

Attachment E – Notice of Intent

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

RECEIVED

JAN 08 2014

DIVISION OF WATER QUALITY

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

I. NOTICE OF INTENT STATUS (see Instructions)

Mark only one item A.  New Applicator B.  Change of Information: WDID# 5A58AP00001  
 C.  Change of ownership or responsibility: WDID#

II. DISCHARGER INFORMATION

A. Name Beale AFB - 9 CES/CEIE			
B. Mailing Address 6601 B Street			
C. City Beale AFB	D. County Yuba	E. State CA	F. Zip 95903
G. Contact Person Nolan Swick	H. E-mail address nolan.swick@us.af.mil	I. Title Pollution Prevention Prgm Mgr	J. Phone 530-634-3176

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

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

**IV. RECEIVING WATER INFORMATION**

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

1.  Canals, ditches, or other constructed conveyance facilities owned and controlled by Discharger.  
Name of the conveyance system: Drainage ditches throughout Beale AFB

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

3.  Directly to river, lake, creek, stream, bay, ocean, etc.  
Name of water body: Dry Creek

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

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

A. Target Organisms: \_\_\_\_\_  
Arundo donax L. (Giant Reed), blackberry bushes, cattails

B. Algaecide and Aquatic Herbicide Used: List Name and Active ingredients  
Habitat - Isopropylamine salt of imazapyr  
Aqua Master - Isopropylamine salt of glyphosate

C. Period of Application: Start Date 1 April (annually) End Date 31 October (annually)

D. Types of Adjuvants Used:  
Pro-tron (surfactant)

**VI. AQUATIC PESTICIDE APPLICATION PLAN**

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

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

**VII. NOTIFICATION**

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

**VIII. FEE**

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

**IX. CERTIFICATION**

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

A. Printed Name: Gregory S. Capra

B. Signature: 

Date: 30 Dec 13

C. Title: Deputy Base Civil Engineer

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

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

# AQUATIC PESTICIDE APPLICATION PLAN

Beale Air Force Base, CA

STATEWIDE GENERAL NATIONAL POLLUTANT DISCHARGE ELIMINATION  
SYSTEM PERMIT FOR THE DISCHARGE OF AQUATIC PESTICIDES FOR AQUATIC  
WEED CONTROL IN WATERS OF THE UNITED STATES  
GENERAL PERMIT NO. CAG990005

WATER QUALITY ORDER NO. 2013-0002-DWQ

16 December 2013

## CERTIFICATION

In accordance with Attachment B, Section V.B.1. Standard Provisions – Reporting, Signatory and Certification Requirements, Water Quality Order No. 2013-0002-DWQ Statewide General National Pollutant Discharge Elimination System Permit for Residual Aquatic Pesticide Discharges to Waters of the United States from Algae and Aquatic Weed Control Applications, General Permit No. CAG 990005:

“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.” (40 C.F.R. 122.22(d).)



Gregory S. Capra, P.E., LEED AP  
Deputy Base Civil Engineer

30 Dec 2013

Date

## Introduction

Beale Air Force Base (Beale AFB) is located in northern California approximately 10 miles east of the towns of Marysville and Yuba City, and about 45 miles north of Sacramento (see Figure 1). Beale AFB is 23,000 acres of grassland and oak woodlands located at the eastern edge of the Sacramento Valley floor and the Sierra Foothills within the Dry Creek/Bear River Watersheds. The 9<sup>th</sup> Reconnaissance Wing is responsible for providing national and theater command authorities with timely, reliable, high-quality, high-altitude reconnaissance products. To accomplish this mission, the wing is equipped with the nation's fleet of U-2 and RQ-4 reconnaissance aircraft and associated support equipment. The wing also maintains a high state of readiness in its combat support and combat service support forces for potential deployment in response to theater contingencies. The 9th Reconnaissance Wing at Beale AFB is composed of more than 3,000 personnel in four groups at Beale AFB and multiple overseas operating locations.

