RECLAMATION
*Managing Water in the West*

**Draft Environmental Assessment**

# East Bay Regional Parks Herbicide Application at Contra Loma Reservoir

**EA-17-046**

U.S. Department of the Interior
Bureau of Reclamation
South-Central California Area Office

**March 2018**

# Mission Statements

The Department of the Interior protects and manages the Nation's natural resources and cultural heritage; provides scientific and other information about those resources; and honors its trust responsibilities or special commitments to American Indians, Alaska Natives, and affiliated island communities.

The mission of the Bureau of Reclamation is to manage, develop, and protect water and related resources in an environmentally and economically sound manner in the interest of the American public.

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# Section 1 Introduction

## 1.1 Background

The Bureau of Reclamation (Reclamation) constructed the Contra Loma Reservoir (Reservoir) in 1967 as part of the Central Valley Project. Contra Costa Water District operates and maintains the system and includes the 80-acre reservoir. The Reservoir is a popular recreational fishing, boating, and swimming destination. In 1972, a management agreement between Reclamation and East Bay Regional Parks District (East Bay) transferred management responsibilities of recreation of the Reservoir and the recreational lands surrounding the reservoir over to East Bay (Agreement No. 14-06-200-6023).

East Bay has developed an Aquatic Pesticide Application Plan (Appendix A) for Contra Loma. They have also received a National Pollutant Discharge Elimination System Permit (NPDES) (Appendix B) from the Regional Board for application of these pesticides (Permit No. CAG990005).

## 1.2 Need for the Proposed Action

An overgrowth of weeds has inhibited the recreational use of the park by the public. Shore fishing areas and docks have been overgrown preventing use of them by the visiting public (figure 1). The Park hosts three fishing derbies per year for disadvantaged youth, all of which have been impacted by the overgrowth. East Bay has tried mechanical removal of the weeds but the results last only a few months and are not thorough enough to completely control the weeds. Herbicide treatment of the weeds would provide long term control and allow full use of The Park.

