Biological and Residual Pesticides for Vector Control

The purpose of this Annual Self Monitoring Report is to comply with the Monitoring and Reporting Requirements set forth in the National Pollutant Discharge Elimination System (NPDES) General Permit NO. CAG 990004 (Order NO. 2012-0003-DWQ). This Self Monitoring Report was prepared based on the Reporting Requirements in Attachment C (Monitoring and Reporting Program) specified in the General Permit, and follows the requirements specified in Section IV.B for Annual Reports. This Self Monitoring Report includes laboratory sample results (Background, Event, and Post-Event sampling) taken at the application sites as well as interpretation of those results to demonstrate compliance with the General Permit.

Potential vector-borne diseases that can occur and have historically occurred in the greater Southern California region are West Nile Virus (WNV), St. Louis Encephalitis (SLE), and Western Equine Encephalitis (WEE). In this case, the General Permit is targeted towards preventing the emergence of vector populations of mosquitoes carrying the WNV virus. Marine Corps Base Camp Pendleton (MCBCP) selected a pesticide that was efficient against primary WNV vectors (*culex tarsalis* and *culex pipiens quinquefasciatus*) and has very low toxicity to non-target species, including humans. The pesticide utilized was VectoMax WSP Biological Larvicide, which is specified for vector control applications in the Pesticide Application Plan that has been approved by the State Water Resources Control Board.

MCBCP applied this approved pesticide aerially to the 13 sites listed in the Pesticide Application Plan (included in Appendix A); no other pesticides were used. In order to prevent the discharge of biological pesticides to rivers or the ocean, the pesticide was only applied to standing water bodies and creeks. MCBCP monitored a total of six representative sites selected based on accessibility, water body, and proximity to humans.

As required by the Pesticide Application Plan, all of the sample analyses were done by a testing laboratory certified by the California Department of Public Health (CDPH, formerly Department of Health Services), American Environmental Testing Laboratory Inc (AETL). This laboratory performed all analyses in accordance with the latest edition of "Guidelines Establishing Test Procedures for Analysis of Pollutants" promulgated by the U.S. Environmental Protection Agency (USEPA) in 40 CFR Part 136.

Based on the analytical results of representative samples collected during Background, Event and Post-Event sampling, there are no periods of non-compliance for this reporting period. The pesticide application procedures specified in the Pesticide Application Plan have been effective.

2. Summary of Monitoring Data and Comparison to Receiving Water Monitoring Triggers

In order to accurately measure the success of the Pesticide Application Plan and to follow the directions implemented by the General NPDES Permit (Attachment C, Monitoring and Reporting Program), MCBCP sampled the selected water bodies three times: before the pesticide application (Background), downstream within 24 hours of the pesticide application (Event), and within 7 days from the pesticide application (Post-Event). A total of six sites were monitored, including Pilgrim Creek, a pond adjacent to De Luz Housing, a golf course pond, and three different sample sites at Lake O'Neill. All six monitoring sites are listed in the Pesticide Application Plan. Each site was carefully selected according to its accessibility and its impact on MCBCP's community. Pilgrim Creek Pond (Location #1) and the pond adjacent to De Luz Housing Area (Location #2) were selected due to their close proximity to military housing. Lake O'Neill (Location #3) was selected to be monitored more extensively because of its potential exposure to human use from non-contact recreation activities, and the size of the water body. Three different locations were sampled at Lake O'Neill: each location was sampled during Background, Event and Post-Event monitoring. Finally, the Golf course pond (Location #4) was selected because, due to its shallowness, it is perfect grounds for mosquito breeding when water is present.

The water quality parameters measured were Temperature, pH, Turbidity, Electrical Conductivity and Dissolved Oxygen (DO). The sampling and analytical results for each monitoring location are summarized in Tables 1-6. Full analytical reports with Quality Assurance/Quality Control results are included in Appendix B.

Temperature, pH and Electrical Conductivity results showed little change in values after the pesticide was applied. Turbidity and DO showed some change after the application. Turbidity increased approximately 10-20%, on average, right after the pesticide was applied (Event sampling), and increased approximately 30-40%, on average, a week after the application (Post-Event sampling). DO values showed an increase in the Event sampling and a decrease in the Post-Event sampling results relative to the original (Background) DO values. Event DO sampling values were 5-10% higher, on average, than those collected in the Background sampling. The DO values collected on the Post-Event sampling displayed, on average, a 20-30% decrease with respect to the Background sampling values.

In order to protect the most sensitive freshwater aquatic life, the sampled water was also analyzed for the presence of Temephos, an organophsphate registered by the USEPA in 1965 to control mosquito larvae. The General Permit contains an instantaneous Maximum Receiving Water Monitoring Trigger for Temephos of 8

µg/L. The water monitoring results for all samples (Tables 1-6) were non-detectable for Temephos. Therefore, the Monitoring Trigger for Temephos was not exceeded.

Based on these monitoring results, there is no need to modify the pesticide application procedures specified Pesticide Application Plan at this time.

Table 1	**Monitoring Location #1 – Pilgrim Creek**				
Sample Type	Constituent/Parameter	Result			**Units**
		Background (08/30/12)	*Event (08/31/12)*	*Post-Event (09/06/12)*	
Visual	**Monitoring area description**	Pond	Pond	Pond	N/A
	Appearance of waterway	Color: Brown	Color: Brown/Green	Color: Brown	N/A
	Weather conditions	Sunny, some clouds	Sunny	Sunny, some clouds	N/A
Physical	**Temperature**	76	79	75	° F
	pH	7.85	7.84	8.10	Number
	Turbidity	7.24	8.83	12.00	NTU
	Electrical Conductivity @ 25 ° C	2,480	2,550	2,700	µmhos/cm
Chemical	**Active Ingredient - Temephos**	ND	ND	ND	µg/L
	Dissolved Oxygen	2.70	3.02	2.39	mg/L

Table 2	**Monitoring Location #2 - De Luz Housing**				
Sample Type	Constituent/Parameter	Result			**Units**
		Background (08/30/12)	*Event (08/31/12)*	*Post-Event (09/06/12)*	
Visual	**Monitoring area description**	Pond	Pond	Pond	N/A
	Appearance of waterway	Color: Brown/Green	Color: Brown/Green	Color: Brown/Green	N/A
	Weather conditions	Sunny, some clouds	Sunny, some clouds	Sunny, some clouds	N/A
Physical	**Temperature**	76	81	77	° F
	pH	7.88	7.86	8.25	Number
	Turbidity	7.10	8.62	9.78	NTU
	Electrical Conductivity @ 25 ° C	2,770	2,850	2,890	µmhos/cm
Chemical	**Active Ingredient - Temephos**	ND	ND	ND	µg/L
	Dissolved Oxygen	2.69	2.50	2.60	mg/L

Table 3	Monitoring Location #3 - Lake O'Neill				
Sample Type	Constituent/Parameter	Result			Units
		Background (08/30/12)	*Event (08/31/12)*	*Post-Event (09/06/12)*	
Visual	**Monitoring area description**	Lake	Lake	Lake	N/A
	Appearance of waterway	Color: Green color	Color: Green color	Color: Green color	N/A
	Weather conditions	Sunny, some clouds.	Sunny, some clouds.	Sunny, some clouds.	N/A
Physical	**Temperature**	77	80	77	° F
	pH	8.42	8.47	8.74	Number
	Turbidity	20.2	18.9	48.9	NTU
	Electrical Conductivity @ 25 ° C	1,610	1,640	1,660	µmhos/cm
Chemical	**Active Ingredient - Temephos**	ND	ND	ND	µg/L
	Dissolved Oxygen	5.82	6.46	3.84	mg/L

Table 4	Monitoring Location #3A – Lake O'Neill				
Sample Type	Constituent/Parameter	Result			Units
		Background (08/30/12)	*Event (08/31/12)*	*Post-Event (09/06/12)*	
Visual	**Monitoring area description**	Lake	Lake	Lake	N/A
	Appearance of waterway	Color: green	Color: green	Color: green	N/A
	Weather conditions	Sunny, some clouds	Sunny, some clouds.	Sunny, some clouds	N/A
Physical	**Temperature**	78	80	82	° F
	pH	8.58	8.47	8.79	Number
	Turbidity	29.7	18.9	36.7	NTU
	Electrical Conductivity @ 25 ° C	1,570	1,640	1,640	µmhos/cm
Chemical	**Active Ingredient - Temephos**	ND	ND	ND	µg/L
	Dissolved Oxygen	7.91	6.46	4.18	mg/L

Table 5	Monitoring Location #3B - Lake O'Neill				
Sample Type	Constituent/Parameter	Result			Units
		Background (08/30/12)	*Event (08/31/12)*	*Post-Event (09/06/12)*	
Visual	**Monitoring area description**	Lake	Lake	Lake	N/A
	Appearance of waterway	Color: green	Color: green	Color: green	N/A
	Weather conditions	Sunny, some clouds.	Sunny, some clouds.	Sunny, some clouds.	N/A
Physical	**Temperature**	78	84	80	° F
	pH	8.46	8.48	8.85	Number
	Turbidity	20.3	22.7	18.1	NTU
	Electrical Conductivity @ 25 ° C	1,580	1,610	1,620	µmhos/cm
Chemical	**Active Ingredient - Temephos**	ND	ND	ND	µg/L
	Dissolved Oxygen	5.95	5.98	4.78	mg/L

Table 6	Monitoring Location #4 - Golf Course Pond				
Sample Type	Constituent/Parameter	Result			Units
		Background (08/30/12)	*Event (08/31/12)*	*Post-Event (09/06/12)*	
Visual	**Monitoring area description**	Pond bed			N/A
	Appearance of waterway	No water, DRY			N/A
	Weather conditions	Sunny, some clouds.	Sunny	Sunny, some clouds.	N/A
Physical	**Temperature**	N/A	N/A	N/A	° F
	pH	N/A	N/A	N/A	Number
	Turbidity	N/A	N/A	N/A	NTU
	Electrical Conductivity @ 25 ° C	N/A	N/A	N/A	µmhos/cm
Chemical	**Active Ingredient - Temephos**	N/A	N/A	N/A	µg/L
	Dissolved Oxygen	N/A	N/A	N/A	mg/L

3. Best Management Practices (BMPs) to Eliminate or Reduce the Potential for Vectors

MCBCP identified control measures that do not involve chemical or biological treatment to help eliminate or reduce the potential for vectors. The following BMPs for mosquito control are included in the Pesticide Application Plan:

- Drain or fill stagnant water pools, puddles and ditches;
- Remove containers that catch/trap water (buckets, old tires, cans, etc.);
- Keep roof drains and gutters clear of debris so water does not accumulate;
- Grade landscaped areas so that water does not stand in temporary pools, use drain tiles, as needed;
- Landscape with trees that do not normally develop limb cavities where water may accumulate;
- Keep screens tight fitting and in good repair to keep mosquitoes from being a problem inside dwellings; and
- Wear long-sleeve shirts and long pants to decrease exposure to diseases carried by mosquitoes.

4. Map of Each Application Site

Figures depicting the different pesticide application sites aboard MCBCP are included in Appendix C. Figure 1 is an aerial map of MCBCP showing the locations of all pesticide application sites. Figures 2 through 11 are aerial views of all 13 application sites. Each application area is clearly labeled at the top of the aerial view. Location coordinates for the application sites selected for monitoring are also included on the figures.

5. Types and Amounts of Pesticides Used at Each Application Event

VectoMax WSP Biological Larvicide was aerially applied to sites that required vector control at MCBCP. VectoMax WSP is part of the list of pesticides that were approved by the USEPA to be used for vector control application (USEPA reg. 73049-429), and is also listed in the Pesticide Application Plan. The amount of pesticide used per application was approximately 130.7 kg. However, some of the sites listed in the Pesticide Application Plan did not receive pesticide application because they were not holding any water and there was no risk for potential mosquito breeding.

6. Information Used to Calculate Dosage, Concentration and Quantity of Each Pesticide Used

In accordance with the Pesticide Application Plan, MCBCP is authorized to treat up to 300 total acres per scheduled application. To obtain effective vector control, larvicide was applied in accordance with the product label. For VectoMax WSP, the product label specifies that the product rate is one pouch per 50 sq.ft.. Since one acre represents 43,560 sq.ft., approximately 13067.9 pouches were used per application. As specified by Valent Biosciences, the product manufacturer, each pouch has 10 grams of larvicide, so approximately 130.7 kg (288 lb) of larvicide were used per application. The product specifications corresponding to VectoMax WSP are included in Appendix D of this report.

7. Pesticide Application Log

MCBCP followed the Pesticide Application Plan procedures and the product label directions to obtain effective control of pesticide application. The product label for VectoMax WSP states that the pesticide should be re-applied after 1 to 4 weeks under typical environmental conditions. MCBCP chose to apply pesticides to the water bodies listed in the Pesticide Application Plan once a month (every 4 weeks). As a result, pesticides were applied for vector control the last Friday of every month from May to September, 2012. The application dates were: May 25th, June 29th, July 27th, August 31st, and September 28th.

Appendix A

Pesticide Application Plan

Pest Management Area: United States Marine Corps, Marine Corps Base Camp Pendleton, San Diego County, California

A. Pesticide Discharge Management Team

The following person will be responsible for managing pests in relation to the specified pest management area:

Name	Title	Department/Division	Phone	Email
Lt. Col. Todd Kerzie	Facilities Maintenance Officer	AC/S Facilities, Facilities Maintenance Department	760-725-3807	Todd.kerzie@usmc.mil

The following person will be responsible for developing and revising the PAP:

Name	Title	Department/Division	Phone	Email
Lt. Col. Todd Kerzie	Facilities Maintenance Officer	AC/S Facilities, Facilities Maintenance Department	760-725-3807	Todd.kerzie@usmc.mil

The following person will be responsible for developing, revising, and implementing corrective actions and other effluent limitation requirements:

Name	Title	Department/Division	Phone	Email
Mark Bonsavage	Supervisor Environmental Engineer	AC/S Environmental Security, Engineering Division	760-725-9753	mark.bonsavage@usmc.mil

The following person(s) will be responsible for pesticide applications in the specified pest management area:

Name	Title	Department/Division	Phone	Email
Barbara Vajda	Environmental Protection Specialist	AC/S Facilities, Facilities Maintenance Department	760-763-5941	Barbara.vajda@usmc.mil

The pesticide applications for the specified pest management area are performed by:

In-House Personnel	☐	Contractor Personnel	☐	In-House and Contractor Personnel	☒

If contractor personnel perform the pesticide applications, attach a copy of the contract or other written agreement to this PAP. Document attached? Yes ☒ No ☐ Not applicable ☐

B. Target Area Description and Vector Description

Area Description and Pest Problem:
Marine Corps Base Camp Pendleton (MCBCP) comprises approximately 125,000 acres on the southwest coast of California in northern San Diego County. The Pacific Ocean borders the base on the west side and the nearest communities include Oceanside and Carlsbad to the south Fallbrook and the Cleveland National Forest to the east, and San Clemente to the northwest. MCBCP lies in the Santa Margarita watershed which provides both municipal and agricultural water supply, recreation and fishing environments, and freshwater and wildlife habitat. The relatively undeveloped portion of the installation comprises the last remaining major open space and wildlife habitat in coastal Southern California. The installation layout consists of several dispersed cantonment or developed areas, numerous firing ranges and maneuver areas, an airstrip, and an impact area occupying most of the center of the installation. MCBCP supports approximately 36,000 military personnel and employs 5,600 civilians. The largest concentration of development is at the southeastern corner of the installation.

The receiving water systems within MCBCP subject to pesticide applications for control will include any navigable waters and adjoining tributaries, waters of the State, and waters of the US contained within MCBCP boundaries that breed mosquitoes, black flies, or midges to include flood control channels, basins, storm drainage facilities, ponds, wetlands, and any stagnant water found to be a breeding ground for mosquito populations.

Potential vector-borne diseases that can occur and have historically occurred in the greater Southern California region are West Nile virus (WNV), St. Louis encephalitis (SLE), and Western equine encephalitis (WEE). St. Louis encephalitis and WEE are rare viral diseases that can cause serious illness and death in humans. They can be transmitted by *Culex tarsalis* and *Cx. quinquefasciatus* mosquitoes that breed in natural and man-made water sources (such as sewage drainage ditches). West Nile virus is present in the County of San Diego and the birds present on the installation and in the surrounding area are capable of harboring WNV. The common raven, *Corvus corax*, and crow *Corvus brachyrhynchos* are found in the County and are a common host of WNV. West Nile virus causes an emerging illness that has resulted in thousands of human and equine cases annually and many fatalities since its introduction to North America in 1999. Potential emergency response actions include increased surveillance for mosquitoes and human cases, area-wide pesticide application for adult mosquitoes, implementing personal protective measures including distribution of repellents, and education of the public on mosquito bite avoidance are imperative in preventing human cases of said diseases.

Due to outdoor activities of military personnel training at MCBCP and outdoor recreational activities present, personnel and family members can be at risk for encountering vectors harboring disease. Due to the risks of acquiring abovementioned diseases MCBCP has established a pest management plan which entails treatment of water sources to prevent the emergence and sustainment of vector populations.

(Source of location data: *Integrated Pest Management Plan, United States Marine Corps, Marine Corps Base, Camp Pendleton, California and Mountain Warfare Training Facility, Bridgeport, California* Chapter 2, May 2004.)