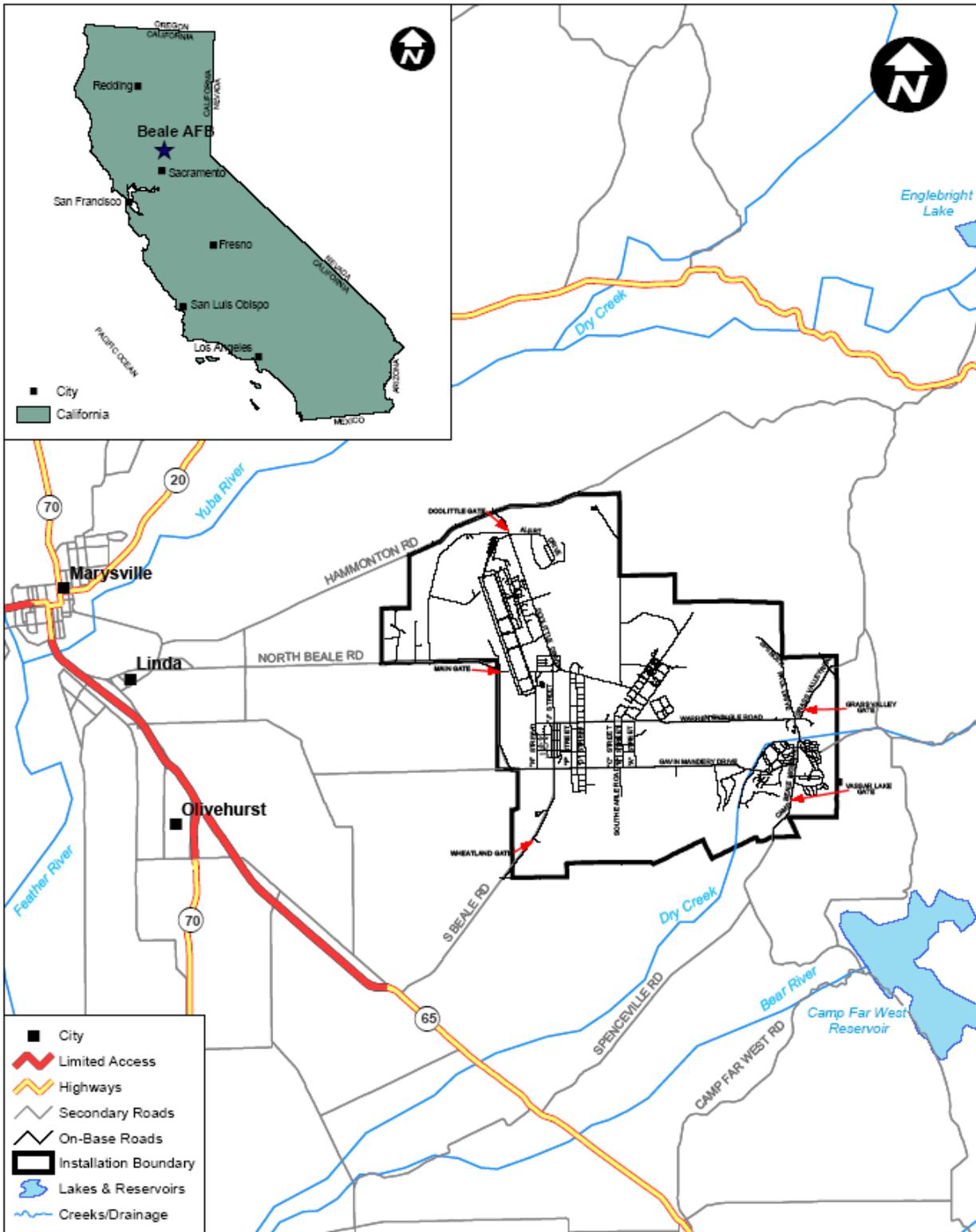
The 9th Civil Engineer Squadron (CES) is responsible for the management of weeds and other unwanted vegetation on Beale AFB. The 9<sup>th</sup> CES Environmental Section is required to control invasive weeds in order to promote native vegetation and wildlife, reduce fire fuel load, and improve pasture forage. The 9<sup>th</sup> CES Pest Management Section is required to control vegetation to support base mission requirements, including removing vegetation that impedes the flow of water, reduces stormwater or flood capacity, causes roads and other paths to become impassable, or causes a Bird Aircraft Strike Hazard (BASH) issue. A component of weed and vegetation management at Beale AFB is the responsible application of pesticides.