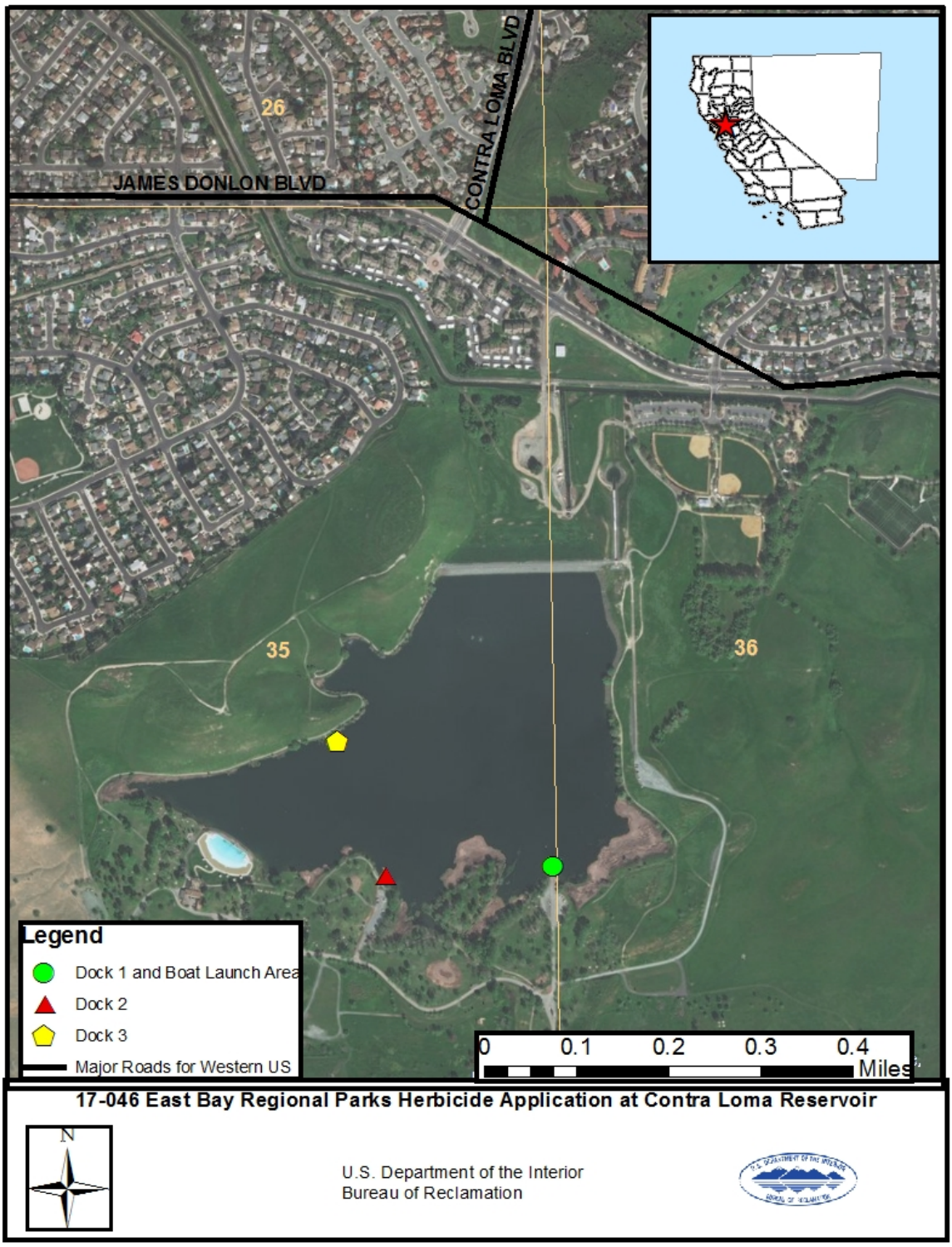


Figure 1 Proposed Action Area

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# Section 2 Alternatives Including the Proposed Action

This Environmental Assessment considers two possible actions: the No Action Alternative and the Proposed Action. The No Action Alternative reflects future conditions without the Proposed Action and serves as a basis of comparison for determining potential effects to the human environment.

## 2.1 No Action Alternative

Under the No Action Alternative, Reclamation would not approve the application of herbicide to control non-native plant species at Contra Loma Reservoir. This alternative would result in limit management of non-native plant species to mechanical removal, and would limit recreational use of Contra Loma.

## 2.2 Proposed Action

Reclamation would approve East Bay's application of herbicides to control weed species at Contra Loma until February 2041 when the Management Agreement (Agreement #14-LC-20-047) between Reclamation and East Bay for Contra Loma Reservoir expires.

The Reclamation Manual provides that on lands not addressed by an approved Integrated Pest Management (IPM) plan, Pesticide Use Proposals (PUP's) be developed and approved before pesticides are applied (Env 01-01). The East bay Regional Park District Aquatic Pesticide Application Plan (APAP), which applies Integrated Pest Management (IPM) principles would be used in lieu of an IPM plan. The areas where herbicide applications are needed at Contra Loma Reservoir would be determined by East Bay's Fishery Manager, based on weed load and public use. There are currently three docks and one boat launch area at the reservoir where control of aquatic weeds is needed.

Under the Proposed Action, East Bay Parks would submit Pesticide Use Proposal's (PUP's) to Reclamation. Reclamation would review and approve PUP's submitted for treating weeds at Contra Loma Reservoir until the Management Agreement expires. Reclamation would notify East Bay Parks of the approved submitted PUP's. Herbicide applications would be made by certified applicators using backpack sprayers, wands, drip lines or other suitable, but non-aerial application means.

Roundup Custom® (active ingredient glyphosate) aquatic label, would be applied to emergent weeds (e.g., cattails (*Typha latifolia)* and tules (*Scirpus* spp.) at the reservoirs shoreline. Sonar One® (active ingredient; fluridone) would be applied in the immediate area around docks and boat launch areas to control aquatic weeds such as Brazilian Waterweed (*Egeria densa*).