C. Discussion of the factors influencing the decision to select pesticide applications for mosquito control;

West Nile virus (WNv) transmission occurs in San Diego County. In 2008, 35 human cases were reported from the County. Additionally, WNv was detected in 40 samples of mosquitoes collected in the County (http://www.westnile.ca.gov/case_counts.php?year=2008&option=print). Larval habitats for the primary WNv vectors, *Culex tarsalis* and *Culex pipiens quinquefasciatus*, occur on MCBCP. Military personnel returning from countries where malaria is prevalent also pose a risk for local transmission of malaria if *Anopheles* spp. mosquitoes breed on the installation. Additionally, nuisance mosquitoes have an impact on military operations, morale, and quality of life for military personnel, families, employees, and visitors. Mosquitoes breeding on MCBCP can also have a health and nuisance impact on the surrounding communities. Potential exposure to mosquito bites is high on the Base due to evening / night time recreational activities, military operations, and on-base housing. The primary means of preventing mosquitoes is by eliminating breeding sites and by controlling larvae in standing water. Although non-chemical control methods are available and considered first, the use of insecticides specific for the aquatic immature mosquito stages (larvae and pupae) may be the most effective and efficient means of control in permanent, semi-permanent and large breeding sources. Once mosquitoes become adults, the only methods to prevent mosquito biting are avoidance, personal protective measures, window and door screens, and mosquito adult insecticide (adulticide) applications. In the event of an outbreak of mosquito-borne disease, the use of insecticides is the only method available for reducing adult mosquito populations in order to reduce the risk of biting and disease transmission.
Treatment thresholds are based on the following criteria: mosquito species present, mosquito stage of development, nuisance or disease potential, mosquito abundance, flight range, proximity to populated areas, size of source, presence/absence of natural enemies or predators, and presence of sensitive/endangered species. The selection of active ingredient and pesticide formulation for mosquito control is based on the following factors: 1) efficacy against the target species or life cycle stage, 2) pesticide resistance, 3) pesticide label requirements, 4) availability of pesticide and application equipment, 5) environmental conditions, 6) cost, and 7) toxicity to non-target species, including humans (California Mosquito-Borne Virus Surveillance and Response Plan, http://westnile.ca.gov/website/publications/2005_ca_mosq_response_plan.pdf). Additionally please see the Best Management Practices for Mosquito Control in California 2010.

(Best Management Practices for Mosquito Control in California. 2010. Available by download from the California Department of Public Health-Vector-Borne Disease Section at http://www.westnile.ca.gov/resources.php under the heading Mosquito Control and Repellent Information. Copies may also be requested by calling the California Department of Public Health-Vector-Borne Disease Section at (916) 552-9730 or the County of San Diego Vector Control Program at (858) 694-2888.)

D. Control Tolerances or Action Thresholds

Treatment thresholds are established for mosquito development by the Naval Hospital Camp Pendleton Preventive Medicine Department (NHCP PMD) where potential disease vector and/or nuisance risks are evident. Only those sources that represent imminent threats to public health, quality of life, or interference with operational training are treated. Treatment thresholds are based on the following criteria: mosquito species present, mosquito stage of development, nuisance or disease potential, mosquito abundance, flight range, proximity to populated areas, size of source, presence/absence of natural enemies or predators, and presence of sensitive/endangered species. When thresholds are exceeded, an appropriate control strategy is implemented. Control strategies are selected to minimize potential environmental impacts while maximizing efficacy. The

method of control is based on the above threshold criteria but also habitat type, water conditions and quality, weather conditions, cost, site accessibility, size of site and a number of other factors as specified by NHCP PMD.

The Contractor shall apply larvicides by helicopter to water-holding areas on the MCBCP as designated by NHCP PMD. All aerial larviciding operations are subject to review and approval by the Assistant Chief of Staff, Environmental Security. Treatment areas are subject to change as determined by environmental factors such as rain and the reduction of standing water due to evaporation.

E. Control Measure Description

Select control measures that you will implement to comply with effluent limitations. Discuss the factors influencing the decision to select pesticide applications as well as alternative control methods and their limitation. Include the approximate amount of product that is anticipated to be used and how this amount was determined. Evaluate available BMPs and describe the BMPs to be implemented.

As per the California Mosquito-Borne Virus Surveillance and Response Plan, factors to consider when selecting a pesticide include: 1) efficacy against the target species or life cycle stage, 2) pesticide resistance, 3) pesticide label requirements, 4) availability of pesticide and application equipment, 5) environmental conditions, 6) cost, and 7) toxicity to non-target species, including humans. Environmental Conditions will be assessed prior to application (temperature, precipitation, wind speed): Adulticiding will occur only when target flying insects are present in proper weather conditions. If weather is not permissive, treatments will be performed during the next available time slot when weather conditions permit.

(California Mosquito-Borne Virus Surveillance and Response Plan. 2010. [Note: this document is updated annually by CDPH]. Available by download from the California Department of Public Health-Vector-Borne Disease Section at http://www.westnile.ca.gov/resources.php under the heading Response Plans and Guidelines. Copies may be also requested by calling the California Department of Public Health-Vector-Borne Diseases Section at (916) 552-9730 or the County of San Diego Vector Control Program at (858) 694-2888.)

F. Other control methods used (alternatives) and their limitations;

With any sources of mosquitoes or other vectors, the Camp Pendleton Integrated Pest Management Plan's (IPMP) first goal is to look for ways to eliminate the source, or if that is not possible, for ways to reduce the potential for vectors. The most commonly used methods and their limitations are included in the Best Management Practices for Mosquito Control in California.

Specific alternative control measures used by the IPMP include:

- Drain or fill stagnant water pools, puddles, and ditches (where this can be done without adverse ecological consequences);
- Remove containers that catch/trap water (e.g., buckets, old tires, cans);
- Keep roof drains and gutters clear of debris so water does not accumulate;
- Grade landscaped areas so that water does not stand in temporary pools use drain tiles, as needed;
- Landscape with trees that do not normally develop limb cavities where water may accumulate;
- Use Oil of citronella candles to produce smoke that repels mosquitoes when humans are outside on patios or in picnic areas;
- Keep screens tight fitting and in good repair to keep mosquitoes from being a problem inside dwellings; and

- Wear long-sleeve shirts and long pants to decrease exposure to diseases carried by mosquitoes.

☒ Active Ingredient(s) to be applied to the pest management area (attach pesticide label):

G. How much product is needed and how this amount was determined;

The need to apply product is determined by surveillance. Actual use varies annually depending on mosquito abundance. The pesticide amounts presented below were taken from the 2008-2009 IPMP as an estimate of anticipated pesticide use for 2012. Other public health pesticides in addition to those listed below may be used as part of the program's best management practices. Tables 2 and 3 list the pesticides that may be used on MCBCP for immature or adult mosquito control. This list is adapted from Attachments E and F of the NPDES General Permit No. CAG 990004. MCBCP plans to use the pesticide listed in Table 1 below and reserves the right to use any product approved under the terms of this General Permit (Tables 2 and 3). Per OPNAVINST 6250.4B, all pesticides used on the Base must be approved by the NAVFAC Southwest Regional Pest Management Consultant and by the Environmental Management Department (EMD) and listed on the Station Pesticide Authorized Use List.

Table 1: Trade Names and Active Ingredients of Pesticides to be Applied on Camp Pendleton.

Trade name:	Active Ingredient:	Concentrate:	EPA Reg No.
Scourge	Resmethrin and Piperonyl Butoxide	4.14% + 12.42% MF FII	432- 716
Altosid	(S)-Methoprene (CAS #65733-16-6)	4.25%	2724-448
Vectobac	*Bacillus thuringiensis* subspecies *israelensis* fermentation solids and soluble	2.80%	73049-10
Aquabac	*Bacillus thuringiensis* subspecies *israelensis* fermentation solids and soluble	2.86%	62637-3
VectoLex	*Bacillus sphaericus*	7.50%	74039-20

Table 2: Pesticides for control of immature mosquitoes approved for use under the terms of General Permit No. CAG 990004 and methods of application.

Product Name	EPA Registration Number	Method of Application
Vectolex CG Biological Larvicide	73049-20	Conventional ground/hand
Vectolex WDG Biological Larvicide	73049-57	Conventional ground/hand
Vectolex WSP Biological Larvicide	73049-20	Conventional ground/hand
Vectobac-12 AS	73049-38	Conventional ground/hand
Aquabac 200G	62637-3	Conventional ground/hand
Teknar HP-D	73049-404	Conventional ground/hand/air
Vectobac-G Biological Mosquito Larvicide Granules	73049-10	Conventional ground/hand/air
Vectomax CG Biological Larvicide	73049-429	Conventional ground/hand/air
Vectomax WSP Biological Larvicide	73049-429	Conventional ground/hand/air
Vectomax G Biological Larvicide/Granules	73949-429	Conventional ground/hand
Zoecon Altosid Pellets	2724-448	Conventional ground/hand/air
Zoecon Altosid Pellets	2724-375	Conventional ground/hand/air
Zoecon Altosid Liquid Larvicide Mosquito Growth Regulator	2724-392	Conventional ground/hand/air
Zoecon Altosid XR Entended Residual Briquets	2724-421	Conventional ground/hand
Zoecon Altosid Liquid Larvicide Concentrate	2724-446	Conventional ground/hand
Zoecon Altosid XR-G	2724-451	Conventional ground/hand
Zoecon Altosid SBG Single Brood Granule	2724-489	Conventional ground/hand
Mosquito Larvicide GB-1111	8329-72	Conventional ground/hand
BVA 2 Mosquito Larvicide Oil	70589-1	Conventional ground/hand
BVA Spray 13	55206-2	Conventional ground/hand
Agnique MMF Mosquito Larvicide & Pupicide	53263-28	Conventional ground/hand
Agnique MMF G	53263-30	Conventional ground/hand

Table 3: Pesticides for control of adult mosquitoes approved for use under the terms of General Permit No. CAG 990004 and methods of application.

Product Name	EPA Registration Number	Method of Application
Pyrocide Mosquito Adulticiding Concentrate for ULV Fogging	7395 1021-1570	Ultra low volume (ULV), vehicle (ground), and aircraft (air)
Evergreen Crop Protection EC 60-6	1021-1770	ULV, ground, and air
Pyrenone Crop Spray	432-1033	ULV, ground, and air
Prentox Pyronyl Crop Spray	655-489	ULV, ground, and air
Pyrocide Mosquito Adulticiding Concentrate for ULV Fogging	7396 1021-1569	ULV, ground, and air
Aquahalt Water-Based Adulticide	1021-1803	ULV, ground, and air
Pyrocide Mosquito Adulticide	7453 1021-1803	ULV, ground, and air
Pyrenone 25-5 Public Health Insecticide	432-1050	ULV, ground, and air
Prentox Pyronyl Oil Concentrate #525	655-471	ULV, ground
Prentox Pyronyl Oil Concentrate or 3610A	655-501	ULV, ground, and air
Permanone 31-66	432-1250	ULV, ground, and air
Kontrol 30-30 Concentrate	73748-5	ULV, ground, and air
Aqualuer 20-20	769-985	ULV, ground, and air
Aqua-Reslin	432-796	ULV, ground, and air
Aqua-Kontrol Concentrate	73748-1	ULV, ground, and air
Kontrol 4-4	73748-4	ULV, ground, and air
Biomist 4+12 ULV	8329-34	ULV, ground, and air
Permanone RTU 4%	432-1277	ULV, ground, and air
Prentox Perm-X UL 4-4	655-898	ULV, ground, and air
Allpro Evoluer 4-4 ULV	769-982	ULV, ground, and air
Biomist 4+4	8329-35	ULV, ground, and air
Kontrol 2-2	73748-3	ULV, ground, and air
Scourge Insecticide with Resmethrin/Piperonyl Butoxide 18%+54% MF Formula II	432-667	ULV, ground, and air
Scourge Insecticide with Resmethrin/Piperonyl Butoxide 4%+12% MF Formula II	432-716	ULV, ground, and air
Anvil 10+10 ULV	1021-1688	ULV, ground, and air

Table 4: Approximate Amounts of Products that are Anticipated to be Used Based on Historical Data of Product Usage.

LARVICIDE APPLACATION THIRD OPTION APRIL 14, 2008 THRU APRIL 13, 2009							
DATE OF SERVICE	DATE PAID	SERVICE & INVOICE NO.	QUANTITY OF LOADS	CLIN QUANTITY & POUNDS USED	Vectlex CG. 8 Bags Per Load	Aquabac 200G 4 Bags Per Load	Total Bags
				29,800			
4/24/2009			7.5	3,600	60	30	90
5/17/2009			7.5	3,600	60	30	90
6/21/2009			7.5	3,600	60	30	90
7/17/2009			7.5	3,600	60	30	90
8/7/2009			7.5	3,600	60	30	90
8/27/2009			8	3,840	64	32	96
9/20/2009			7	3,360	56	28	84
10/16/2009			7	3,360	56	28	84
				0	0	0	0
				28,560			
			59.5	1,240	476	238	714
				BALANCE	19,040 Total Pounds	9,520 Total Pounds	

Reporting Requirements:

DoD Instruction 4150.07 requires that pest management operations and pesticide applications on military installations be recorded, reported, and archived. Pesticide applications shall be reported after each application on an electronic report form provided by the Government and submitted to the NAVFAC Southwest PPMC via the NHCP PMD. The Government will conduct an inventory of the larvicide product at the start of each application period and again at the end of each application day to account for the total amount of larvicide used during that particular day of operation.

☒ Adjuvants and surfactants used (if applicable) Not Applicable

☒ Rate of application (provide rate):

Larvicide application will be in accordance with the product label to obtain effective control.

Adulticiding is applied at maximum label rate for the adulticide used or as determined by Government Pest/Disease Vector Consultant.

☒ Frequency of application (provide frequency):

Application shall commence in early to mid spring and cease in mid to late fall and as determined by the Government and in direct coordination with the San Diego County Health Department. The Government will determine the frequency, time, and specific location of applications based on NHCP PMD mosquito surveillance, environmental conditions, and installation security posture.

Aerial spray operations shall be conducted only under weather conditions that provide safe operating conditions for the aircraft and reduces the risk of pesticide into non-target areas. The Contractor, in consultation with the Government, shall make the final decision on whether the operation shall proceed.

Larviciding will occur within one day of positive survey results (over one larva per dip), and will remain in effect for 30 days. Evidence of adult emergence after control is instituted is grounds for retreatment using a larvicide that doesn't contain an insect growth regulator if necessary.

Adulticide frequency will be dependent on adult mosquito surveys using traps, visual observations, and complaints. Adulticiding will occur only when target flying insect is present in proper weather conditions. If weather is not permissive, treatments will be performed during the next available time slot when weather conditions permit.

Application area description and maps:
Attach a map of the pest management area and a description of the types and locations of the anticipated application area, the target area to be treated, and adjacent or other non-target areas potentially affected.

Any area that retains standing water for more than 96 hours can produce an adequate environment for mosquito production. In accordance with Best Management Practices for Mosquito Control in California, the preferred method of mosquito control will be mosquito habitat source reduction.

Contractors use pesticides as a last resort to reduce mosquito population abundance. Areas on MCBCP that could be subject to larviciding and/or adulticiding include and are not limited to: drainage canals, riparian regions, wetland areas, ornamental ponds/waterscapes, catch basins, and any aquatic site or low lying area that withholds water for more than 96 hours. The abovementioned areas where pesticide application will occur reside in storm water drainage systems and can impact the watershed in which they reside.

The objective is to reduce the population of adult mosquitoes and to prevent the transmission of West Nile virus and other mosquito-borne diseases on Marine Corps Base Camp Pendleton. The Government will establish the dates of larvicide application based on mosquito surveillance and in coordination with larvicide applications by the counties of San Diego, Orange and Riverside, California. All applications shall be performed within the fence line of Marine Corps Base Camp Pendleton.

The Contractor shall apply larvicides by helicopter to water-holding areas on the MCB Camp Pendleton as designated by Naval Hospital Camp Pendleton Preventive Medicine Department (NHCP PMD). All aerial larviciding operations are subject to review and approval by the Assistant Chief of Staff, Environmental Security.

Larvicide treatment shall only be conducted in areas that hold water and where mosquito larvae are present or where the potential of mosquito breeding is high. The total area treated shall be determined by the Government prior to each application based on the presence of water and the presence of mosquito larvae or if it is found that areas potentially support the breeding of mosquitoes. Current estimated acreage is approximately 300-350 acres per application. The following areas potentially scheduled for treatment are based on historical data, but shall not be limited to:

- Pond adjacent to Rodeo Grounds/Golf Course (Pilgrim Creek)
- Pond adjacent to Deluz Housing Area
- Entire area of Lake O'Neill
- Horse Stables (Pilgrim Creek)
- Las Flores Boy Scout Camp
- Outlet at San Onofre Creek

- Percolation ponds adjacent to Stuart Mesa Rd. and Santa Margarita River

During the normal course of the aerial application; the Contractor shall treat observed water holding areas not listed for scheduled treatment. The Contractor is authorized to treat up to 50 acres per scheduled application. Treatments exceeding this amount must be approved by the Contracting Officer. The Contractor shall only treat such areas that are within the clearance area as provided by Long Rifle and Air Traffic Control.

Map attached. Yes ☒ No ☐ (Map is for aerial larvicide application)

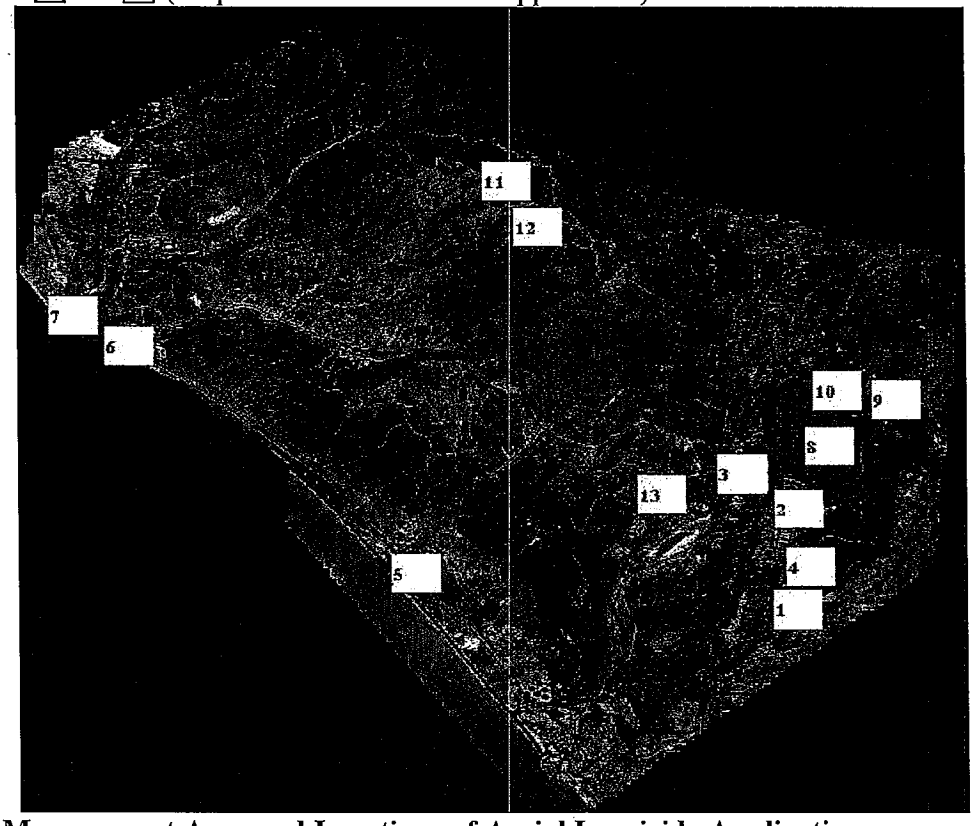

Figure 1: Map of Pest Management Area and Locations of Aerial Larvicide Application.