This Aquatic Pesticide Application Plan (APAP) is a comprehensive plan that describes two separate requirements for aquatic herbicide applications for the control of aquatic weeds on Beale AFB:

1. A project to control the invasive weed *Arundo donax L.*, or Giant Reed (referred to as “Arundo Project” throughout plan)
2. A mission-related requirement to control weeds and vegetation in waterways on an as needed basis (referred to as “Vegetation Control” throughout plan)

This plan will describe the applications, the need for the applications, best management practices to be implemented to reduce water quality impacts, and how those impacts will be monitored in accordance with Water Quality Order No. 2013-0002-DWQ.

**Figure 1: Regional Location Map – Beale AFB**





**Figure 3: Areas of Concern – Dry Creek (Highlighted by Yellow Box)**



## **1.2. Vegetation Control**

Applications for vegetation control are only performed on an as needed basis. Therefore, exact locations and the specific water systems to be treated are unknown at this time. Applications could potentially be made to drainage ditches, creek beds and shoreline areas throughout the base where unwanted vegetation has accumulated and could interfere with mission requirements.

## **2. Description of the treatment area in the water system;**

### **2.1. Arundo Project**

The application area is three locations on the bank of the section of Dry Creek shown in Figure 3. The treatments will be applied directly to the stumps of the weed after being cut. The pesticide will not be applied directly to any flowing or non-flowing water.

The total application area is approximately 1 acre.

### **2.2. Vegetation Control**

Applications for vegetation control are only performed on an as needed basis. Therefore, exact locations of the treatment area are unknown at this time. Applications could potentially be made to drainage ditches, creek beds and shoreline areas throughout the base where unwanted vegetation has accumulated and could interfere with mission requirements and adversely impact water flow. Aquatic herbicides will never be applied directly to any flowing water.

### **3. Description of types of weed(s) and algae that are being controlled and why;**

#### **3.1. Arundo Project**

*Arundo donax L.*, or Giant Reed. This weed is an invasive species that is impacting fish passage on a stream that is habitat for special-status anadromous fish.

#### **3.2. Vegetation Control**

The weeds being controlled by Pest Management can include blackberry bushes that grow by drainage ditches, cattails and any other aquatic weed listed on the aquatic herbicide label (Aqua Master).

Vegetation control in ditches, creeks, or other waterways will be accomplished on an as needed basis according to mission requirements, and can include the removal of vegetation that impedes the flow of water, causes roads and other paths to become impassable, and causes a BASH issue.

### **4. Algaecide and aquatic herbicide products or types of algaecides and aquatic herbicides expected to be used and if known their degradation byproducts, the method in which they are applied, and if applicable, the adjuvants and surfactants used;**

#### **4.1. Arundo Project**

Aquatic Herbicide: Habitat (EPA Reg No 241-426)

Active Ingredient: Isopropylamine salt of Imazapyr

The applications will be done according to the FIFRA label instructions by a DoD certified or California state certified herbicide applicator with at least two years experience applying herbicides. Applicators will use the cut-stump method and spray a dilute solution directly onto the cut stumps using a low volume back pack sprayer. There will be no broadcasting (foliar spray) of the aquatic herbicide. All cut stalks will be removed from the base and disposed of properly in licensed landfill to prevent further spreading of the invasive weed.

The amount of product needed is determined by following the instructions for “Cut Surface Treatments” found on Page 6 of the Habitat label and by observations made during preliminary site visits by the licensed applicator. The applicators will use the rate of 12 ounces of herbicide per 1 gallon of water.

The surfactant Pro-tron will be used. Pro-tron is a vegetable oil-based surfactant added to the herbicide mix in order to improve the penetration and translocation of the herbicide into the weed stumps.

There are no known degradation byproducts. No adjuvants will be used.

#### **4.2. Vegetation Control**

Aquatic Herbicide: Aqua Master (EPA Reg No 524-343)

Active Ingredient: Isopropylamine salt of glyphosate

Applications will be done according to the FIFRA label instructions by DoD certified pesticide applicators. Applications will be done with a pressurized hydraulic sprayer and/or by hand with small pressurized 1-3 gallon sprayers.

There are no known degradation byproducts. No surfactant or adjuvant will be used.

### **5. Discussion of the factors influencing the decision to select algaecide and aquatic herbicide applications for algae and weed control;**

#### **5.1. Arundo Project**

No growth of this weed can be allowed. Even small stands of Arundo should be removed due to its invasive nature. Aquatic herbicide application is the preferred control method for this weed because of its invasive nature. Limiting the control method to mechanical means is not possible because this technique would disturb the streambed in an environmentally-sensitive area and would likely spread viable shoots downstream, further spreading the invasive weed.