Herbicides would be applied up to twice per year, and at rates permitted under the label and herbicide applications would be made by certified applicators using backpack sprayers, wands, drip lines or other suitable, but non-aerial application means.

Reclamation's review and approval of PUP's allows for consideration and implementation of changes required to comply with laws, policies and guidelines then in place. If necessary, additional consultation with regulatory agencies would be conducted.

### 2.2.1 Environmental Commitments

East Bay must implement the following environmental protection measures to avoid and/or reduce environmental consequences associated with the Proposed Action (Table 2-1).

Table 1 Environmental Protection Measures

| Resource | Protection Measures |
|---|---|
| General | East Bay shall make annual notifications of the intent to conduct chemical vegetation control on Reclamation lands one month prior to their use, along with the submission of a completed Pesticide Use Proposal form. A monthly report documenting control activities by East Bay shall be submitted to Reclamation. |
| General | East Bay shall comply with the conditions of the Aquatic Pesticide Application Plan agreed to under their Management Agreement with Reclamation. |
| Biological | The observation of any federally listed species shall be reported within one work day to Reclamation biological staff at telephone (559) 487-5016 and biological staff at the U.S. Fish and Wildlife Service Bay Delta Office at (916) 930-5603. |
| Biological | No burrows shall be disturbed. |
| Biological | The pesticide label shall be followed. Any leftover pesticide shall be disposed of in an approved manner as specified by the label. |
| Biological | Herbicide shall be applied as spot treatments directly to vegetation. Applications shall be made only where control of weeds to meet management purposes is needed. And, the lowest effective level of herbicide concentration shall be applied. |
| Biological | As new, less toxic herbicides or formulations become available, they shall be evaluated for suitability and incorporated as appropriate. |
| Biological | Roundup formulated with polyethoxylated tallowamine (POEA) shall not be applied. |
| Biological | If herbicides are to be applied during the avian nesting season (February through August), a qualified biologist shall survey prospective treatment areas before any pesticide is applied for the presence of actively nesting birds (e.g., in tule or bulrush vegetation). Where active nesting is present (i.e., around nests that contain eggs, or young, or areas where young are still attached), pesticides shall not be applied and sufficient buffer around these sites shall be left unsprayed so that take of migratory birds is avoided. The area to remain unsprayed shall be demarcated by the survey biologist (e.g., with temporary flagging and/or identified on a map with sufficient detail for the applicator to recognize and avoid the area) and that defined area shall be communicated to the applicator. |
| Biological | A qualified biologist shall survey emergent wetland vegetation targeted for herbicide application and areas immediately adjacent for the presence of California red-legged frog before any herbicide is applied. If California red-legged frog is present, Reclamation biological staff shall be notified within one work day and no herbicides shall be applied until any necessary consultation (e.g., with U.S. Fish & Wildlife Service) is completed. |
| Biological | Herbicides shall be applied when winds are calm and when no precipitation is forecast (e.g., by a reputable source such as the National Weather Service) within 12 hours of the scheduled application to avoid any herbicide drift and runoff to the reservoir. Herbicides intended for foliar applications (e.g., Roundup® Custom) shall be applied to emergent foliage and not to water. Vegetation shall not be sprayed to excess wetness to avoid runoff from plants into the reservoir. |
| Water Resources | The existing NPDES Permit is valid until October 31, for life of permit. East Bay is responsible for renewal/re-issuance of the NPDES Permit prior to that date to continue applications. East Bay is also responsible to comply with any changes in Permit conditions. |
| Water Resources | Standard safety practices for herbicide storage, mixing, transportation, disposal of containers and unused herbicide, and spill management would be followed. Mixing of chemicals and |

| Resource | Protection Measures |
|---|---|
| | cleaning of equipment should be done well away from waterways in situations from which runoff would not directly enter waterways. Herbicide mixtures would be stored in leak-proof containers. |

Environmental consequences for resource areas assume the measures specified would be fully implemented. Copies of all reports would be submitted to Reclamation.