Description of the larvicide application areas on map:

1. **Pond adjacent to rodeo grounds (Pilgrim creek pond)**
2. **Pond adjacent to Deluz housing area**
3. **Entire area of Lake O'Neill and adjacent percolation ponds**
4. **Golf course pond**
5. **Outlet of Las Flores creek**
6. **Outlet of San Onofre creek**
7. **Outlet of San Mateo creek**
8. **Pond on Naval Weapons Station Fallbrook**
9. **Pond on Naval Weapons Station Fallbrook**
10. **Pond on Naval Weapons Station Fallbrook**
11. **Case Springs north pond**
12. **Case Springs south pond**
13. **STP 8 percolation ponds**

Water Quality Standards

Established Water Quality Standards for waters of the U.S. located in this pest management area to which there may be a discharge (provide reference from State or other source).

Water quality standards in regards to vector/pest control operations will be in accordance with *Water Quality Control Plan, San Diego Basin (9)*, and Chapter 3. According to the State Water Resources Control Board, there are no 303 (d) listed water bodies in San Diego County impaired for the pesticides that MCB Camp Pendleton, AC/S Environmental Security – Integrated Pest Management Program (IPMP) applies. The following image shows search results with no water identified as impaired for resmithrin/pyrethroids (Scourge) use. There were no search options available for the following aquatic pesticides that are currently in use, listed by active ingredient: Bacillus thuringensis israelensis (Vectobac, Aquabac) and Bacillus sphaericus (VectoLex).

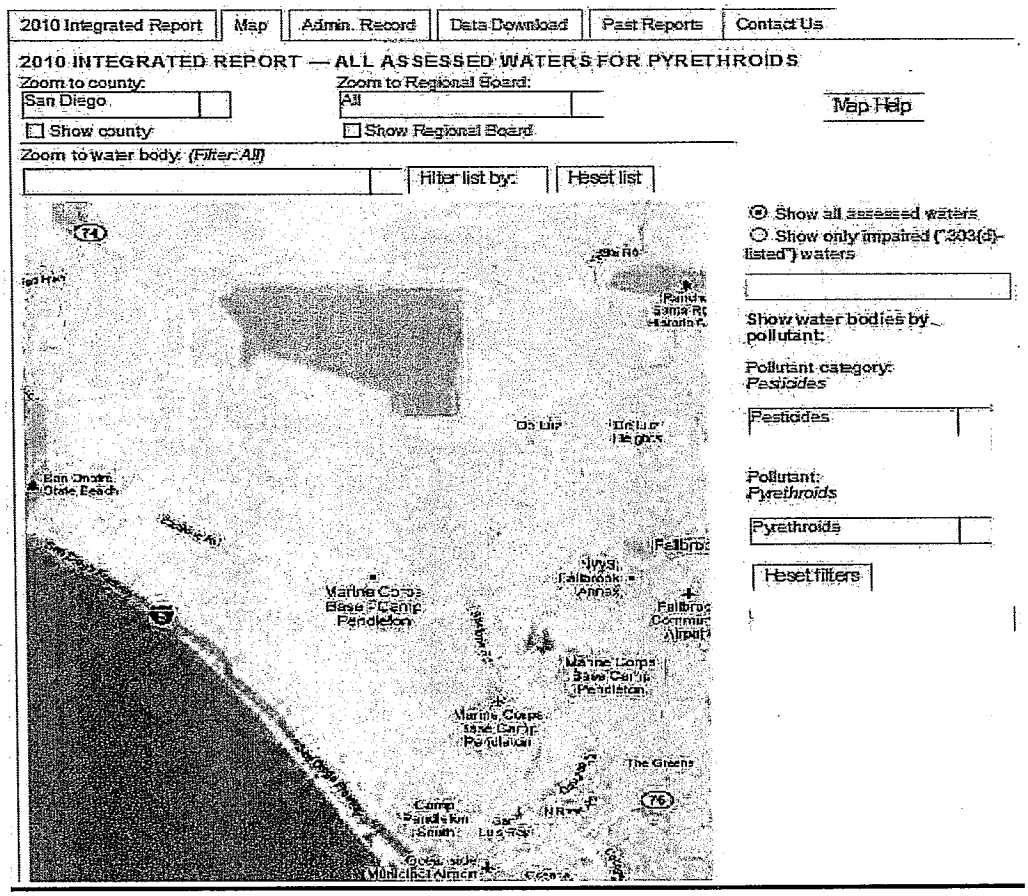

Figure 2: Search Results from California State Water Resources Control Board 2010 Integrated Report for Water Bodies on Camp Pendleton impaired for Pyrethroids (Scourge).

☒ Spill Prevention

The best means by which a spill can be reduced or prevented is to take precautionary measures, such as providing adequate storage facilities for all pesticide chemicals, monthly inspection of these facilities, and ensuring that emergency equipment is on hand for spill cleanup. The following guidelines will be followed for reducing the probability and severity of a spill:

- Train personnel in proper procedures for handling pesticides during receipt, storage, formulation, loading, application and disposal.
- Advise and train pest control personnel in proper spill prevention, emergency response and containment procedures.
- Identify locations and operations where spills are likely to occur.
- Prepare pesticide spill emergency response and spill control countermeasure plans for shops and storage areas, consistent with the total hazardous materials management and spill contingency plans for the facility, *i.e.* Navy Hazardous Materials Management Guide (NESO 20.2-024A).
- Post emergency phone numbers in conspicuous locations.
- Prepare and maintain spill kits.
- Inspect storage areas monthly and spill kits quarterly.

(Reference: *Technical Guide 15, Pesticide Spill Prevention and Management*, Armed Forces Pest Management Board, AFPMB.org, 2011)

The Contractor and KO will consult with installation environmental and fire department personnel to determine installation requirements for Contractor spills of hazardous materials. The Contractor is financially responsible for all associated costs to clean up spills as a direct result of the action or inaction. The Contractor shall reimburse the government for all costs incurred to the government during and after a spill.

Vehicles used to transport pesticides shall be equipped with a fire extinguisher, a spill containment kit capable of containing any potential pesticide spill, an emergency eye wash station, at least two gallons of emergency wash water for personal decontamination, and a first aid kit.

Pesticides shall be applied by or under the direct supervision of trained, certified or licensed applicators. The Contractor shall not mix pesticides on on-site Government property unless specifically authorized to do so by the KO. If mixing is authorized, it shall be done at an approved pre-existing facility or over an approved containment device. The Contractor shall not store pesticides on on-site Government property unless specifically authorized by the KO. If storage is authorized, it shall be done at an approved pre-existing facility.

Fueling operations or storage of petroleum products shall be maintained off-site, and a spill prevention and management plan shall be developed and implemented to contain and clean up spills. Transport vessels and vehicles, and other equipment (e.g., mowers, pumps, etc.) shall not be serviced or fueled in the field except under emergency conditions; hand-held gas-powered equipment shall be fueled in the field using precautions to minimize or avoid fuel spills within the tidal wetland/marsh. Other, specific best management practices shall be specified as appropriate in project-specific Waste Discharge Requirements. In addition to these water quality mitigation measures, the contractor will have an acceptable Site Safety and Materials Handling Plan.

Spill Response Procedures

If a pesticide spill occurs, specific procedures will be followed for providing first aid, notifying proper authorities, and cleaning up and decontaminating the spill area.

Spill-related Training/Certification:
Pesticide application personnel will be certified by the State of California or by the DoD, and trained in the following spill related categories:

- Identification
- Safety and First Aid
- Care of Injured
- Site Security
- Containment and Control
- Spill Reporting
- Clean up (Dry and Liquid)
- Decontamination
- Disposal

Notification Procedures:
Spills that involve pesticides equal to or exceeding the designated reportable quantity (RQ) specified in EPA's Clean Water Act list of hazardous substances, and the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) list of hazardous substances, must be reported. All pesticide spills will be reported in accordance with Navy, OPNAVINST 5090.1C and the base/installation's spill contingency instruction. Pesticide spills will be reported to the spill coordinator designated in the base/installation's spill contingency instruction. The coordinator in turn will report the spill to the EPA as required.

Adverse Incident Response Procedures

The pesticide application contractor shall support the efforts of the Emergency Operations Center Team, the Environmental Security Office, the Safety Office, the Hazardous Materials Emergency Response Team and other organizations including the Fire Department and the Urban Search and Rescue Team, as necessary, in the event of hazardous materials spill. Initial Approach: The contractor will partner with and provide support to the Environmental Security Office and the Fire Department to contain the spill including limiting the spill from exiting property from the surface or through the storm drains. Phase II Approach: Should evacuation of specific buildings become necessary, the contractor will assist the emergency response teams, as necessary, to ensure an orderly evacuation and the contractor will survey and secure all evacuated buildings. Phase III Approach: the contractor will support the site emergency response teams and the Environmental Security Office to assess damage, begin the process of clean-up both external and, if necessary, internal to buildings. Should the hazardous materials spill require closing of one or more of the Site's entrances, the contractor will assist the emergency response teams, as necessary, to ensure an orderly egress of employees through those entrances of the Site remaining open.

☒ Equipment Maintenance and Calibration

The Contractor shall provide repair and maintenance as necessary to keep all equipment in good operating condition, and take appropriate action regarding the following:

- All tanks, hoses, pumps, control valves, and gauges shall be free of visible deterioration, shall not leak, and shall operate at the manufacturer's recommended rates and pressures. Equipment that has failed shall be replaced and/or repaired by the Contractor prior to resuming operations.
- Screens, strainers, and filters shall be used and maintained in accordance with the pump, sprayer, and nozzle manufacturer's instructions.
- Spray nozzles shall deliver spray patterns as specified by the nozzle manufacturer. Nozzles that become clogged or eroded shall be repaired or replaced by the Contractor prior to resuming operations.

- Ultra-Low Volume (ULV) equipment shall be calibrated to assure proper flow rate and droplet size of pesticide as required by the label. ULV equipment shall be calibrated, including droplet size analysis, 15 days prior to start of work and thereafter

H. Schedules and Procedures

Schedule of Application:

Application of larvicide and/or larvicide will be in accordance with abovementioned action control thresholds and aerial spray schedule as set forth by the contractor.

Schedule of Equipment Maintenance and Calibration:

The ULV equipment will be clean and maintained in proper running order. The contractor shall ensure and document that the ULV machine is applying the proper size droplets in order to effectively control flying insects in accordance with the machine manufacturer and/or the insecticide label. Documentation shall be sent to the KO every 90 days or every 50 hours of use, whichever comes first. The machine use log must be kept up-to-date.

Pesticide Monitoring Schedules and Procedures:

Pest Surveillance will be performed by Naval Hospital Camp Pendleton Preventive Medicine Staff to assess public health impact as well as maintain records of said surveillance.

Monitoring includes checking that the amount of pesticide applied is correct, performing regular maintenance on equipment and spot checking for observable adverse incidents. Visual assessments of the application site must be performed during pesticide applications and during post-application surveillance.

Representative monitoring locations and the process for determining them:
Representative sample sites will be chosen according to the number of water bodies treated during the season. A minimum of six sampling sites will be chosen based on accessibility, water body type and environmental setting. Maps and GPS units will be used to identify water holding sites.

Schedule for monitoring:

Mosquito Adults: Monitoring will be conducted weekly during the months of May through November. During control operations, surveys will be conducted prior to application of adulticide. For visual surveys, post treatment surveys will be conducted immediately after the treatment and within 24 hours after application with traps

I. Best Management Practices to Enhance Vector Reduction

Integrated Mosquito Management (IMM) is a comprehensive mosquito prevention/control strategy that utilizes all available mosquito control methods singly or in combination to exploit the known vulnerabilities of mosquitoes in order to reduce their numbers to tolerable levels while maintaining a quality environment. IMM does not emphasize mosquito elimination or eradication. Integrated mosquito management methods are specifically tailored to safely counter each stage of the mosquito life cycle. Prudent mosquito management practices for the control of immature mosquitoes (larvae and

pupae) include such methods as the use of biological controls (native, noninvasive predators), source reduction (water or vegetation management or other compatible land management uses), water sanitation practices as well as the use of EPA-registered larvicides. When source elimination or larval control measures are not feasible or are clearly inadequate, or when faced with imminent mosquito-borne disease, application of EPA-registered adulticides by applicators trained in the special handling characteristics of these products may be needed. Adulticide products are chosen based upon their demonstrated efficacy against species targeted for control, resistance management concerns and minimization of potential environmental impact.

IMM requires a thorough understanding of mosquitoes and their bionomics by control personnel; careful inspection and monitoring for their presence and conditions favoring their development; and prevention of oviposition and human/mosquito contact through effective public education, sanitation and facility maintenance. All mosquito control programs should strive to employ these IMM components to the extent possible

The following are BMPs utilized at MCBCP to control mosquito/vector population:

- Surveillance – Is the backbone of all IMM programs. Identifies problem species and population trends in order to direct and evaluate control methods.
- Mapping – Utilize maps of appropriate scale to continually monitor major sources of larval/adult mosquitoes in addition to documenting areas where control measures have been instituted.
- Set Action Thresholds – Decisions to initiate control measures should be based on the analysis of either larval or adult mosquito surveillance or other available field data. Programs must establish a mechanism on which decisions to institute control measures are based.
- Physical Control or Source Reduction –Source reduction (the elimination, removal or modification of larval mosquito habitats) typically is the most effective and economical long-term method of mosquito control, but may not be practicable for many larval habitats. These efforts often minimize and/or eliminate the need for mosquito larviciding in the affected habitat in addition to greatly reducing the need for adulticiding in nearby areas.
- Education & Community Outreach – IMM is knowledge-based and involves a concerted effort by both control personnel and the community to manage mosquito populations based upon informed decision-making. Education of the general public should be encouraged to enlist resident's support in disposing of (or modifying) oviposition habitat, proper screening methods and proper application of personal protective measures such as repellents to minimize human/mosquito contact.
- Record-keeping – Operators/applicators should record the following for each application and maintain the records for the time specified by the lead regulatory agency.

(Reference: *Best Management Practices for Integrated Mosquito Management*, American Mosquito Control Association, 2009)

J. Documentation to Support Eligibility Considerations under Other Federal Laws

Have you included a copy of your NOI with this PAP? Yes ☒ No ☐

K. Monitoring Program

Monitoring and reporting shall comply with all requirements described in Attachment C (Monitoring and Reporting Program) of the existing NPDES permit for vector control. Considering the precise application of resmethrin (Scourge), the limited treatment areas and the ability to avoid water bodies, Marine Corps Base Camp Pendleton (MCBCP) does not anticipate drift into water bodies. MCBCP does not plan on monitoring resmethrin (Scourge) treatments, unless there is a required treatment with an unavoidably close proximity to a water body or an unintentional drift incident.

MCBCP will monitor water bodies during ground and aerial applications of larvicides. Representative sample sites will be chosen according to the number of water bodies treated during the season. A minimum of six sampling sites will be chosen based on accessibility, water body type and environmental setting. MCBCP will monitor for the visual and physical components of Table C-1 in Attachment C of the NPDES permit at the time intervals and frequencies specified in the permit. The visual and physical monitoring data will be input to the monitoring log sheet and all pertinent information will be included (See attached monitoring log sheet). Adequate data exists for the larvicides used by MCBCP to characterize aquatic toxicity. The evidence indicates that most larvicides, when used at label application rates, are not likely to have significant adverse effects on non-target aquatic organisms. In addition, because larvicides are applied directly to water bodies for control of mosquito larvae, the permit would apply for residual concentrations that remain after the treatment period. Evidence indicates that while limited potential effects may occur with some larvicides during the treatment period, the persistence of most larvicides is very short and significant residues are not likely to remain after the treatment period.

(Reference: *Monitoring Plan for Mosquito Larvicides and Adulticides,* Mosquito and Vector Control Association of California, 2011)

L. Signature

This PAP must be signed by "either a principal executive officer or ranking elected official (i.e., a Chief Executive Officer of the Agency or a Senior Executive Officer having responsibility for the overall operations of a principal geographic unit of the agency)."