#### **5.2. Vegetation Control**

Vegetation control in ditches, creeks, or other waterways will be accomplished on an as needed basis according to mission requirements, and can include the removal of vegetation that impedes the flow of water, causes roads and other paths to become impassable, and causes a BASH issue. Nonchemical control efforts, specifically mechanical removal and mowing, will be used to the maximum extent possible to control vegetation before applying herbicides. However, removal of vegetation in drainages, creeks, or other waterways by mechanical means has limitations in certain cases, such as the inability for heavy equipment to access some locations. Aquatic herbicides will be applied by backpack sprayer in these locations, which eliminates the need for equipment to travel through wetlands and vernal pools. Aquatic herbicides will also be used at times to limit the potential for excessive sediment disturbance and erosion in drainages and other waterways.

### **6. If applicable, list the gates or control structures to be used to control the extent of receiving waters potentially affected by algaecide and aquatic herbicide application and**

**provide an inspection schedule of those gates or control structures to ensure they are not leaking;**

### **6.1. Arundo Project**

Straw wattles will be placed at the creek bank to prevent the spread of any cut stalks of Giant Reed. These wattles will be removed after all cut stalks are removed from the site.

### **6.2. Vegetation Control**

Beale AFB Pest Management does not use gates or control structures for aquatic herbicide applications related to vegetation control, so this section is not applicable.

**7. If the Discharger has been granted a short-term or seasonal exception under State Water Board Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays,\* and Estuaries of California (Policy) section 5.3 from meeting acrolein and copper receiving water limitations, provide the beginning and ending dates of the exception period, and justification for the needed time for the exception. If algaecide and aquatic herbicide applications occur outside of the exception period, describe plans to ensure that receiving water criteria are not exceeded because the Dischargers must comply with the acrolein and copper receiving water limitations for all applications that occur outside of the exception period;**

### **7.1. Arundo Project**

Beale AFB has not been granted an exception under section 5.3 so this section is not applicable.

### **7.2. Vegetation Control**

Beale AFB has not been granted an exception under section 5.3 so this section is not applicable.

## **8. Description of monitoring program**

### **8.1. Arundo Project**

Beale AFB will monitor the use of imazapyr in compliance with Attachment C of the General Permit. All laboratory analyses will be conducted at a laboratory certified by the California Department of Public Health in accordance with California Water Code section 13176. All analyses shall be conducted in accordance with the EPA's "Guidelines Establishing Test Procedures for Analysis of Pollutants."

Visual monitoring of the aquatic herbicide applications will be accomplished for all applications at all sites using the template at Figure 4.

**Figure 4: Beale AFB Pesticide Usage and Visual Monitoring Log**

**Beale AFB Pesticide Usage and Visual Monitoring Log**

Name: \_\_\_\_\_ Date: \_\_\_\_\_

Event type: \_\_\_Background \_\_\_Event \_\_\_Post-Event

Location (Address, crossroads, map coordinates, etc.): \_\_\_\_\_

Water body being treated (Canal, creek, lake, etc.): \_\_\_\_\_

Was the 9 CES/CEIE Natural Resources Manager consulted before application? \_\_\_ Yes \_\_\_ No

9 CES/CEIE Comments: \_\_\_\_\_

Pesticide details (include brand name, active ingredient w/ % concentration): \_\_\_\_\_

\_\_\_\_\_

Amount of pesticide applied: \_\_\_\_\_

Describe application techniques and/or procedures: \_\_\_\_\_

\_\_\_\_\_

Describe the reasoning for this application event: \_\_\_\_\_

\_\_\_\_\_

**Visual Monitoring Results**

**Appearance of Waterway**

Flow rate of the target area = \_\_\_\_\_

Surface area of water being treated = \_\_\_\_\_

Volume of water being treated = \_\_\_\_\_

Describe the appearance of waterway (sheen, color, clarity, etc.) = \_\_\_\_\_

**Weather Conditions**

Temperature = \_\_\_\_\_ °F

Wind Speed = \_\_\_\_\_

Date of last rain event: \_\_\_\_\_

Is a rain event projected in the next 12 hours? \_\_\_ Yes \_\_\_ No

I certify that this pesticide application event followed all guidelines and BMPs described in the Beale AFB Aquatic Pesticide Application Plan.