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# Section 3 Affected Environment and Environmental Consequences

This section identifies the potentially affected environment and the environmental consequences involved with the Proposed Action and the No Action Alternative, in addition to environmental trends and conditions that currently exist.

## 3.1 Resources Eliminated from Further Analysis

Reclamation analyzed the affected environment and determined that the Proposed Action did not have the potential to cause direct, indirect, or cumulative adverse effects to the resources listed in Table 2.

Table 2 Resources Eliminated from Further Analysis

| Resource | Reason Eliminated |
|---|---|
| Air Quality | The Proposed Action area lies within the San Joaquin Valley Air Basin under the jurisdiction of the San Joaquin Valley Air Pollution Control District. The pollutants of greatest concern in the San Joaquin Valley are carbon monoxide, ozone, ozone precursors such as reactive organic gases (ROG) or volatile organic compounds (VOC), inhalable particulate matter between 2.5 and 10 microns in diameter ($PM_{10}$) and particulate matter less than 2.5 microns in diameter ($PM_{2.5}$). The San Joaquin Valley Air Basin has reached Federal and State attainment status for carbon monoxide, nitrogen dioxide, and sulfur dioxide. Although Federal attainment status has been reached for $PM_{10}$ the State standard has not been met and both are in non-attainment for ozone and $PM_{2.5}$ (San Joaquin Valley Air Pollution Control District 2014). There are no established standards for nitrogen oxides ($NO_x$); however, they do contribute to nitrogen dioxide standards and ozone precursors (San Joaquin Valley Air Pollution Control District 2014). |
| Cultural Resources | The Proposed Action consists of vegetation management actions that would not require construction or modification of facilities would be needed in order to complete the Proposed Action, Reclamation has determined that these activities have no potential to cause effects to historic properties pursuant to 36 CFR Part 800.3(a)(1). See Appendix C for Reclamation's determination. |
| Environmental Justice | The Proposed Action would not cause dislocation, changes in employment, or increase flood, drought, or disease nor would it disproportionately impact economically disadvantaged or minority populations. |
| Indian Sacred Sites | The Proposed Action would not limit access to ceremonial use of Indian Sacred Sites on federal lands by Indian religious practitioners or significantly adversely affect the physical integrity of such sacred sites. Therefore, there would be no impacts to Indian Sacred Sites as a result of the Proposed Action. |
| Indian Trust Assets | The Proposed Action would not impact Indian Trust Assets as there are none in the Proposed Action area. |
| Global Climate Change | The Proposed Action would not result in emissions of greenhouse gases as water would move in existing facilities via gravity. Global climate change is expected to have some effect on the snow pack of the Sierra Nevada and the runoff regime. Current data are not yet clear on the hydrologic changes and how they will affect the San Joaquin Valley. CVP water allocations are made dependent on hydrologic conditions and environmental requirements. Since Reclamation operations are flexible, any changes in hydrologic conditions due to global climate change would be addressed within Reclamation's operation flexibility. |

# 3.2 Biological Resources

## 3.2.1 Affected Environment

The Project Action Area includes Contra Loma Reservoir proper and the shoreline-reservoir interface. Aquatic weeds and emergent plants would be managed with herbicide applications. Herbicides would be applied in the reservoir to aquatic weeds such as Brazilian waterweed (*Egeria densa*) or at the reservoir-shoreline interface to emergent wetland plants such as tules (*Typha latifolia*) or bulrush (*Scirpus spp.*).

Reclamation requested an official species list from the United States Fish and Wildlife Service (Service) for the Proposed Action Area on January 17, 2018 via the Service's website, http://ecos.fws.gov/ipac, (Consultation Code: 08ESMF00-2018-SLI-0916). The California Department of Fish and Wildlife's California Natural Diversity Database (CNDDB) was also queried for records of protected species in or near the Proposed Action Area (CNDDB, 2018). The information collected above, in addition to information within Reclamation's files, was combined to determine the likelihood of protected species occurrence within the Proposed Action Area and this information is summarized in Table 3-1 on the following page.