Signature: _____
Name: Lt. Col. Todd Kerzie
Title: Facilities Maintenance Officer

Appendix A
Figures

MVCAC Monitoring Log Sheet

Pesticide Application Information

MVCAC member agency _____

Name of applicator _____

Date of application _____

Location _____

(address, common name, crossroads, or coordinates)

Name of water body _____

Type of water body

(check one)

- ☐ Pond
- ☐ Lake
- ☐ Open waterway
- ☐ Channel

Dimensions, velocity, etc. (optional): _____

Monitoring Information

Date of monitoring _____

Time _____

Name(s) of personnel _____

Type of pesticide (check one)

- ☐ Larvicide. Product name: _____
- ☐ Adulticide. Product name: _____

Timing of monitoring (check one)

- ☐ Background (24 hours prior to application)
- ☐ Event (within 24 hours of application)
- ☐ Post-event (within 1 week after project completion)

Visual Observation

Current weather conditions
(check all that apply)

- ☐ Clear/sunny
- ☐ Cloud cover
  - ☐ Partly cloudy
  - ☐ Overcast
  - ☐ Hazy
- ☐ Precipitation
  - ☐ Foggy
  - ☐ Drizzle
  - ☐ Intermittent showers
  - ☐ Steady rain
  - ☐ Heavy storm
  - ☐ Snow
- ☐ Wind
  - ☐ Calm
  - ☐ Light breeze
  - ☐ Gusty
- ☐ Air temperature
  - ☐ Cool
  - ☐ Warm/mild
  - ☐ Hot

Water color (check one)

- ☐ Colorless
- ☐ Green
- ☐ Yellow
- ☐ Brown
- ☐ Other: _____

Water clarity (check one)

- ☐ Clear (can see bottom)
- ☐ Cloudy
- ☐ Murky

Present in water?
(check all that apply)

- ☐ Floating or suspended matter
- ☐ Bottom deposits
- ☐ Aquatic life
- ☐ Water surface oils (check one if present)
  - ☐ Slick
  - ☐ Films
  - ☐ Sheen
  - ☐ Gloss
  - ☐ Flecks
  - ☐ Coatings
  - ☐ Other: _____
- ☐ Fungi, slimes, or objectionable growths
- ☐ Potential nuisance conditions

  Describe: _____

Field Measurement

Parameter	Result	Unit	Method of measurement	
Water temperature	_____	°F		☐ Field instrument. Model _____
Electrical conductivity (EC)	_____	µmhos/cm	☐ Sent to lab, or	☐ Field instrument. Model _____
Dissolved oxygen (DO)	_____	mg/L	☐ Sent to lab, or	☐ Field instrument. Model _____
pH	_____		☐ Sent to lab, or	☐ Field instrument. Model _____
Turbidity	_____	NTU	☐ Sent to lab, or	☐ Field instrument. Model _____

Appendix B.1

American Environmental Testing Laboratory Inc.

2834 & 2908 North Naomi Street Burbank, CA 91504 • DOHS NO: 1541, LACSD NO: 10181
Tel: (888) 288-AETL • (818) 845-8200 • Fax: (818) 845-8840 • www.aetlab.com

Ordered By

AC/S Environmental Sec.
PO Box 555008
Camp Pendleton, CA 92055-

Telephone: (760)725-9753
Attention: Mark Bonsavage

Number of Pages 9
Date Received 08/30/2012
Date Reported 09/11/2012

Job Number	Order Date	Client
66718	08/30/2012	AC/SES

Project ID: PESTICIDE MONI. 2012
Project Name: Pesticide Monitoring-2012
Site: Camp Pendleton

Enclosed please find results of analyses of 5 water samples which were analyzed as specified on the attached chain of custody. If there are any questions, please do not hesitate to call.

Checked By: _____ Approved By: C. Razmara

Cyrus Razmara, Ph.D.
Laboratory Director

American Environmental Testing Laboratory Inc.

2834 & 2908 North Naomi Street, Burbank, CA 91504 • DOHS NO: 1541, LACSD NO: 10181
Tel: (888) 288-AETL • (818) 845-8200 • Fax: (818) 845-8840 • www.aetlab.com

CHAIN OF CUSTODY RECORD

№ 79530

AETL JOB No. 66718

COMPANY: Camp Pendleton
PROJECT MANAGER: Mark Bonsavage
COMPANY ADDRESS:
PHONE: 760-725-9753
FAX:
PROJECT NAME: Pesticide Monitoring-2012
PROJECT #:
SITE NAME AND ADDRESS:
PO #:

	SAMPLE ID	LAB ID	DATE	TIME	MATRIX	CONTAINER NUMBER/SIZE	PRES.	ANALYSIS REQUESTED: pH, EC, Turbidity	Dissolved Oxygen	Temephos	Surface	TEST INSTRUCTIONS & COMMENTS
												Temperture (°F)
1	1	66718.01	08/30/12	10:30AM	water	500mL PL 1.5 Lt Amber GL	ICE	X	X	X	X	Temp 76 °F
2	2	66718.02	08/30/12	10:52AM	water	↓	↓	↓	↓	↓	X	" 76 °F
3	3	66718.03	08/30/12	11:30AM	water						X	" 77 °F
4	3A	66718.04	08/30/12	2:12PM	water						X	" 78 °F
5	3B	66718.05	08/30/12	2:23PM	water	↓	↓	↓	↓	↓	X	" 78 °F
6												
7												
8												
9												
10												
11												
12												
13												
14												
15												

SAMPLE RECEIPT - TO BE FILLED BY LABORATORY

TOTAL NUMBER OF CONTAINERS	15	PROPERLY COOLED (Y) N / NA	
CUSTODY SEALS Y / (N) NA		SAMPLES INTACT (Y) N / NA	
RECEIVED IN GOOD COND. (Y) N		SAMPLES ACCEPTED (Y) N	

TURN AROUND TIME

☒ NORMAL ☐ RUSH ☐ SAME DAY ☐ NEXT DAY ☐ 2 DAYS ☐ 3 DAYS

RELINQUISHED BY SAMPLER: 1.	RELINQUISHED BY: 2.	RELINQUISHED BY: 3.
Signature:	Signature:	Signature:
Printed Name:	Printed Name: Liam Vali-Ferguson	Printed Name:
Date: 8/30-12 Time: 1445	Date: 8/30-12 Time: 1445	Date: 8/30-12 Time: 1815
RECEIVED BY: 1.	**RECEIVED BY: 2.**	**RECEIVED BY LABORATORY: 3.**
Signature:	Signature:	Signature:
Printed Name: Liam Vali-Ferguson	Printed Name:	Printed Name:
Date: 8/30-12 Time: 1445	Date: 8/30-12 Time: 1445	Date: 8/30-12 Time: 1815

DISTRIBUTION: WHITE - Laboratory, CANARY - Laboratory, PINK - Project/Account Manager, YELLOW - Sampler/Originator

American Environmental Testing Laboratory Inc.

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COOLER RECEIPT FORM

Client Name: Camp pendleton
Project Name: pesticide Monitoring - 2012
AETL Job Number: 66718
Date Received: 08/30/12 Received by: Julius.
Carrier: ☒ AETL Courier ☐ Client ☐ GSO ☐ FedEx ☐ UPS
☐ Others:

Samples were received in: ☒ Cooler (1) ☐ Other (Specify):
Inside temperature of shipping container No 1: 3/c, No 2: ____, No 3: ____
Type of sample containers: ☐ VOA, ☒ Glass bottles, ☐ Wide mouth jars, ☒ HDPE bottles, ☐ Metal sleeves, ☐ Others (Specify):
How are samples preserved: ☐ None, ☐ Ice, ☒ Blue Ice, ☐ Dry Ice
☒ None, _ HNO_3, _ NaOH, _ ZnOAc, _ HCl, _ $Na_2S_2O_3$, _ MeOH
_ Other (Specify):

	Yes	No, explain below	Name, if client was notified
1. Are the COCs Correct?	✓		
2. Are the Sample labels legible?	✓		
3. Do samples match the COC?	✓		
4. Are the required analyses clear?	✓		
5. Is there enough samples for required analysis?	✓		
6. Are samples sealed with evidence tape?	N/A		
7. Are sample containers in good condition?	✓		
8. Are samples preserved?	✓		
9. Are samples preserved properly for the intended analysis?	✓		
10. Are the VOAs free of headspace?	N/A		
11. Are the jars free of headspace?	✓		

Explain all "No" answers for above questions:

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Ordered By

AC/S Environmental Sec.
PO Box 555008
Camp Pendleton, CA 92055-

Telephone: (760)725-9753
Attention: Mark Bonsavage

Project ID: PESTICIDE MONI. 2012
Date Received 08/30/2012
Date Reported 09/11/2012

Job Number	Order Date	Client
66718	08/30/2012	AC/SES

CERTIFICATE OF ANALYSIS
CASE NARRATIVE

AETL received 5 samples with the following specification on 08/30/2012.

Lab ID	Sample ID	Sample Date	Matrix	QTY of Containers
66718.01	1	08/30/2012	Aqueous	3
66718.02	2	08/30/2012	Aqueous	3
66718.03	3	08/30/2012	Aqueous	3
66718.04	3A	08/30/2012	Aqueous	3
66718.05	3B	08/30/2012	Aqueous	3

The samples were analyzed as specified on the enclosed chain of custody.
No analytical non-conformances were encountered.

Checked By: _____ Approved By: C. Razmara

Cyrus Razmara, Ph.D.
Laboratory Director

American Environmental Testing Laboratory Inc.

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ANALYTICAL RESULTS

Ordered By

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Telephone: (760)725-9753
Attn: Mark Bonsavage
Page: 2

Site

Camp Pendleton

Project ID: PESTICIDE MONI. 2012
Project Name: Pesticide Monitoring-2012

AETL Job Number	Submitted	Client
66718	08/30/2012	AC/SES

Method: M8310, Temephos by HPLC Analysis

QC Batch No: 090512

Our Lab I.D.			Method Blank	66718.01	66718.02	66718.03	66718.04
Client Sample I.D.				1	2	3	3A
Date Sampled				08/30/2012	08/30/2012	08/30/2012	08/30/2012
Date Prepared			09/05/2012	09/05/2012	09/05/2012	09/05/2012	09/05/2012
Preparation Method			3510C	3510C	3510C	3510C	3510C
Date Analyzed			09/06/2012	09/06/2012	09/06/2012	09/06/2012	09/06/2012
Matrix			Aqueous	Aqueous	Aqueous	Aqueous	Aqueous
Units			ug/L	ug/L	ug/L	ug/L	ug/L
Dilution Factor			1	1	1	1	1
Analytes	MDL	PQL	Results	Results	Results	Results	Results
Temephos	2.5	5.0	ND	ND	ND	ND	ND
Our Lab I.D.			Method Blank	66718.01	66718.02	66718.03	66718.04
Surrogates	%Rec.Limit		% Rec.	% Rec.	% Rec.	% Rec.	% Rec.
p-Terphenyl-D14	75-125		95.4	79.5	80.1	83.2	91.0

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Page: 3

Site

Camp Pendleton

Project ID: PESTICIDE MONI. 2012
Project Name: Pesticide Monitoring-2012

AETL Job Number	Submitted	Client
66718	08/30/2012	AC/SES

Method: M8310, Temephos by HPLC Analysis

QC Batch No: 090512

Our Lab I.D.			66718.05				
Client Sample I.D.			3B				
Date Sampled			08/30/2012				
Date Prepared			09/05/2012				
Preparation Method			3510C				
Date Analyzed			09/06/2012				
Matrix			Aqueous				
Units			ug/L				
Dilution Factor			1				
Analytes	MDL	PQL	Results				
Temephos	2.5	5.0	ND				
Our Lab I.D.			**66718.05**				
Surrogates	%Rec.Limit		% Rec.				
p-Terphenyl-D14	75-125		107				

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Camp Pendleton

Page 4
Project ID: PESTICIDE MONI. 2012
Project Name: Pesticide Monitoring-2012

AETL Job Number	Submitted	Client
66718	08/30/2012	AC/SES

Analytes			Temperature (F)	Specific conductance	pH	Turbidity
Methods of Analyses			170.1	120.1	150.1	180.1
Date Prepared			08/30/2012	08/31/2012	08/31/2012	08/31/2012
Date Analyzed			08/30/2012	08/31/2012	08/31/2012	08/31/2012
Matrix			Aqueous	Aqueous	Aqueous	Aqueous
QC Batch Number				083112-1	083112-1	083112-1
Units			Deg F	umhos/cm	pH unit	NTU
Method Detection Limit			0.05	5.0	0.01	0.5
Practical Quantitation Limit			0.10	10.0	0.01	1.0
Dilution Factor			1	1	1	1
Lab ID	Sample ID	Sampled	Results	Results	Results	Results
66718.01	1	08/30/2012	76.0	2,480	7.85	7.24
66718.02	2	08/30/2012	76.0	2,770	7.88	7.10
66718.03	3	08/30/2012	77.0	1,610	8.42	20.2
66718.04	3A	08/30/2012	78.0	1,570	8.58	29.7
66718.05	3B	08/30/2012	78.0	1,580	8.46	20.3
N/A	Method Blank	08/30/2012	NA	ND	NA	ND

Analytes			Oxygen			
Methods of Analyses			360.2			
Date Prepared			08/31/2012			
Date Analyzed			08/31/2012			
Matrix			Aqueous			
QC Batch Number			083112-1			
Units			mg/L			
Method Detection Limit			0.05			
Practical Quantitation Limit			0.10			
Dilution Factor			1			
Lab ID	Sample ID	Sampled	Results			
66718.01	1	08/30/2012	2.70			
66718.02	2	08/30/2012	2.69			
66718.03	3	08/30/2012	5.82			
66718.04	3A	08/30/2012	7.91			
66718.05	3B	08/30/2012	5.95			
N/A	Method Blank	08/30/2012	ND			

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QUALITY CONTROL RESULTS

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Camp Pendleton

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Project ID: PESTICIDE MONI. 2012
Project Name: Pesticide Monitoring-2012

AETL Job Number	Submitted	Client
66718	08/30/2012	AC/SES

Method: 120.1, Conductance, Specific Conductance (at 25 Deg. C)

QC Batch No: 083112-1; Dup or Spiked Sample: 66718.01; LCS: Clean Water; LCS Prepared: 08/31/2012; LCS Analyzed: 08/31/2012; Units: umhos/cm

Analytes	SM Result	SM DUP Result	RPD %	SM RPD % Limit	LCS Concen	LCS Recov	LCS % REC	LCS/LCSD % Limit		
Specific conductance	2,480	2,450	1.2	<15	1,000	994	99.4	80-120		

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Site

Camp Pendleton

Project ID: PESTICIDE MONI. 2012
Project Name: Pesticide Monitoring-2012

AETL Job Number	Submitted	Client
66718	08/30/2012	AC/SES

Method: 150.1, pH - Electrometric (EPA/600/4-79-020)

QC Batch No: 083112-1; Dup or Spiked Sample: 66718.01; LCS: Clean Water; LCS Prepared: 08/31/2012; LCS Analyzed: 08/31/2012;
Units: pH unit

Analytes	SM Result	SM DUP Result	RPD %	SM RPD % Limit	LCS Concen	LCS Recov	LCS % REC	LCS/LCSD % Limit		
pH	7.85	7.82	<1	<15	7.03	7.03	100	80-120		

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Camp Pendleton

Project ID: PESTICIDE MONI. 2012
Project Name: Pesticide Monitoring-2012

AETL Job Number	Submitted	Client
66718	08/30/2012	AC/SES

Method: 180.1, Turbidity, Nephelometric (EPA/600/4-79-020)

QC Batch No: 083112-1; Dup or Spiked Sample: 66718.01; LCS: Clean Water; LCS Prepared: 08/31/2012; LCS Analyzed: 08/31/2012; Units: NTU

Analytes	SM Result	SM DUP Result	RPD %	SM RPD % Limit	LCS Concen	LCS Recov	LCS % REC	LCS/LCSD % Limit		
Turbidity	7.24	7.15	1.3	<15	10.0	9.12	91.2	80-120		

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Site

Camp Pendleton

Project ID: PESTICIDE MONI. 2012
Project Name: Pesticide Monitoring-2012

AETL Job Number	Submitted	Client
66718	08/30/2012	AC/SES

Method: 360.2, Oxygen, Dissolved, Modified Winkler Full Bottle Technique

QC Batch No: 083112-1; Dup or Spiked Sample: 66718.01; Units: mg/L

Analytes	SM Result	SM DUP Result	RPD %	SM RPD % Limit						
Oxygen	2.70	2.60	3.8	<15						

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Camp Pendleton

Telephone: (760)725-9753
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Page: 9

Project ID: PESTICIDE MONI. 2012
Project Name: Pesticide Monitoring-2012

AETL Job Number	Submitted	Client
66718	08/30/2012	AC/SES

Method: M8310, Temephos by HPLC Analysis

QC Batch No: 090512; LCS: Clean Water; LCS Prepared: 09/05/2012; LCS Analyzed: 09/06/2012; Units: ug/L

Analytes	LCS Concen	LCS Recov	LCS % REC	LCS DUP Concen	LCS DUP Recov	LCS DUP % REC	LCS RPD % REC	LCS/LCSD % Limit	LCS RPD % Limit	
Temephos	7.50	5.96	79.5	7.50	6.06	80.8	1.6	75-125	<20	
Surrogates										
p-Terphenyl-D14	2.50	2.48	99.2	2.50	2.53	101	1.8	75-125	<20	

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Data Qualifiers and Descriptors

Data Qualifier:

#:	Recovery is not within acceptable control limits.
*:	In the QC section, sample results have been taken directly from the ICP reading. No preparation factor has been applied.
B:	Analyte was present in the Method Blank.
D:	Result is from a diluted analysis.
E:	Result is beyond calibration limits and is estimated.
H:	Analysis was performed over the allowed holding time due to circumstances which were beyond laboratory control.
J:	Analyte was detected . However, the analyte concentration is an estimated value, which is between the Method Detection Limit (MDL) and the Practical Quantitation Limit (PQL).
M:	Matrix spike recovery is outside control limits due to matrix interference. Laboratory Control Sample recovery was acceptable.
MCL:	Maximum Contaminant Level
NS:	No Standard Available
S6:	Surrogate recovery is outside control limits due to matrix interference.
S8:	The analysis of the sample required a dilution such that the surrogate concentration was diluted below the method acceptance criteria.
X:	Results represent LCS and LCSD data.

Definition:

%Limi:	Percent acceptable limits.
%REC:	Percent recovery.
Con.L:	Acceptable Control Limits
Conce:	Added concentration to the sample.
LCS:	Laboratory Control Sample
MDL:	Method Detection Limit is a statistically derived number which is specific for each instrument, each method, and each compound. It indicates a distinctively detectable quantity with 99% probability.