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

With only two application events anticipated, physical and chemical monitoring will be conducted for each of these two events. Background samples will be collected upstream at the time of the application event. Since aquatic herbicides will never be applied to flowing waters, event monitoring samples will be collected immediately outside of the treatment area in non-flowing waters, immediately after the application event, but after sufficient time has elapsed such that treated water would have exited the treatment area. Post-Event samples will be collected within the treatment area within one week after the application event.

Monitoring procedures for physical and chemical properties will follow the following table:

Sample Type	Constituent / Parameter	Sample Method	Sample Type Requirement
Physical	1. Temperature <sup>1</sup> 2. pH <sup>1</sup> 3. Turbidity <sup>1</sup> 4. Electrical conductivity <sup>1</sup>	Grab 3' Below Surface or Mid-depth if Water Body is < 6'	Background, Event and Post Event Monitoring
Chemical	1. Active Ingredient - Imazapyr <sup>2</sup> 2. Dissolved Oxygen <sup>1</sup>	Grab 3' Below Surface or Mid-depth if Water Body is < 6'	Background, Event and Post Event Monitoring

<sup>1</sup> Field Testing

<sup>2</sup> Laboratory Testing

An annual report detailing all required information, as outlined in Attachment C of the General Permit, will be submitted to the state and regional Water Quality Control Board.

## 8.2. Vegetation Control

Beale AFB will monitor the use of glyphosate in compliance with Attachment C of the General Permit. All laboratory analyses will be conducted at a laboratory certified by the California Department of Public Health in accordance with California Water Code section 13176. All analyses shall be conducted in accordance with the EPA's "Guidelines Establishing Test Procedures for Analysis of Pollutants."

Visual monitoring of the aquatic herbicide applications will be accomplished for all applications at all sites using the template at Figure 4.

Because the active ingredient of the aquatic herbicide used for vegetation control is glyphosate, physical and chemical monitoring will be conducted for one application event. Background samples will be collected upstream at the time of the application event. Since aquatic herbicides will never be applied to flowing waters, event monitoring samples will be collected immediately outside of the treatment area in non-flowing waters, immediately after the application event, but after sufficient time has elapsed such that treated water would have exited the treatment area. Post-Event samples will be collected within the treatment area within one week after the application event.

Monitoring procedures for physical and chemical properties will follow the following table:

Sample Type	Constituent / Parameter	Sample Method	Sample Type Requirement
Physical	1. Temperature <sup>1</sup> 2. pH <sup>1</sup> 3. Turbidity <sup>1</sup> 4. Electrical conductivity <sup>1</sup>	Grab 3' Below Surface or Mid-depth if Water Body is < 6'	Background, Event and Post Event Monitoring
Chemical	1. Active Ingredient - Glyphosate <sup>2</sup> 2. Dissolved Oxygen <sup>1</sup>	Grab 3' Below Surface or Mid-depth if Water Body is < 6'	Background, Event and Post Event Monitoring

<sup>1</sup> Field Testing

<sup>2</sup> Laboratory Testing

An annual report detailing all required information, as outlined in Attachment C of the General Permit, will be submitted to the state Water Quality Control Board.

**9. Description of procedures used to prevent sample contamination from persons, equipment, and vehicles associated with algaecide and aquatic herbicide application;**

**9.1. Arundo Project**

All samples will be collected in clean, amber glass bottles and properly labeled, including the date and time the sample is collected. Proper personal protective equipment will be worn, including disposable nitrile gloves, to prevent contamination. Samples will be collected without interference from any equipment or vehicles. Samples will be accounted for utilizing a standard “Chain of Custody” form supplied by the laboratory performing the analysis to ensure the integrity of the sample collection and transfer process. Samples will be stored on ice and transported to the lab within appropriate hold times for the required tests. Samples will be transported separately from the aquatic herbicides and application equipment on the day of the application event.