## 3.2.2 Environmental Consequences

### *No Action*

Under the No Action Alternative, Reclamation would not approve the permit authorizing application of pesticides at Contra Loma Reservoir. Management and control of aquatic and wetland weeds would need to be accomplished without application of herbicides. In absence of other control measures, aquatic vegetation may spread within the reservoir, increasing in-reservoir weed cover and reducing the amount of open water and living space available to fish, potentially reducing fish abundance. Shoreline emergent plants would remain problematic impediments to shoreline access to the reservoir for recreation activities.

### *Proposed Action*

Under the Proposed Action, Reclamation would issue a license permitting application of herbicides per Reclamation's Manual and environmental requirements on Reclamation lands or facilities at Contra Loma Reservoir. East Bay Parks submitted PUP's would be reviewed and approved, authorizing the application of the prescribed herbicides for control/management of aquatic and emergent wetland weeds at Contra Loma Reservoir. Herbicides could be applied one or more times seasonally, depending on management needs and label restrictions. The license would provide for application of herbicides for the duration of the contract with East Bay Parks for the duration of the contract, to 2041.

The Proposed Action would not involve any construction, changes in water diversions from natural waterways, or changes in land use. Herbicides proposed for application initially include Roundup Pro Custom ® aquatic and Sonar ®. It is recognized that during the course of the 24-year management agreement, new herbicide formulations with these active ingredients, or potentially different and more suitable herbicides may become available and preferred. The PUP's process provides for these dynamics and review of more suitable or preferable

alternatives. Additionally, however, knowledge about toxicological effects of proposed herbicides and their effects on the environment and to listed species protected under the Endangered Species Act (16 U.S.C. §1531 et. seq.) as amended, may change. Further, new species may be listed or critical habitat designated, which may require subsequent consultation.

Glyphosate® based pesticides are prohibited from being applied in certain areas of Contra Costa County because of a lawsuit against the Environmental Protection Agency (EPA) for failure to comply with section 7(a)(2) of the Endangered Species Act; the Federal District Court for the Northern District of California ordered the prohibition (https://www.epa.gov/endangered-species/court-issues-stipulated-injunction-regarding-pesticides-and-california-red-legged; accessed February 1, 2018). The prohibition (with some exceptions) applies to use of pesticides with Glyphosate® in the area around Contra Loma Reservoir. However, application of Glyphosate® based pesticides at Contra Loma Reservoir were determined to be exempted from the courts prohibition following EPA work flow steps #1 through #4 on the EPA website (i.e., https://www.epa.gov/endangered-species/how-comply-requirements-protect-california-red-legged-frog-pesticides#).

Additional toxicological information may be developed, additional species may become listed under the Endangered Species Act (16 U.S.C. §1531 et. seq.) as amended, or additional effects to species may become known over the 23 year course of the proposed action. For these and other reasons, it is necessary to review annually the pesticides proposed for application under the agreement, and if necessary conduct subsequent consultation on effects to listed species.

On January 17, 2018, Reclamation requested an official species list from the United States Fish and Wildlife Service (Service) via the Service's website, http://ecos.fws.gov/ipac, (Consultation Code: 08ESMF00-2018-SLI-0916). The list covers the Proposed Action Area. The California Department of Fish and Wildlife's California Natural Diversity Database (CNDDB) was also queried for records of protected species within the vicinity of the Proposed Action Area (CNDDB, 2018). The information collected above, in addition to information within Reclamation's files, was combined to determine species and designated critical habitat protected under the Endangered Species Act of 1973 (16 U.S.C. § 1531 et seq.), as amended, in addition to other protected species that could occur within the Project Action Area. There is no proposed or designated critical habitat for listed species within the project area. A listing of special status species is provided in Table 3-1.