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Data Qualifiers and Descriptors

MS:	Matrix Spike
MS DU:	Matrix Spike Duplicate
ND:	Analyte was not detected in the sample at or above MDL.
PQL:	Practical Quantitation Limit or ML (Minimum Level as per RWQCB) is the minimum concentration that can be quantified with more than 99% confidence. Taking into account all aspects of the entire analytical instrumentation and practice.
Recov:	Recovered concentration in the sample.
RPD:	Relative Percent Difference

Appendix B.2

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Ordered By

AC/S Environmental Sec.
PO Box 555008
Camp Pendleton, CA 92055-

Telephone: (760)725-9742
Attention: Mark Bonsavage

Number of Pages 9
Date Received 08/31/2012
Date Reported 09/11/2012

Job Number	Order Date	Client
66735	08/31/2012	AC/SES

Project ID: PESTICIDE MONI. 2012
Project Name: Pesticide Monitoring-2012
Site: Camp Pendleton

Enclosed please find results of analyses of 5 water samples which were analyzed as specified on the attached chain of custody. If there are any questions, please do not hesitate to call.

Checked By: _____ Approved By: C. Razmara

Cyrus Razmara, Ph.D.
Laboratory Director

American Environmental Testing Laboratory Inc.

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CHAIN OF CUSTODY RECORD

№ 79671

AETL JOB No. 66735

Page 1 of 1

COMPANY: Camp Pendleton
PROJECT MANAGER: Mark Borsuzge
COMPANY ADDRESS:
PHONE: 760. 725. 9753
FAX:
PROJECT NAME: Pesticide Monitoring - 2012
PROJECT #:
SITE NAME AND ADDRESS: Camp Pendleton
PO #:

	SAMPLE ID	LAB ID	DATE	TIME	MATRIX	CONTAINER NUMBER/SIZE	PRES.	ANALYSIS REQUESTED: pH, EC, Turbidity	Dissolved Oxygen	Temperature	Surface	TEST INSTRUCTIONS & COMMENTS: Temperature (F°)
1	1	66735.01	8/31-12	1120	H2O	1x500 mL PL 1.5 lt GL	Ice	X	X	X	X	79° F
2	2	66735.02		1140							X	81° F
3	3	66735.03		1150							X	80° F
4	3A	66735.04		1200							X	82° F
5	3B	66735.05		1215							X	84° F
6												
7												
8												
9												
10												
11												
12												
13												
14												
15												

SAMPLE RECEIPT - TO BE FILLED BY LABORATORY

TOTAL NUMBER OF CONTAINERS	15	PROPERLY COOLED Y / N / NA	
CUSTODY SEALS Y / N (NA)		SAMPLES INTACT Y / N / NA	
RECEIVED IN GOOD COND. Y / N		SAMPLES ACCEPTED Y / N	

TURN AROUND TIME

☒ NORMAL ☐ RUSH ☐ SAME DAY ☐ NEXT DAY ☐ 2 DAYS ☐ 3 DAYS

	RELINQUISHED BY SAMPLER: 1.	RELINQUISHED BY: 2.	RELINQUISHED BY: 3.
Signature:			
Printed Name:	Mark Borsuzge	Dave Uf	Mark Borsuzge
Date / Time:	8/31-12 / 1230	8/31-12 / 1230	8/31-12 / 1600
	RECEIVED BY: 1.	**RECEIVED BY: 2.**	**RECEIVED BY LABORATORY: AETL 3.**
Signature:			
Printed Name:	Dave Uf	Mark Borsuzge	Sean Clarke
Date / Time:	8/31-12 / 1230	8/31-12 / 1230	8/31-12 / 1600

DISTRIBUTION: WHITE - Laboratory, CANARY - Laboratory, PINK - Project/Account Manager, YELLOW - Sampler/Originator

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COOLER RECEIPT FORM

Client Name: Camp Pendleton

Project Name: Pesticide Monitoring 2012

AETL Job Number: 66735

Date Received: 08/31/12 Received by: Jean Claude

Carrier: ☒ AETL Courier ☐ Client ☐ GSO ☐ FedEx ☐ UPS
☐ Others:

Samples were received in: ☒ Cooler (1) ☐ Other (Specify):

Inside temperature of shipping container No 1: 3.3°C, No 2: ____, No 3: ____

Type of sample containers: ☐ VOA, ☒ Glass bottles, ☐ Wide mouth jars, ☒ HDPE bottles,
☐ Metal sleeves, ☐ Others (Specify): ____

How are samples preserved: ☐ None, ☐ Ice, ☑ Blue Ice, ☐ Dry Ice
☒ None, ☐ HNO_3, ☐ NaOH, ☐ ZnOAc, ☐ HCl, ☐ $Na_2S_2O_3$, ☐ MeOH
☐ Other (Specify):

	Yes	No, explain below	Name, if client was notified
1. Are the COCs Correct?	X		
2. Are the Sample labels legible?	X		
3. Do samples match the COC?	X		
4. Are the required analyses clear?	X		
5. Is there enough samples for required analysis?	X		
6. Are samples sealed with evidence tape?	NA		
7. Are sample containers in good condition?	X		
8. Are samples preserved?	X		
9. Are samples preserved properly for the intended analysis?	X		
10. Are the VOAs free of headspace?	NA		
11. Are the jars free of headspace?	Y		

Explain all "No" answers for above questions:

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Ordered By

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Project ID: PESTICIDE MONI. 2012
Date Received 08/31/2012
Date Reported 09/11/2012

Telephone: (760)725-9742
Attention: Mark Bonsavage

Job Number	Order Date	Client
66735	08/31/2012	AC/SES

CERTIFICATE OF ANALYSIS
CASE NARRATIVE

AETL received 5 samples with the following specification on 08/31/2012.

Lab ID	Sample ID	Sample Date	Matrix	QTY of Containers
66735.01	1	08/31/2012	Aqueous	2
66735.02	2	08/31/2012	Aqueous	2
66735.03	3	08/31/2012	Aqueous	2
66735.04	3A	08/31/2012	Aqueous	2
66735.05	3B	08/31/2012	Aqueous	2

The samples were analyzed as specified on the enclosed chain of custody.
No analytical non-conformances were encountered.

Checked By: _____ Approved By: C. Razmara

Cyrus Razmara, Ph.D.
Laboratory Director

American Environmental Testing Laboratory Inc.

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ANALYTICAL RESULTS

Ordered By

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Page: 2

Site

Camp Pendleton

Project ID: PESTICIDE MONI. 2012
Project Name: Pesticide Monitoring-2012

AETL Job Number	Submitted	Client
66735	08/31/2012	AC/SES

Method: M8310, Temephos by HPLC Analysis

QC Batch No: 090612

Our Lab I.D.			Method Blank	66735.01	66735.02	66735.03	66735.04
Client Sample I.D.				1	2	3	3A
Date Sampled				08/31/2012	08/31/2012	08/31/2012	08/31/2012
Date Prepared			09/06/2012	09/06/2012	09/06/2012	09/06/2012	09/06/2012
Preparation Method			3510C	3510C	3510C	3510C	3510C
Date Analyzed			09/07/2012	09/07/2012	09/07/2012	09/07/2012	09/07/2012
Matrix			Aqueous	Aqueous	Aqueous	Aqueous	Aqueous
Units			ug/L	ug/L	ug/L	ug/L	ug/L
Dilution Factor			1	1	1	1	1
Analytes	MDL	PQL	Results	Results	Results	Results	Results
Temephos	2.5	5.0	ND	ND	ND	ND	ND
Our Lab I.D.			Method Blank	66735.01	66735.02	66735.03	66735.04
Surrogates	%Rec.Limit		% Rec.	% Rec.	% Rec.	% Rec.	% Rec.
p-Terphenyl-D14	75-125		86.9	107	109	104.	95.2

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Telephone: (760)725-9742
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Page: 3

Project ID: PESTICIDE MONI. 2012
Project Name: Pesticide Monitoring-2012

AETL Job Number	Submitted	Client
66735	08/31/2012	AC/SES

Method: M8310, Temephos by HPLC Analysis

QC Batch No: 090612

Our Lab I.D.			66735.05
Client Sample I.D.			3B
Date Sampled			08/31/2012
Date Prepared			09/06/2012
Preparation Method			3510C
Date Analyzed			09/07/2012
Matrix			Aqueous
Units			ug/L
Dilution Factor			1
Analytes	**MDL**	**PQL**	**Results**
Temephos	2.5	5.0	ND
Our Lab I.D.			**66735.05**
Surrogates	**%Rec.Limit**		**% Rec.**
p-Terphenyl-D14	75-125		104

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Project ID: PESTICIDE MONI. 2012
Project Name: Pesticide Monitoring-2012

AETL Job Number	Submitted	Client
66735	08/31/2012	AC/SES

Analytes			Temperature (F)	Specific conductance	pH	Turbidity
Methods of Analyses			170.1	120.1	150.1	180.1
Date Prepared			08/31/2012	08/31/2012	08/31/2012	08/31/2012
Date Analyzed			08/31/2012	08/31/2012	08/31/2012	08/31/2012
Matrix			Aqueous	Aqueous	Aqueous	Aqueous
QC Batch Number				083112-1	083112-1	083112-1
Units			Deg F	umhos/cm	pH unit	NTU
Method Detection Limit			0.05	5.0	0.01	0.5
Practical Quantitation Limit			0.10	10.0	0.01	1.0
Dilution Factor			1	1	1	1
Lab ID	Sample ID	Sampled	Results	Results	Results	Results
66735.01	1	08/31/2012	79.0	2,550	7.84	8.83
66735.02	2	08/31/2012	81.0	2,850	7.86	8.62
66735.03	3	08/31/2012	80.0	1,640	8.47	18.9
66735.04	3A	08/31/2012	82.0	1,630	7.50	29.1
66735.05	3B	08/31/2012	84.0	1,610	8.48	22.7
N/A	Method Blank	08/31/2012	NA	ND	NA	ND

Analytes			Oxygen			
Methods of Analyses			360.2			
Date Prepared			08/31/2012			
Date Analyzed			08/31/2012			
Matrix			Aqueous			
QC Batch Number			083112-1			
Units			mg/L			
Method Detection Limit			0.05			
Practical Quantitation Limit			0.10			
Dilution Factor			1			
Lab ID	Sample ID	Sampled	Results			
66735.01	1	08/31/2012	3.02			
66735.02	2	08/31/2012	2.50			
66735.03	3	08/31/2012	6.46			
66735.04	3A	08/31/2012	6.81			
66735.05	3B	08/31/2012	5.98			
N/A	Method Blank	08/31/2012	ND			

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Project ID: PESTICIDE MONI. 2012
Project Name: Pesticide Monitoring-2012

AETL Job Number	Submitted	Client
66735	08/31/2012	AC/SES

Method: 120.1, Conductance, Specific Conductance (at 25 Deg. C)

QC Batch No: 083112-1; Dup or Spiked Sample: 66718.01; LCS: Clean Water; LCS Prepared: 08/31/2012; LCS Analyzed: 08/31/2012; Units: umhos/cm

Analytes	SM Result	SM DUP Result	RPD %	SM RPD % Limit	LCS Concen	LCS Recov	LCS % REC	LCS/LCSD % Limit		
Specific conductance	2,480	2,450	1.2	<15	1,000	994	99.4	80-120		

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Project ID: PESTICIDE MONI. 2012
Project Name: Pesticide Monitoring-2012

AETL Job Number	Submitted	Client
66735	08/31/2012	AC/SES

Method: 150.1, pH - Electrometric (EPA/600/4-79-020)

QC Batch No: 083112-1; Dup or Spiked Sample: 66727.01; LCS: Clean Water; LCS Prepared: 08/31/2012; LCS Analyzed: 08/31/2012; Units: pH unit

Analytes	SM Result	SM DUP Result	RPD %	SM RPD % Limit	LCS Concen	LCS Recov	LCS % REC	LCS/LCSD % Limit		
pH	7.21	7.20	<1	<15	7.00	7.00	100	80-120		

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Project ID: PESTICIDE MONI. 2012
Project Name: Pesticide Monitoring-2012

AETL Job Number	Submitted	Client
66735	08/31/2012	AC/SES

Method: 180.1, Turbidity, Nephelometric (EPA/600/4-79-020)

QC Batch No: 083112-1; Dup or Spiked Sample: 66718.01; LCS: Clean Water; LCS Prepared: 08/31/2012; LCS Analyzed: 08/31/2012; Units: NTU

Analytes	SM Result	SM DUP Result	RPD %	SM RPD % Limit	LCS Concen	LCS Recov	LCS % REC	LCS/LCSD % Limit		
Turbidity	7.24	7.15	1.3	<15	10.0	9.12	91.2	80-120		

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Project ID: PESTICIDE MONI. 2012
Project Name: Pesticide Monitoring-2012

AETL Job Number	Submitted	Client
66735	08/31/2012	AC/SES

Method: 360.2, Oxygen, Dissolved, Modified Winkler Full Bottle Technique

QC Batch No: 083112-1; Dup or Spiked Sample: 66718.01; Units: mg/L

Analytes	SM Result	SM DUP Result	RPD %	SM RPD % Limit						
Oxygen	2.70	2.60	3.8	<15						

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Project ID: PESTICIDE MONI. 2012
Project Name: Pesticide Monitoring-2012

AETL Job Number	Submitted	Client
66735	08/31/2012	AC/SES

Method: M8310, Temephos by HPLC Analysis

QC Batch No: 090612; LCS: Clean Water; LCS Prepared: 09/06/2012; LCS Analyzed: 09/07/2012; Units: ug/L

Analytes	LCS Concen	LCS Recov	LCS % REC	LCS DUP Concen	LCS DUP Recov	LCS DUP % REC	LCS RPD % REC	LCS/LCSD % Limit	LCS RPD % Limit	
Temephos	7.50	6.16	82.1	7.50	6.27	83.6	1.8	75-125	<20	
Surrogates										
p-Terphenyl-D14	2.50	2.38	95.2	2.50	2.88	115	18.8	75-125	<20	

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Data Qualifiers and Descriptors

Data Qualifier:

#:	Recovery is not within acceptable control limits.
*:	In the QC section, sample results have been taken directly from the ICP reading. No preparation factor has been applied.
B:	Analyte was present in the Method Blank.
D:	Result is from a diluted analysis.
E:	Result is beyond calibration limits and is estimated.
H:	Analysis was performed over the allowed holding time due to circumstances which were beyond laboratory control.
J:	Analyte was detected . However, the analyte concentration is an estimated value, which is between the Method Detection Limit (MDL) and the Practical Quantitation Limit (PQL).
M:	Matrix spike recovery is outside control limits due to matrix interference. Laboratory Control Sample recovery was acceptable.
MCL:	Maximum Contaminant Level
NS:	No Standard Available
S6:	Surrogate recovery is outside control limits due to matrix interference.
S8:	The analysis of the sample required a dilution such that the surrogate concentration was diluted below the method acceptance criteria.
X:	Results represent LCS and LCSD data.

Definition:

%Limi:	Percent acceptable limits.
%REC:	Percent recovery.
Con.L:	Acceptable Control Limits
Conce:	Added concentration to the sample.
LCS:	Laboratory Control Sample
MDL:	Method Detection Limit is a statistically derived number which is specific for each instrument, each method, and each compound. It indicates a distinctively detectable quantity with 99% probability.

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Data Qualifiers and Descriptors

MS:	Matrix Spike
MS DU:	Matrix Spike Duplicate
ND:	Analyte was not detected in the sample at or above MDL.
PQL:	Practical Quantitation Limit or ML (Minimum Level as per RWQCB) is the minimum concentration that can be quantified with more than 99% confidence. Taking into account all aspects of the entire analytical instrumentation and practice.
Recov:	Recovered concentration in the sample.
RPD:	Relative Percent Difference

Appendix B.3

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Number of Pages 8
Date Received 09/06/2012
Date Reported 09/13/2012

Job Number	Order Date	Client
66765	09/06/2012	AC/SES

Project ID: PESTICIDE MONI. 2012
Project Name: Pesticide Monitoring-2012
Site: Camp Pendleton

Enclosed please find results of analyses of 5 water samples which were analyzed as specified on the attached chain of custody. If there are any questions, please do not hesitate to call.

Checked By: _____ Approved By: C. Razmara

Cyrus Razmara, Ph.D.
Laboratory Director

American Environmental Testing Laboratory Inc.

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CHAIN OF CUSTODY RECORD

№ 80269

AETL JOB No. 66765

Page 1 of 1

COMPANY: Camp Pendleton
PROJECT MANAGER: Mark Bonsavage
COMPANY ADDRESS:
PHONE: 760.725.9753
FAX:
PROJECT NAME: Pesticide Monitoring 2012
PROJECT #:
SITE NAME AND ADDRESS: Camp Pendleton
PO #:

	SAMPLE ID	LAB ID	DATE	TIME	MATRIX	CONTAINER NUMBER/SIZE	PRES.	ANALYSIS REQUESTED: All Pest. Toxicity	Dissolved Oxygen	Temperature	Suspended Solids	TEST INSTRUCTIONS & COMMENTS: Temperature (°F)
1	1	66765.01	9/6-12	0840	H2O	1 x 500 ml 1 x 5 lt Gl	Ice	X	X	X	X	75°F
2	2	66765.02		0915				X	X	X	X	77°F
3	3	66765.03		0935				X	X	X	X	77°F
4	3A	66765.04		0955				X	X	X	X	82°F
5	3B	66765.05		1010				X	X	X	X	80°F
6												
7												
8												
9												
10												
11												
12												
13												
14												
15												

SAMPLE RECEIPT - TO BE FILLED BY LABORATORY

TOTAL NUMBER OF CONTAINERS	15	PROPERLY COOLED (Y) N / NA	
CUSTODY SEALS Y / N (NA)		SAMPLES INTACT (Y) N / NA	
RECEIVED IN GOOD COND (Y) N		SAMPLES ACCEPTED (Y) N	

TURN AROUND TIME

☒ NORMAL ☐ RUSH ☐ SAME DAY ☐ NEXT DAY ☐ 2 DAYS ☐ 3 DAYS

	RELINQUISHED BY SAMPLER: 1.	RELINQUISHED BY: 2.	RELINQUISHED BY: 3.
Signature:			
Printed Name:	Bright	Liam VF	Bright
Date:	9/6-12	9/6-12	9/6-12
Time:	1040	1040	1600

	RECEIVED BY: 1.	RECEIVED BY: 2.	RECEIVED BY LABORATORY: AETL 3.
Signature:			
Printed Name:	Liam VF	Bright	Sean Cawley
Date:	9/6-12	9/6-12	9/6-12
Time:	1040	1040	1600

DISTRIBUTION: WHITE - Laboratory, CANARY - Laboratory, PINK - Project/Account Manager, YELLOW - Sampler/Originator

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Project ID: PESTICIDE MONI. 2012
Date Received 09/06/2012
Date Reported 09/13/2012

Job Number	Order Date	Client
66765	09/06/2012	AC/SES

CERTIFICATE OF ANALYSIS
CASE NARRATIVE

AETL received 5 samples with the following specification on 09/06/2012.