**9.2. Vegetation Control**

All samples will be collected in clean, amber glass bottles and properly labeled, including the date and time the sample is collected. Proper personal protective equipment will be worn, including disposable nitrile gloves, to prevent contamination. Samples will be collected without interference from any equipment or vehicles. Samples will be accounted for utilizing a standard “Chain of Custody” form supplied by the laboratory performing the analysis to ensure the integrity of the sample collection and transfer process. Samples will be stored on ice and transported to the lab within appropriate hold times for the required tests. Samples will be transported separately from the aquatic herbicides and application equipment on the day of the application event.

**10. Description of the BMPs to be implemented. The BMPs shall include, at the minimum:**

**10.1. Arundo Project**

**10.1.a. Measures to prevent algaecide and aquatic herbicide spill and for spill containment during the event of a spill;**

All applications will be performed by DoD or state certified pesticide applicators. All personnel will follow the storage, mixing, transport, application, and spill response procedures per USEPA and DPR rules, regulations and label instructions. Aquatic herbicide applicators ensure daily that application equipment is in proper working order. Aquatic herbicides are stored inside. Spill response and cleanup supplies are maintained in all vehicles and pesticide storage areas.

All personnel responsible for handling, mixing, or applying pesticides must complete Beale's Spill Prevention, Control, and Countermeasures training annually. Beale has a comprehensive program for the identification, response, and control of hazardous materials spills, with personnel on stand-by to respond to any releases of hazmat, including pesticides, to the environment. Any contaminated media (water or soil) will be contained and cleaned or properly disposed of to the maximum extent possible. Beale personnel will report all spills to appropriate local, state, and federal agencies according to applicable regulations.

**10.1.b. Measures to ensure that only an appropriate rate of application consistent with product label requirements is applied for the targeted weeds or algae;**

All applications will be performed by DoD or state certified pesticide applicators. Over application will be avoided by following the specific product labels for the aquatic herbicide used. Only sufficient material to carry out the treatment will be transported for the day's application.

To ensure it functions properly, application equipment is calibrated at least annually unless herbicide label instructions require a more frequent calibration.

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

All aquatic herbicide applicators will possess DoD or state certification for applying pesticides and be trained to follow the storage, mixing, transport, application, and spill response procedures per USEPA and DPR rules, regulations and label instructions. Aquatic herbicide applicators will complete the Beale Spill Prevention, Control, and Countermeasures training annually. Beale AFB Environmental Section will train all personnel applying herbicides and pesticides on the Water Quality Order No. 2013-0002-DWQ State General Permit and the requirements of this APAP annually.

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

Aquatic herbicide applications for treatment of Arundo at Beale AFB are not expected to impact any beneficial uses of water. Aquatic herbicides will never be applied directly to flowing water. Aquatic herbicide applications are only allowed from May 1 to October 1 to avoid the local wet season. In addition, aquatic herbicides will not be applied during any wet weather or 12 hours before or after a rain event. Aquatic herbicides will only be applied when winds are less than 5-8km/hour.

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

Aquatic herbicide applications at Beale AFB are not expected to have any potential for fish kill. Several measures will be taken to limit the impact of the herbicides in water. Aquatic herbicides will never be applied directly to flowing water. Aquatic herbicide applications are only allowed from May 1 to October 1 to avoid the local wet season. In addition, aquatic herbicides will not be applied during any wet weather or 12 hours before or after a rain event. Aquatic herbicides will only be applied when winds are less than 5-8km/hour.

For treatment of Arundo, the cut stump method will be utilized according to the product label. By using the cut stump method, the amount of aquatic herbicide used will be limited. The herbicide will be sprayed directly onto the cut stumps of Giant Reed. Care will be taken to avoid application to the foliage of other desirable plants and to the soil in which they are rooted. There will be no broadcasting of the herbicide (foliar spray) so there will be no drift or over spray of herbicide into the creek system. Aquatic herbicides will not be over-applied, so there will be no run-off of herbicides from the cut surfaces.

**10.2. Vegetation Control**

**10.2.a. Measures to prevent algaecide and aquatic herbicide spill and for spill containment during the event of a spill;**

All applications will be performed by DoD or state certified pesticide applicators. All personnel will follow the storage, mixing, transport, application, and spill response procedures per USEPA and DPR rules, regulations and label instructions. Aquatic herbicide applicators ensure daily that application equipment is in proper working order. Aquatic herbicides are stored inside. Spill response and cleanup supplies are maintained in all vehicles and pesticide storage areas. Spill response plans are posted in the office area, breezeway and chemical mixing area.