Three federally listed species have been recorded in the vicinity of the project area: California red-legged frog (CRLF; *Rana draytonii*), California tiger salamander Central Distinct Population Segment (CTS; *Ambystoma californiense*), and San Joaquin kit fox (SJKF; *Vulpes macrotis mutica*). Only CRLF may occur in the project area and be affected by the Proposed Action. The proposed Action Area does not provide habitat supportive of other listed species.

Reclamation is consulting informally with the Fish and Wildlife Service on Reclamation's determination that the Proposed Action is Not Likely to Adversely Affect the California red-legged frog (Rana draytonii). Reclamation has further determined that the Proposed Action, with the avoidance measures included in Table 2-1, would have *No Effect* to other proposed or listed species or critical habitat under the Endangered Species Act of 1973, as amended (16 U.S.C.

§1531 et seq.), and there would be *No Take* of birds protected under the Migratory Bird Treaty Act (16 U.S.C. §703 et seq.) (Table 3-1).

### *Cumulative Impacts*

Because the Proposed Action would not result in any direct or indirect impacts to federally listed species or their critical habitat, it would not contribute cumulatively to any impacts on these resources.

Table 3 Federally Protected Species and Critical Habitat in the Proposed Action Area

| Taxon | Status[1] | Effects[2] | Occurrence in the Proposed Action Area[3] |
|---|---|---|---|
| **AMPHIBIANS** | | | |
| California red-legged frog (*Rana draytonii*) | T, X | NLAA | **Possible.** There are no records for the species at Contra Loma Reservoir although records exist from the vicinity and are within the dispersal range of this species. There is no designated critical habitat for this species within the Proposed Action Area. Over the 24 year course of the agreement, control of emergent weeds might reduce cover that could be irregularly used by this species. |
| California tiger salamander Central California DPS (*Ambystoma californiense*) | T, X | NE | **Possible.** There are no records of this species at Contra Loma Reservoir. The nearest records are from the vicinity and are within the dispersal range of this species, however, the reservoir is not suitable breeding habitat. There is no designated critical habitat for this species within the Proposed Action Area. Burrows in surrounding uplands that might harbor California tiger salamander would not be disturbed and therefore there would be no effect to this species. |
| **BIRDS** | | | |
| Burrowing owl (*Athene cunicularia)* | MBTA | NT | **Possible.** There are no records or reported observations of burrowing owl at Contra Loma Reservoir. The Proposed Action would not affect burrows in upland habitat surrounding the reservoir that might be used. |
| California clapper rail (*Ralus longirostris obsoletus*) | E | NE | **Absent.** There are no records of this species near the Proposed Action Area. No suitable saltmarsh habitat is present in the Proposed Action Area. There is no designated critical habitat for this species. |

| Taxon | Status[1] | Effects[2] | Occurrence in the Proposed Action Area[3] |
|---|---|---|---|
| California least tern (*Sternula antillarum browni*) | E, X | NE | **Possible.** There are no records of this species in the Proposed Action Area. There is no designated critical habitat for this species in the Proposed Action Area. No nesting habitat in the Proposed Action Area; fish populations in the reservoir could change but the change would have no effect on California least tern feeding because this species does not forage at the reservoir. |
| Marsh Wren (*Cistothorus palustris*) | MBTA | NT | **Possible.** Tule and cattail habitat used for nesting by this species is present in the Proposed Action Area. Tule and cattail habitat would remain around nesting sites and would not be treated; implementation of avoidance measures would avoid take. |
| Red-winged blackbird (*Agelaius phoeniceus*) | MBTA | NT | **Possible.** Tule and cattail habitat used for nesting by this species is present in the Proposed Action Area. Tules and cattail habitat would remain around nesting sites and would not be treated; implementation of avoidance measures would avoid take. |
| **Crustaceans** | | | |
| Conservancy fairy shrimp (*Branchinecta conservatio*) | E, X | NE | **Absent.** This species does not occur within the Proposed Action Area and no suitable habitat is present. There is no designated critical habitat for this species within the Proposed Action Area. |
| Vernal pool fairy shrimp (*Branchinecta lynchi*) | T, X | NE | **Absent.** This species does not occur within the Proposed Action Area and no suitable habitat is present. There is no designated critical habitat for this species within the Proposed Action Area. |
| Vernal pool tadpole shrimp (*Lepidurus packardi*) | E, X | NE | **Absent.** This species does not occur within the Proposed Action Area and no suitable habitat is present. There is no designated critical habitat for this species within the Proposed Action Area. |
| **Fish** | | | |
| Delta smelt (*Hypomesus transpacificus*) | T, X | NE | **Absent.** This species does not occur within the Proposed Action Area and not suitable habitat is present. There is no designated critical habitat for this species within the Proposed Action Area. |
| **Insects** | | | |