Lab ID	Sample ID	Sample Date	Matrix	QTY of Containers
66765.01	1	09/06/2012	Aqueous	2
66765.02	2	09/06/2012	Aqueous	2
66765.03	13	09/06/2012	Aqueous	2
66765.04	3A	09/06/2012	Aqueous	2
66765.05	3B	09/06/2012	Aqueous	2

The samples were analyzed as specified on the enclosed chain of custody.
No analytical non-conformances were encountered.

Checked By: _____ Approved By: C. Razmara

Cyrus Razmara, Ph.D.
Laboratory Director

American Environmental Testing Laboratory Inc.

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Project ID: PESTICIDE MONI. 2012
Project Name: Pesticide Monitoring-2012

AETL Job Number	Submitted	Client
66765	09/06/2012	AC/SES

Method: M8310, Temephos by HPLC Analysis

QC Batch No: 091012

Our Lab I.D.			Method Blank	66765.01	66765.02	66765.03	66765.04
Client Sample I.D.				1	2	13	3A
Date Sampled				09/06/2012	09/06/2012	09/06/2012	09/06/2012
Date Prepared			09/10/2012	09/10/2012	09/10/2012	09/10/2012	09/10/2012
Preparation Method			3510C	3510C	3510C	3510C	3510C
Date Analyzed			09/11/2012	09/11/2012	09/11/2012	09/11/2012	09/11/2012
Matrix			Aqueous	Aqueous	Aqueous	Aqueous	Aqueous
Units			ug/L	ug/L	ug/L	ug/L	ug/L
Dilution Factor			1	1	1	1	1
Analytes	**MDL**	**PQL**	**Results**	**Results**	**Results**	**Results**	**Results**
Temephos	0.10	0.20	ND	ND	ND	ND	ND
Our Lab I.D.			Method Blank	66765.01	66765.02	66765.03	66765.04
Surrogates	**%Rec.Limit**		**% Rec.**	**% Rec.**	**% Rec.**	**% Rec.**	**% Rec.**
p-Terphenyl-D14	75-125		90.8	98.6	110	112	118

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Project ID: PESTICIDE MONI. 2012
Project Name: Pesticide Monitoring-2012

AETL Job Number	Submitted	Client
66765	09/06/2012	AC/SES

Method: M8310, Temephos by HPLC Analysis

QC Batch No: 091012

Our Lab I.D.			66765.05				
Client Sample I.D.			3B				
Date Sampled			09/06/2012				
Date Prepared			09/10/2012				
Preparation Method			3510C				
Date Analyzed			09/11/2012				
Matrix			Aqueous				
Units			ug/L				
Dilution Factor			1				
Analytes	MDL	PQL	Results				
Temephos	0.10	0.20	ND				
Our Lab I.D.			66765.05				
Surrogates	%Rec.Limit		% Rec.				
p-Terphenyl-D14	75-125		116				

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Page 4
Project ID: PESTICIDE MONI. 2012
Project Name: Pesticide Monitoring-2012

AETL Job Number	Submitted	Client
66765	09/06/2012	AC/SES

Analytes			Temperature (F)	Turbidity	Specific conductance	pH
Methods of Analyses			170.1	180.1	120.1	150.1
Date Prepared			09/06/2012	09/06/2012	09/06/2012	09/06/2012
Date Analyzed			09/06/2012	09/06/2012	09/06/2012	09/06/2012
Matrix			Aqueous	Aqueous	Aqueous	Aqueous
QC Batch Number					090612-1	090612-1
Units			Deg F	NTU	umhos/cm	pH unit
Method Detection Limit			0.05	0.5	5.0	0.01
Practical Quantitation Limit			0.10	1.0	10.0	0.01
Dilution Factor			1	1	1	1
Lab ID	Sample ID	Sampled	Results	Results	Results	Results
66765.01	1	09/06/2012	75.0	12.0	2,700	8.10
66765.02	2	09/06/2012	77.0	9.78	2,890	8.25
66765.03	13	09/06/2012	77.0	48.9	1,660	8.74
66765.04	3A	09/06/2012	82.0	36.7	1,640	8.79
66765.05	3B	09/06/2012	80.0	18.1	1,620	8.85
N/A	Method Blank	09/06/2012	NA	ND	ND	NA

Analytes			Oxygen			
Methods of Analyses			360.2			
Date Prepared			09/06/2012			
Date Analyzed			09/06/2012			
Matrix			Aqueous			
QC Batch Number			090612-1			
Units			mg/L			
Method Detection Limit			0.05			
Practical Quantitation Limit			0.10			
Dilution Factor			1			
Lab ID	Sample ID	Sampled	Results			
66765.01	1	09/06/2012	2.39			
66765.02	2	09/06/2012	2.60			
66765.03	13	09/06/2012	3.84			
66765.04	3A	09/06/2012	4.18			
66765.05	3B	09/06/2012	4.78			
N/A	Method Blank	09/06/2012	ND			

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Project ID: PESTICIDE MONI. 2012
Project Name: Pesticide Monitoring-2012

AETL Job Number	Submitted	Client
66765	09/06/2012	AC/SES

Method: 120.1, Conductance, Specific Conductance (at 25 Deg. C)

QC Batch No: 090612-1; Dup or Spiked Sample: 66765.01; LCS: Clean Water; LCS Prepared: 09/06/2012; LCS Analyzed: 09/06/2012; Units: umhos/cm

Analytes	SM Result	SM DUP Result	RPD %	SM RPD % Limit	LCS Concen	LCS Recov	LCS % REC	LCS/LCSD % Limit		
Specific conductance	2,700	2,710	<1	<15	1,000	981	98.1	80-120		

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Project ID: PESTICIDE MONI. 2012
Project Name: Pesticide Monitoring-2012

AETL Job Number	Submitted	Client
66765	09/06/2012	AC/SES

Method: 150.1, pH - Electrometric (EPA/600/4-79-020)

QC Batch No: 090612-1; Dup or Spiked Sample: 66765.01; LCS: Clean Water; LCS Prepared: 09/06/2012; LCS Analyzed: 09/06/2012; Units: pH unit

Analytes	SM Result	SM DUP Result	RPD %	SM RPD % Limit	LCS Concen	LCS Recov	LCS % REC	LCS/LCSD % Limit		
pH	8.10	8.14	<1	<15	7.00	7.00	100	80-120		

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Project ID: PESTICIDE MONI. 2012
Project Name: Pesticide Monitoring-2012

AETL Job Number	Submitted	Client
66765	09/06/2012	AC/SES

Method: 360.2, Oxygen, Dissolved, Modified Winkler Full Bottle Technique

QC Batch No: 090612-1; Dup or Spiked Sample: 66765.01; Units: mg/L

Analytes	SM Result	SM DUP Result	RPD %	SM RPD % Limit						
Oxygen	2.39	2.37	<1	<15						

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Camp Pendleton

Project ID: PESTICIDE MONI. 2012
Project Name: Pesticide Monitoring-2012

AETL Job Number	Submitted	Client
66765	09/06/2012	AC/SES

Method: M8310, Temephos by HPLC Analysis

QC Batch No: 091012; LCS: Clean Water; LCS Prepared: 09/10/2012; LCS Analyzed: 09/11/2012; Units: ug/L

Analytes	LCS Concen	LCS Recov	LCS % REC	LCS DUP Concen	LCS DUP Recov	LCS DUP % REC	LCS RPD % REC	LCS/LCSD % Limit	LCS RPD % Limit	
Temephos	7.50	5.38	71.7	7.50	5.51	73.5	2.5	70-125	<20	
Surrogates										
p-Terphenyl-D14	2.50	2.46	98.3	2.50	2.17	86.7	12.5	70-125	<20	

American Environmental Testing Laboratory Inc.
2834 & 2908 North Naomi Street, Burbank, CA 91504 • DOHS NO: 1541, LACSD NO: 10181
Tel: (888) 288-AETL • (818) 845-8200 • Fax: (818) 845-8840 • www.aetlab.com

Data Qualifiers and Descriptors

Data Qualifier:

#:	Recovery is not within acceptable control limits.
*:	In the QC section, sample results have been taken directly from the ICP reading. No preparation factor has been applied.
B:	Analyte was present in the Method Blank.
D:	Result is from a diluted analysis.
E:	Result is beyond calibration limits and is estimated.
H:	Analysis was performed over the allowed holding time due to circumstances which were beyond laboratory control.
J:	Analyte was detected . However, the analyte concentration is an estimated value, which is between the Method Detection Limit (MDL) and the Practical Quantitation Limit (PQL).
M:	Matrix spike recovery is outside control limits due to matrix interference. Laboratory Control Sample recovery was acceptable.
MCL:	Maximum Contaminant Level
NS:	No Standard Available
S6:	Surrogate recovery is outside control limits due to matrix interference.
S8:	The analysis of the sample required a dilution such that the surrogate concentration was diluted below the method acceptance criteria.
X:	Results represent LCS and LCSD data.

Definition:

%Limi:	Percent acceptable limits.
%REC:	Percent recovery.
Con.L:	Acceptable Control Limits
Conce:	Added concentration to the sample.
LCS:	Laboratory Control Sample
MDL:	Method Detection Limit is a statistically derived number which is specific for each instrument, each method, and each compound. It indicates a distinctively detectable quantity with 99% probability.

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Data Qualifiers and Descriptors

MS:	Matrix Spike
MS DU:	Matrix Spike Duplicate
ND:	Analyte was not detected in the sample at or above MDL.
PQL:	Practical Quantitation Limit or ML (Minimum Level as per RWQCB) is the minimum concentration that can be quantified with more than 99% confidence. Taking into account all aspects of the entire analytical instrumentation and practice.
Recov:	Recovered concentration in the sample.
RPD:	Relative Percent Difference

Appendix C

Figure. 1 - Locations of Aerial Larvicide Application

MARINE CORPS BASE
CAMP PENDLETON

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THE NORTH AMERICAN DATUM 1983 (NAD 83) AND THE WORLD GEODETIC SYSTEM 1984 DATUM (WGS 84) ARE EQUIVALENT FOR MAPPING, CHARTING AND NAVIGATION AT THIS SCALE.

NAD 83 / WGS 84

SCALE 1:166,656

Feet: 0 — 7500 — 15000 — 22500

Miles: 0 — 0.7 — 1.4 — 2.1 — 2.8

Meters: 0 — 1900 — 3800 — 5700

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ELLIPSOID..... GEODETIC REFERENCE SYSTEM 1980
PROJECTION..... CA STATE PLANE ZONE VI
HORIZONTAL DATUM..... NORTH AMERICAN DATUM 1983 / WORLD GEODETIC SYSTEM 1984

LEGEND:

1. Pilgrim Creek Pond
2. Pond Adjacent to Deluz housing area
3. Entire area of Lake O'Neill and adjacent percolation ponds
4. Golf course pond
5. Outlet Las Flores Creek
6. Outlet San Onofre Creek
7. Outlet San Mateo Creek

8,9,10. Ponds Naval Weapons Station Fallbrook

11. Case Springs North pond
12. Case Springs South pond
13. STP 8 percolation ponds

NOTES

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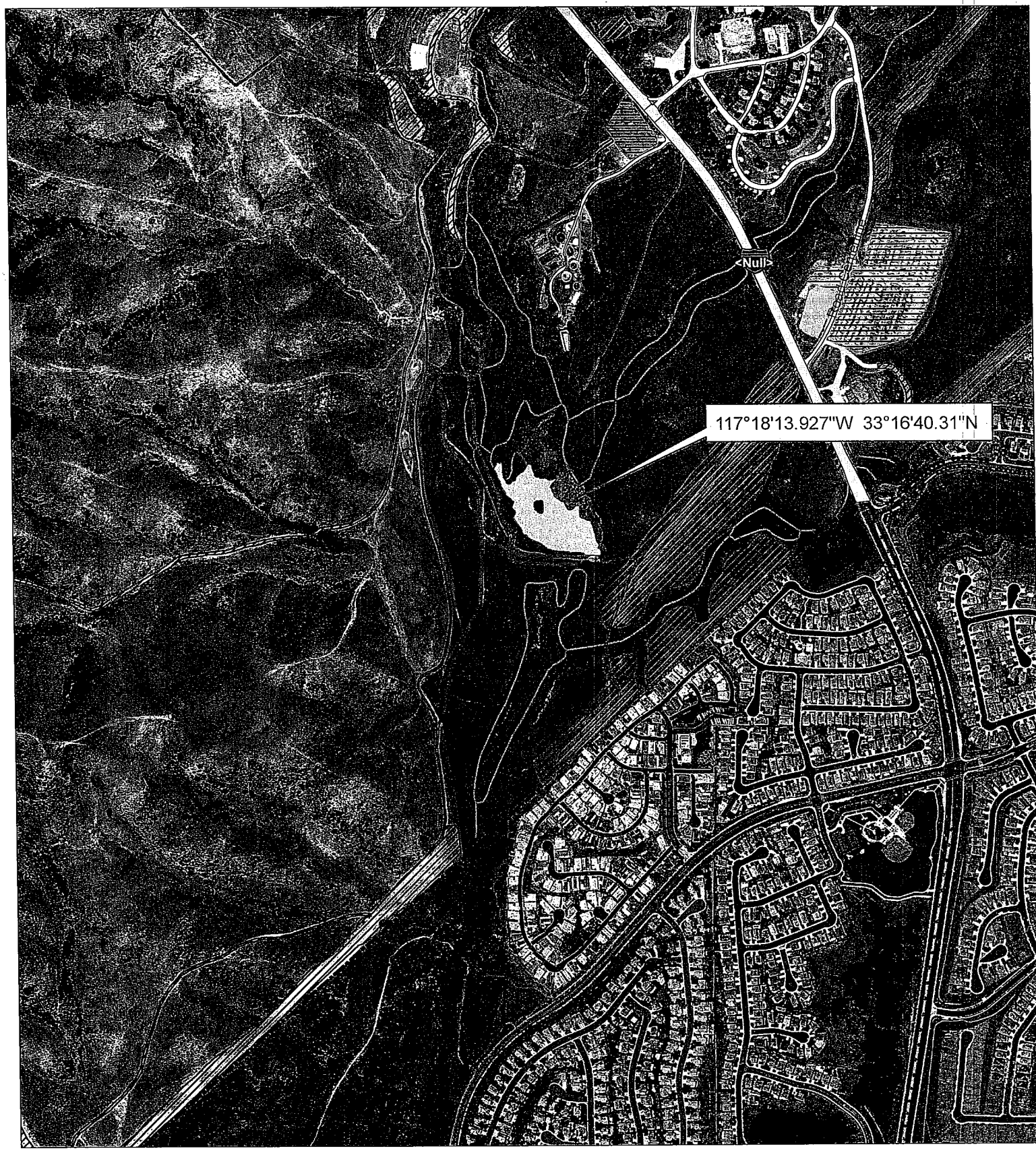
Figure. 2 - Pilgrim Creek Pond



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NAD 83 / WGS 84

SCALE 1:9,949

Feet: 0 — 440 — 880 — 1320

Miles: 0 — 0.04 — 0.08 — 0.12 — 0.16

Meters: 0 — 110 — 220 — 330

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ELLIPSOID.....GEODETIC REFERENCE SYSTEM 1980
PROJECTION.....CA STATE PLANE ZONE VI
HORIZONTAL DATUM.....NORTH AMERICAN DATUM 1983 / WORLD GEODETIC SYSTEM 1984