All personnel responsible for handling, mixing, or applying pesticides must complete Beale's Spill Prevention, Control, and Countermeasures training annually. Beale has a comprehensive program for the identification, response, and control of hazardous materials spills, with personnel on stand-by to respond to any releases of hazmat, including pesticides, to the environment. Any contaminated media (water or soil) will be contained and cleaned or properly disposed of to the maximum extent possible. Beale

personnel will report all spills to appropriate local, state, and federal agencies according to applicable regulations.

**10.2.b. Measures to ensure that only an appropriate rate of application consistent with product label requirements is applied for the targeted weeds or algae;**

All applications will be performed by DoD or state certified pesticide applicators. Over application will be avoided by following the specific product labels for the aquatic herbicide used. Only sufficient material to carry out the treatment will be transported for the day's application.

To ensure it functions properly, application equipment is calibrated at least annually unless herbicide label instructions require a more frequent calibration.

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

All aquatic herbicide applicators will possess DoD or state certification for applying pesticides and be trained to follow the storage, mixing, transport, application, and spill response procedures per USEPA and DPR rules, regulations and label instructions. Aquatic herbicide applicators will complete the Beale Spill Prevention, Control, and Countermeasures training annually. Beale AFB Environmental Section will train all personnel applying herbicides and pesticides on the Water Quality Order No. 2013-0002-DWQ State General Permit and the requirements of this APAP annually.

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

Aquatic herbicide applications for vegetation control at Beale AFB are not expected to impact any beneficial uses of water. Aquatic herbicides will never be applied directly to flowing water. Aquatic herbicide applications are only allowed from May 1 to October 1 to avoid the local wet season. In addition, aquatic herbicides will not be applied during any wet weather or 12 hours before or after a rain event. Aquatic herbicides will only be applied when winds are less than 5-8km/hour.

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

Aquatic herbicide applications for vegetation control at Beale AFB are not expected to have any potential for fish kill. Several measures will be taken to limit the impact of the herbicides in water. Aquatic herbicides will never be applied directly to flowing water. Aquatic herbicide applications are only allowed from May 1 to October 1 to avoid the local wet season. In

addition, aquatic herbicides will not be applied during any wet weather or 12 hours before or after a rain event. Aquatic herbicides will only be applied when winds are less than 5-8km/hour.

Applications will be done according to the FIFRA label instructions by DoD certified pesticide applicators. Applications will be done with a pressurized hydraulic sprayer and/or by hand with small pressurized 1-3 gallon sprayers to prevent over application and excess herbicide runoff downstream.

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

**11.1 Arundo Project**

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

**11.1.a.i. No action;**

Arundo (Giant Reed) is an invasive species that is impacting fish passage on a stream that is habitat for special-status anadromous fish. No action will continue to allow the weed to spread and negatively impact special-status fish species.

**11.1.a.ii. Prevention;**

Arundo's invasive nature makes prevention very difficult. The reeds that are cut during the cut stump method will be collected and disposed of properly off base at a landfill to prevent them from spreading further.

**11.1.a.iii. Mechanical or physical methods;**

The alternative method of mechanical control was considered but is not possible because this method would disturb the streambed in an environmentally-sensitive area and would likely spread viable shoots downstream, further spreading the invasive weed.

**11.1.a.iv. Cultural methods;**

There are no cultural control methods to remove Arundo.

**11.1.a.v. Biological control agents; and**

There are no biological control agents to remove Arundo.

**11.1.a.vi. Algaecides and aquatic herbicides;**

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

The amount of product needed is determined by following the instructions for “Cut Surface Treatments” found on Page 6 of the Habitat label and by observations made during preliminary site visits by the licensed applicator. The applicators will use the rate of 12 ounces of herbicide per 1 gallon of water. Herbicides will be mixed in the pest management shop, with only the required amount of herbicide for that day’s applications transported to the site.

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

For treatment of Arundo, the cut stump method will be utilized. By using the cut stump method, the amount of aquatic herbicide used will be limited. The herbicide will be sprayed directly onto the cut stumps of Giant Reed. Care will be taken to avoid application to the foliage of other desirable plants and to the soil in which they are rooted. There will be no broadcasting of the herbicide (foliar spray) so there will be no drift or over spray of herbicide into the creek system. Aquatic herbicides will not be over-applied, so there will be no run-off of herbicides from the cut surfaces.