LEGEND

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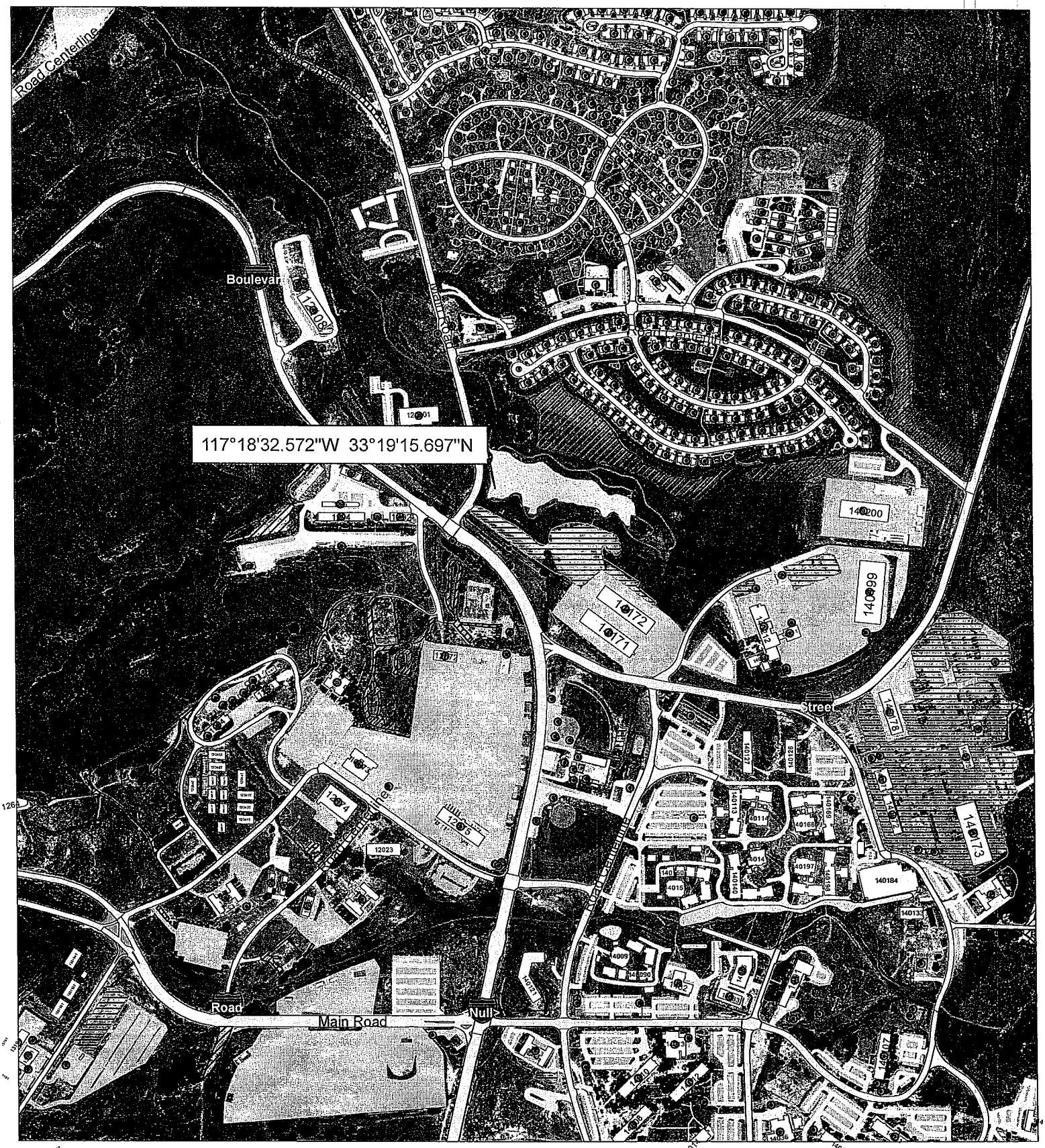
Figure. 3 - Pond adjacent to Deluz housing area



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NAD 83 / WGS 84

SCALE 1:9,077

Feet: 0 410 820 1230
Miles: 0 0.03 0.06 0.09 0.12
Meters: 0 100 200 300

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ELLIPSOID.....GEODETIC REFERENCE SYSTEM 1980
PROJECTION.....CASTATE PLANE ZONE VI
HORIZONTAL DATUM.....NORTH AMERICAN DATUM 1983 / WORLD GEODETIC SYSTEM 1984

LEGEND

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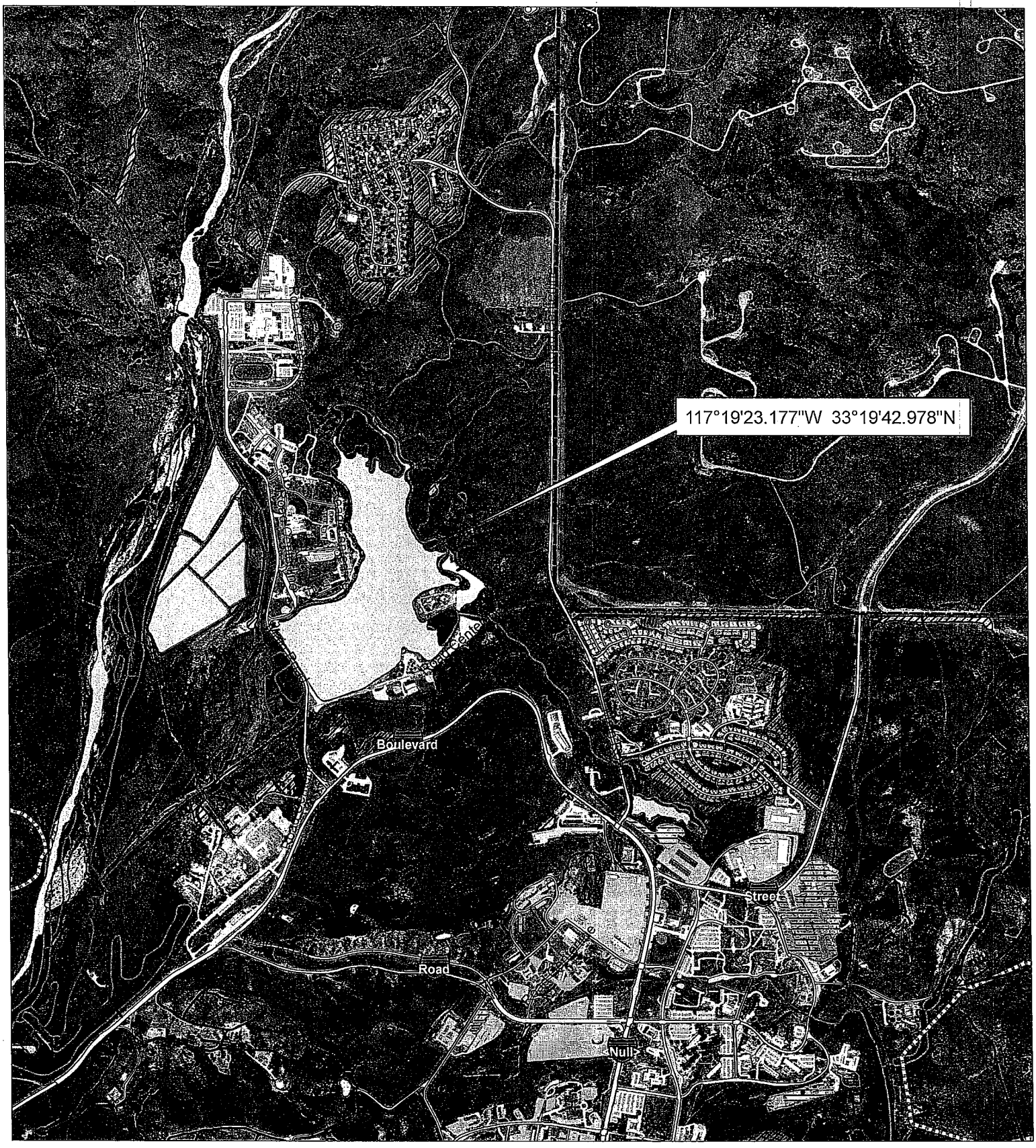
Figure. 4 - Entire area of Lake O'Neill and adjacent percolation ponds



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NAD 83 / WGS 84

SCALE 1:22,982

0 1000 2000 3000 Feet

0 0.1 0.2 0.3 0.4 Miles

0 260 520 780 Meters

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ELLIPSOID.....GEODETIC REFERENCE SYSTEM 1980
PROJECTION.....CA STATE PLANE ZONE VI
HORIZONTAL DATUM.....NORTH AMERICAN DATUM 1983 / WORLD GEODETIC SYSTEM 1984

LEGEND

NOTES

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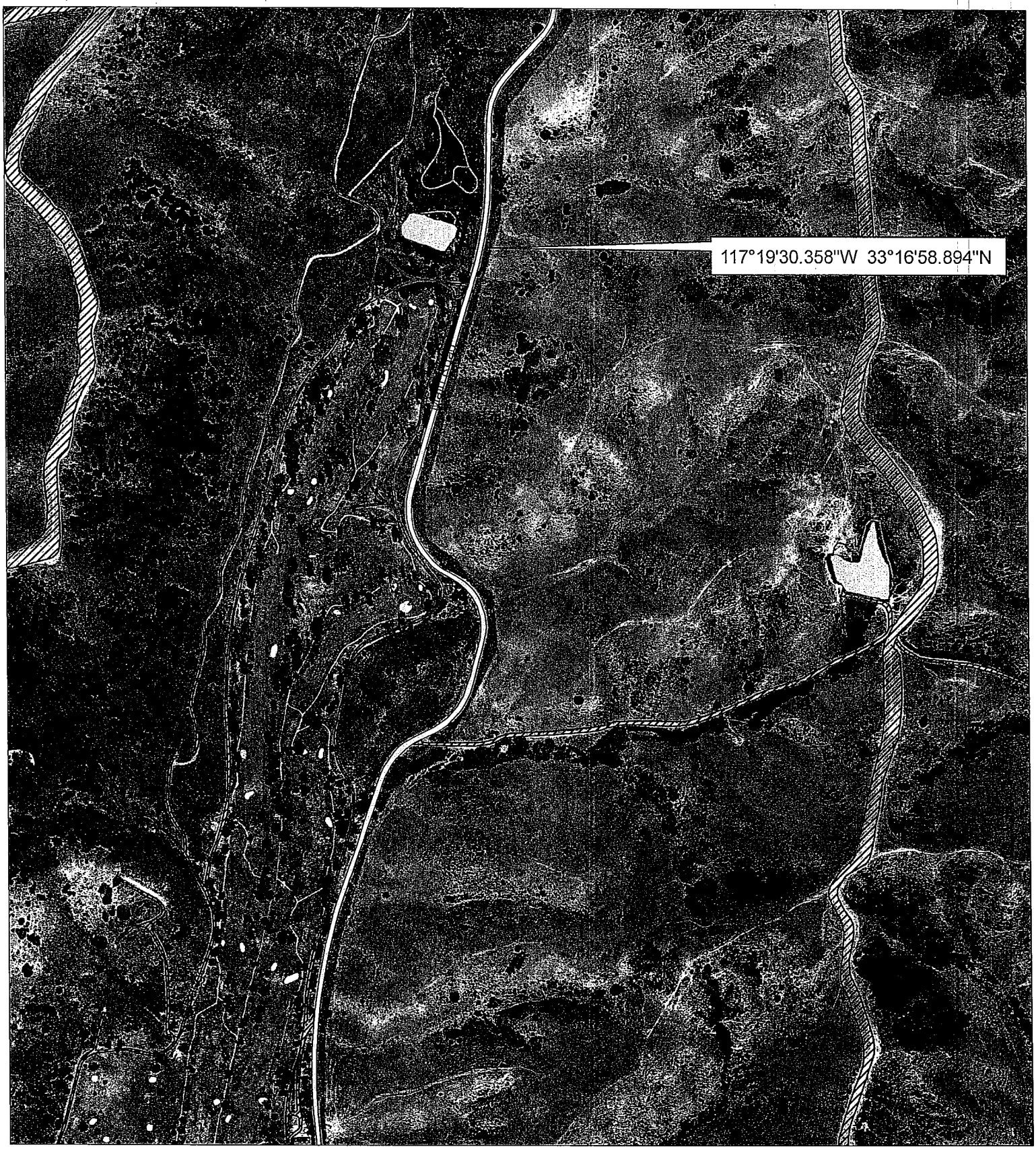
Figure. 5 - Golf course pond



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THE NORTH AMERICAN DATUM 1983 (NAD 83) AND THE WORLD GEODETIC SYSTEM 1984 DATUM (WGS 84) ARE EQUIVALENT FOR MAPPING, CHARTING AND NAVIGATION AT THIS SCALE.

NAD 83 / WGS 84

SCALE 1:8,297

Feet
0 370 740 1110

Miles
0 0.03 0.06 0.09 0.12

Meters
0 90 180 270

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ELLIPSOID.....GEODETIC REFERENCE SYSTEM 1980
PROJECTION.....CA STATE PLANE ZONE VI
HORIZONTAL DATUM.....NORTH AMERICAN DATUM 1983 / WORLD GEODETIC SYSTEM 1984

LEGEND

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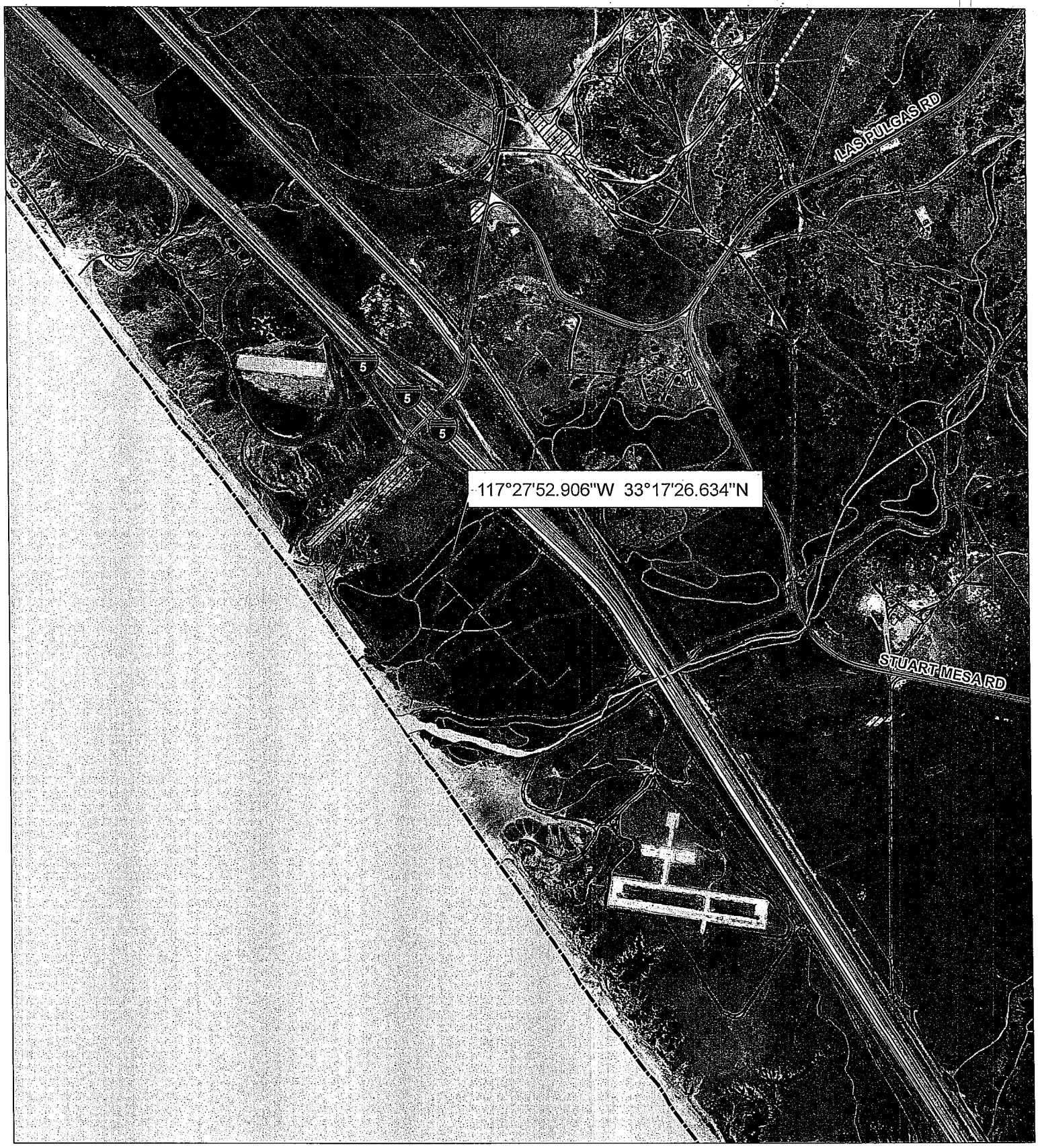
Figure 6 - Outlet of Las Flores Creek



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THE NORTH AMERICAN DATUM 1983 (NAD 83) AND THE WORLD GEODETIC SYSTEM 1984 DATUM (WGS 84) ARE EQUIVALENT FOR MAPPING, CHARTING AND NAVIGATION AT THIS SCALE.

NAD 83 / WGS 84

SCALE 1:14,908

0 680 1360 2040 Feet

0 0.05 0.1 0.15 0.2 Miles

0 170 340 510 Meters

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ELLIPSOID.....GEODETIC REFERENCE SYSTEM 1980
PROJECTION.....CA STATE PLANE ZONE VI
HORIZONTAL DATUM.....NORTH AMERICAN DATUM 1983 / WORLD GEODETIC SYSTEM 1984

LEGEND

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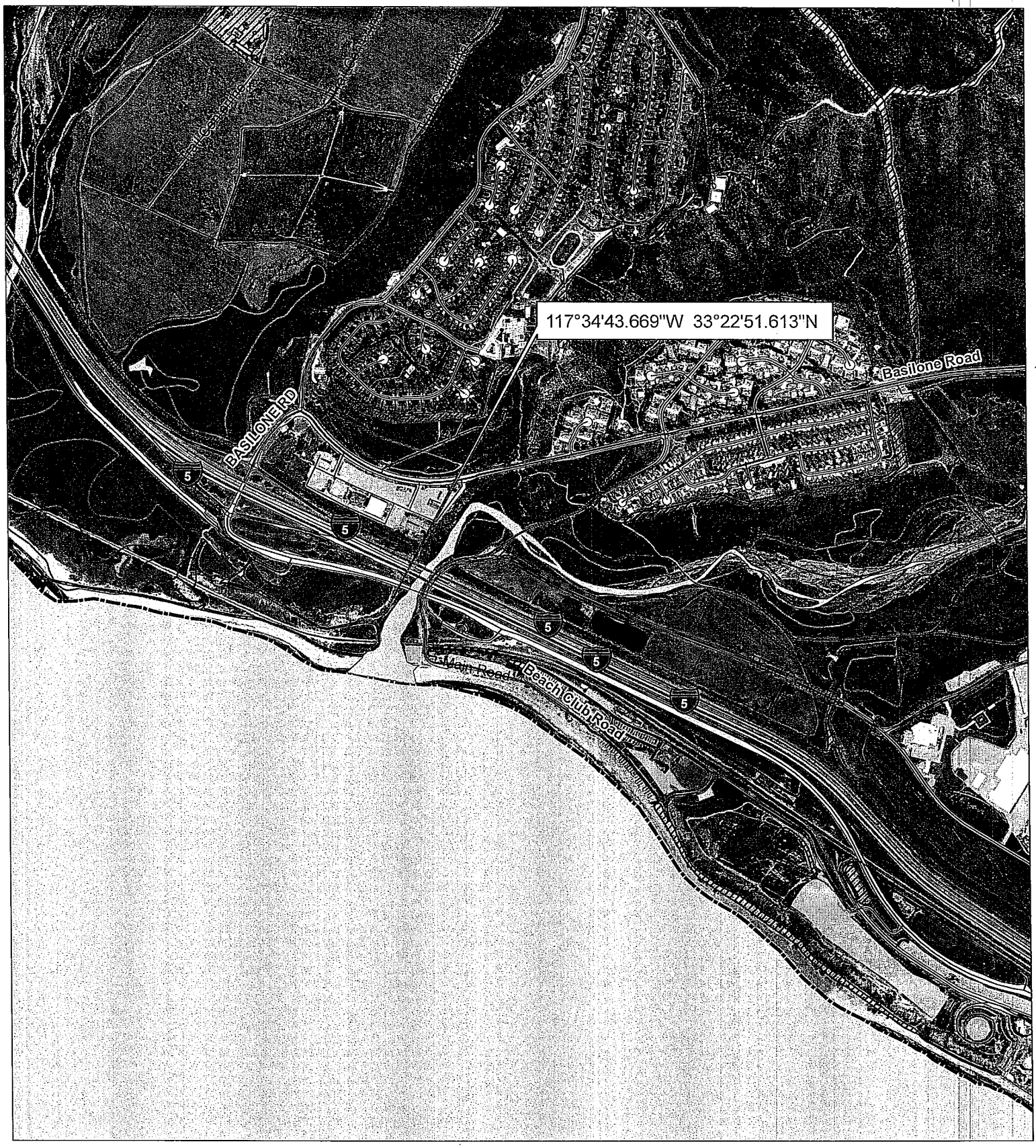
Figure. 7 - Outlet San Onofre Creek



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NAD 83 / WGS 84

SCALE 1:14,908

0 690 1380 2070 Feet

0 0.05 0.1 0.15 0.2 Miles

0 170 340 510 Meters

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ELLIPSOID.....GEODETIC REFERENCE SYSTEM 1980
PROJECTION.....CA STATE PLANE ZONE VI
HORIZONTAL DATUM.....NORTH AMERICAN DATUM 1983 / WORLD GEODETIC SYSTEM 1984

LEGEND

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Figure. 8 - Outlet of San Mateo Creek

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NAD 83 / WGS 84

SCALE 1:14,908

Feet: 0 700 1400 2100

Miles: 0 0.05 0.1 0.15 0.2

Meters: 0 170 340 510

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ELLIPSOID.....GEOCETIC REFERENCE SYSTEM 1980
PROJECTION.....CA STATE PLANE ZONE VI
HORIZONTAL DATUM.....NORTH AMERICAN DATUM 1983 / WORLD GEODETIC SYSTEM 1984

LEGEND

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Figure. 9 - Pond(s) adjacent to Naval Weapons Station Fallbrook

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NAD 83 / WGS 84

SCALE 1:46,223

Feet	0	2000	4000	6000
Miles	0	0.2	0.4	0.6	0.8
Meters	0	520	1040	1560

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ELLIPSOID.....GEODETIC REFERENCE SYSTEM 1980
PROJECTION.....CASTATE PLANE ZONE VI
HORIZONTAL DATUM.....NORTH AMERICAN DATUM 1983 / WORLD GEODETIC SYSTEM 1984

LEGEND

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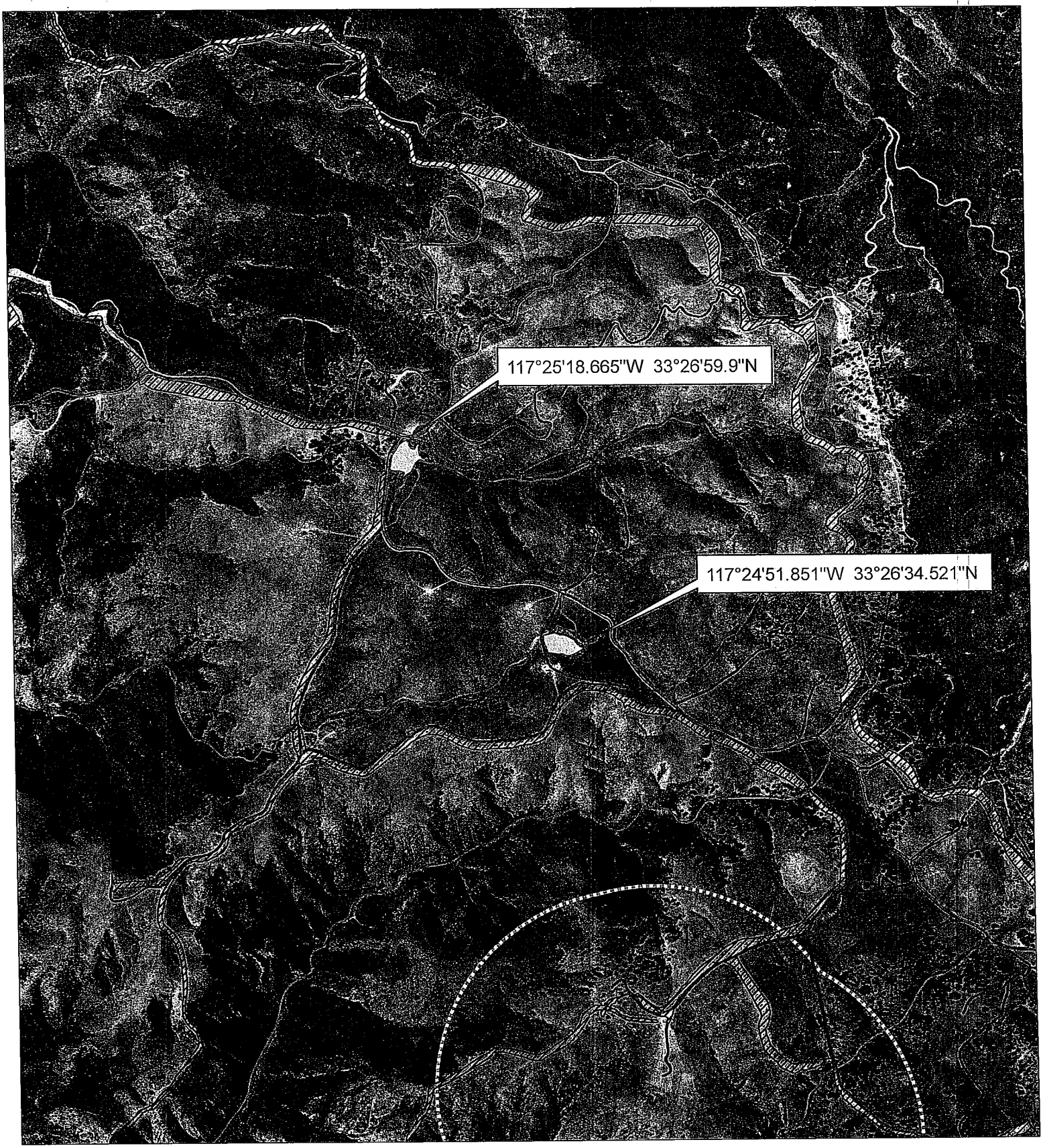
Figure. 10 - Case Springs North pond / Case Springs South pond



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NAD 83 / WGS 84

SCALE 1:21,565

0 1000 2000 3000 Feet

0 0.075 0.15 0.225 0.3 Miles

0 250 500 750 Meters

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PROJECTION.....CA STATE PLANE ZONE VI
HORIZONTAL DATUM.....NORTH AMERICAN DATUM 1983 / WORLD GEODETIC SYSTEM 1984

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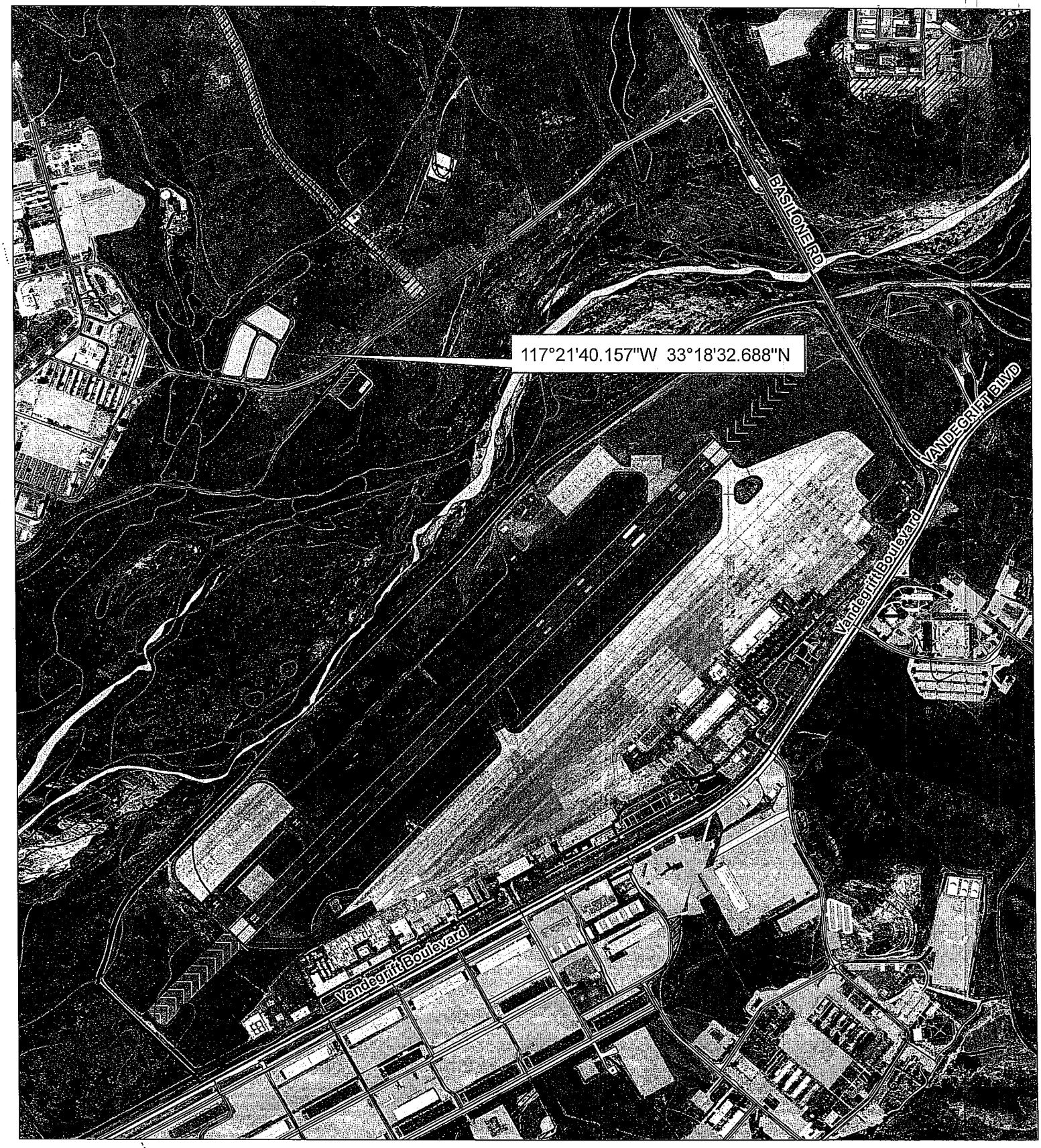
Figure. 11 - STP 8 percolation ponds



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NAD 83 / WGS 84

SCALE 1:13,322

0 625 1250 1875 Feet

0 0.05 0.1 0.15 0.2 Miles

0 150 300 450 Meters

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ELLIPSOID.....GEODETIC REFERENCE SYSTEM 1980
PROJECTION.....CA STATE PLANE ZONE VI
HORIZONTAL DATUM.....NORTH AMERICAN DATUM 1983 / WORLD GEODETIC SYSTEM 1984

LEGEND

NOTES

ALTHOUGH EVERY EFFORT HAS BEEN MADE TO ENSURE THE ACCURACY OF THE INFORMATION, ERRORS AND CONDITIONS ORIGINATING FROM PHYSICAL SOURCES TO DEVELOP THE DATABASE MAY BE REFLECTED IN THE DATA SUPPLIED. THE USER MUST BE AWARE OF DATA CONDITIONS AND ULTIMATELY BEAR RESPONSIBILITY FOR THE APPROPRIATE USE OF THE INFORMATION WITH RESPECT TO POSSIBLE ERRORS, ORIGINAL MAP SCALE, COLLECTION METHODOLOGY, CURRENCY OF THE DATA, AND OTHER CONDITIONS SPECIFIC TO CERTAIN DATA. THIS INFORMATION DOES NOT DEPICT ALL POSSIBLE RESOURCES. FIELD VERIFICATION OF ALL DATA IS REQUIRED FOR SITE-SPECIFIC PROJECTS. THIS INFORMATION IS DEEMED RELIABLE, BUT NOT GUARANTEED.

Appendix D

VectoMax® WSP

BIOLOGICAL LARVICIDE

WATER SOLUBLE POUCH

FOR ORGANIC PRODUCTION

MADE WITH BioFuse™ TECHNOLOGY

ACTIVE INGREDIENTS:

Bacillus sphaericus 2362, Serotype H5a5b, Strain ABTS 1743 Fermentation Solids, Spores, and Insecticidal Toxins	2.7%
Bacillus thuringiensis subsp. *israelensis* Serotype H-14, Strain AM65-52 Fermentation Solids, Spores, and Insecticidal Toxins	4.5%
OTHER INGREDIENTS	92.8%
TOTAL	100.0%

Potency: This product contains 50 BsITU/mg or 0.023 Billion BsITU/lb.

Expiration Date: (Two years from date of manufacture)

The percent active ingredient does not indicate product performance and potency measurements are not federally standardized.

EPA Reg. No. 73049-429 List No. 05750
EPA Est. No. 33762-IA-001 (Lot No. Suffix 'N8')
EPA Est. No. 33967-NJ-1 (Lot No. Suffix 'Q5')

INDEX:

KEEP OUT OF REACH OF CHILDREN

CAUTION

1.0 FIRST AID

If in eyes	• Hold eye open and rinse slowly and gently with water for 15-20 minutes. • Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. • Call a poison control center or doctor for treatment advice.
If on skin or clothing	• Take off contaminated clothing. • Rinse skin immediately with plenty of water for 15-20 minutes. • Call a poison control center or doctor for treatment advice.

HOT LINE NUMBER

Have the product container or label with you when calling a poison control center or doctor, or going for treatment. You may also contact 1-877-315-9819 (24 hours) for emergency medical treatment and/or transport emergency information. For all other information, call 1-800-323-9597.

2.0 PRECAUTIONARY STATEMENTS

2.1 HAZARDS TO HUMANS AND DOMESTIC ANIMALS

CAUTION

Causes moderate eye irritation. Harmful if absorbed through the skin. Prolonged or frequent skin contact may cause allergic reactions in some individuals. Avoid contact with skin, eyes, or clothing. Wash thoroughly with soap and water after handling, and before eating, drinking, chewing gum, using tobacco or using the toilet. Remove and wash contaminated clothing before reuse.

2.2 ENVIRONMENTAL HAZARDS

Do not apply directly to treated, finished drinking water reservoirs or drinking water receptacles when the water is intended for human consumption.

3.0 DIRECTIONS FOR USE

It is a violation of Federal law to use this product in a manner inconsistent with its labeling.

VectoMax® Water Soluble Pouches (WSP): Once the foil bag containing Water Soluble Pouches is opened, minimize exposure of WSP to humidity.

4.0 APPLICATION DIRECTIONS

MOSQUITO CONTROL

VectoMax WSP is a selective microbial insecticide for use against mosquito larvae in a variety of habitats. VectoMax WSP can be applied to areas that contain fish, other aquatic life, and plants. VectoMax WSP can be applied to areas used by or in contact with humans, pets, horses, livestock, birds or wildlife.

For control of mosquito larvae in the following sites:

Habitat	Rate Range
Drainage/Drainage Systems[1]:	
Catch basins and storm drains.	1 pouch/50 sq. ft.

Treatment Areas (For Use In)[2]:

Ponds	Retention, detention and seepage ponds	Abandoned swimming pools
Lagoons	Animal waste lagoons	Unused swimming pools or spas
Hollow trees and tree holes	Flood water	Flooded basements
Urns	Standing water	Pool covers
Rain barrels	Storm water retention areas	Gutters and drains
Livestock watering troughs/ponds/tanks	Birdbaths	Wheelbarrows
Irrigation ditches	Fountains	Garbage cans and covers
Roadside ditches	Flowerpots and planters	Discarded tires
Water gardens	Snowmelt pools	
Impounded wastewater associated with fruit and vegetable processing	Septic tanks	

Any location where water accumulates and remains standing for periods of time, except treated, finished drinking water for human consumption.

[1] Treat on basis of surface area of potential mosquito breeding sites by placing one (1) VectoMax Water Soluble Pouch for up to 50 square feet of treatment area. Re-apply as needed (after 6-8 weeks under typical environmental conditions).

[2] Treat on basis of surface area of potential mosquito breeding sites by placing one (1) VectoMax Water Soluble Pouch for up to 50 square feet of treatment area. Re-apply as needed (after 1-4 weeks under typical environmental conditions).

Continued

Longer periods of mosquito population suppression may result where sufficient numbers of non-target aquatic invertebrate parasites and predators are present since these are not affected by the product and contribute to mosquito population reduction.

5.0 STORAGE AND DISPOSAL

Do not contaminate water, food or feed by storage or disposal.

Pesticide Storage: Store in a cool, dry place.

Pesticide Disposal: To avoid wastes, use all material in this container by application according to label directions. If wastes cannot be avoided, offer remaining product to a waste disposal facility or pesticide disposal program (often such programs are run by state or local governments or by industry.)

Container Handling: Nonrefillable container. Do not reuse or refill this container. Offer for recycling if available or, dispose of the empty outer foil pouch in the trash as long as WSP is unbroken.

6.0 WARRANTY AND DISCLAIMER

To the extent consistent with applicable law, seller makes no warranty, express or implied, of merchantability, fitness or otherwise concerning the use of this product other than as indicated on the label. User assumes all risks of use, storage or handling not in strict accordance with the accompanying directions.

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