Several measures will be taken to limit the impact of the herbicides in water. Aquatic herbicides will never be applied directly to flowing water. Aquatic herbicide applications are only allowed from May 1 to October 1 to avoid the local wet season. In addition, aquatic herbicides will not be applied during any wet weather or 12 hours before or after a rain event. Aquatic herbicides will only be applied when winds are less than 5-8km/hour.

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

Trained, DoD or state certified pesticide applicators make an informed decision on the application of aquatic herbicides by scouting the area to be treated, making a positive identification of Arundo present, and checking the Habitat herbicide product label for control efficacy. Label instructions will be followed to determine appropriate rates of application and to identify any warnings or conditions that limit the application. The certified applicator may utilize the surfactant Pro-tron according to label instructions in order to improve the penetration and translocation of the herbicide into the weed stumps.

**11.2. Vegetation Control**

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

#### **11.2.a.i. No action;**

As feasible, this technique is used. Vegetation control in ditches, creeks, or other waterways will be accomplished on an as needed basis according to mission requirements. No action is taken until the unwanted and invasive vegetation could impact the base mission by impeding the flow of water, causing roads and other paths to become impassable, and causing a BASH issue.

#### **11.2.a.ii. Prevention;**

The Beale AFB Civil Engineer Squadron utilizes preventative maintenance measures to try to limit the potential for excess vegetation that could impact the base mission. An example of this preventative maintenance is removing sediment build-up in drainages according to applicable water quality regulations to increase the capacity of the drainage and improve water flow. However, this technique has limitations, including the potential for environmental impacts by disturbed sediment in waterways.

#### **11.2.a.iii. Mechanical or physical methods;**

Mechanical removal, hand-pulling, weed-whacking, and mowing of vegetation will be used to the maximum extent possible to control vegetation before applying aquatic herbicides. However, removal of vegetation in drainages, creeks, or other waterways by mechanical means has limitations in many cases. These techniques are very labor intensive per unit acre or length of water treated. Environmental impacts due to the use of mechanical techniques include the creation of water-borne sediment and turbidity by personnel and equipment, which lowers dissolved oxygen and prevents light penetration. Mechanical means can cause fragmentation of aquatic weeds, which in many cases helps weeds re-establish and spread. Applying aquatic herbicides by backpack sprayer eliminates the need for equipment to travel through wetlands and vernal pools.

#### **11.2.a.iv. Cultural methods;**

Beale AFB has a grounds maintenance contract to provide general grounds upkeep service to the main base areas and provide a measure of preventative maintenance. However, cultural methods cannot be utilized to respond quickly to control aquatic weeds that are identified to have the potential to impact the base mission.

#### **11.2.a.v. Biological control agents;**

The biological control of cattle grazing is used to control vegetation in many locations throughout Beale AFB. However, grazing is not suitable for most aquatic locations and is not feasible in the short required timeframe for control when aquatic weeds are identified to have the potential to impact the base mission.

#### **11.2.a.vi. Algaecides and aquatic herbicides;**

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

Sites potentially requiring aquatic herbicide treatment will be surveyed first to assess the area and any potential impacts if herbicides are applied. Herbicides will be mixed in the pest management shop, with only the required amount of herbicide for that day's applications transported to the site. Applications will be done according to the FIFRA label instructions by DoD or state certified pesticide applicators to ensure the proper amount of herbicide is used.

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

Applications will be done with a pressurized hydraulic sprayer and/or by hand with small pressurized 1-3 gallon sprayers to prevent over application and excess herbicide runoff downstream.

Several measures will be taken to limit the impact of the herbicides in water. Aquatic herbicides will never be applied directly to flowing water. Aquatic herbicide applications are only allowed from May 1 to October 1 to avoid the local wet season. In addition, aquatic herbicides will not be applied during any wet weather or 12 hours before or after a rain event. Aquatic herbicides will only be applied when winds are less than 5-8km/hour.

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

Trained, DoD or state certified pesticide applicators make an informed decision on the application of aquatic herbicides by scouting the area to be treated, making a positive identification of aquatic weeds, determining any potential mission impacts related to the weeds, and checking the aquatic herbicide product label for control efficacy. Label instructions will be followed to determine appropriate rates of application and to identify any warnings or conditions that limit the application.