| Taxon | Status[1] | Effects[2] | Occurrence in the Proposed Action Area[3] |
|---|---|---|---|
| San Bruno Elfin butterfly (*Callophrys mossii bayensis*) | E, PX | NE | **Absent.** This species does not occur within the Proposed Action Area and no suitable habitat is present. There is no proposed or designated critical habitat for this species within the Proposed Action Area. |
| Valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*) | T, X | NE | **Absent.** This species and its host plant does not occur within the Proposed Action Area. There is no suitable habitat present in the Proposed Action area and there is no designated critical habitat for this species within the Proposed Action Area. |
| **MAMMALS** | | | |
| San Joaquin kit fox (*Vulpes macrotis mutica*) | E | NE | **Possible.** Recorded adjacent to Contra Loma Reservoir in 1992 & 1995. Additional records for this species from the vicinity and within the dispersal range of the Proposed Action Area for this species. There is no designated critical habitat for this species. The Proposed Action would not affect terrestrial habitat. The Proposed Action at the reservoir would have no effect on this species. |
| **REPTILES** | | | |
| Alameda whipsnake (*Masticophis lateralis euryxanthus*) | T, X | NE | **Absent.** There are no records of this species near the Proposed Action Area. No suitable habitat is present in the Proposed Action Area. There is no designated critical habitat for this species within the Proposed Action Area. |
| Giant garter snake (*Thamnophis gigas*) | T | NE | **Absent.** There are no records of this species near the Proposed Action Area. No suitable habitat is present in the Proposed Action Area. There is no designated critical habitat for this species. |
| **PLANTS** | | | |
| Antioch Dunes Evening-Primrose (*Oenothera deltoids ssp. howellii*) | E,X | NE | **Absent.** There are records of this species within the Proposed Action Area. This species occurs at Antioch Dunes National Wildlife Refuge and at dune habitat near the refuge. There is no suitable habitat in the Proposed Action Area for this species. There is no designated critical habitat for this species in the Proposed Action Area. |
| Contra Costa Goldfields (*Lasthenia conjugens*) | E,X | NE | **Absent.** There are no records of this species within the Proposed Action Area. There is no designated critical habitat or suitable habitat present in the Proposed Action Area for this species. |

| Taxon | Status[1] | Effects[2] | Occurrence in the Proposed Action Area[3] |
|---|---|---|---|
| Large-flowered fiddleneck (*Amsinckia grandiflora*) | E, X | NE | **Absent.** This species does not occur within the Proposed Action Area. There is no suitable habitat in the Proposed Action Area. There is no designated critical habitat for this species in the Proposed Action Area. |

1 Status = Status of federally protected species protected under the ESA.
E: Listed as Endangered
NEP: Listed as a nonessential experimental population
NMFS: Species under the Jurisdiction of the National Oceanic & Atmospheric Administration Fisheries Service
T: Listed as Threatened
X: Critical Habitat designated for this species
2 Effects = ESA Effect determination
MA: Proposed Action may Adversely Affect federally listed species and/or designated critical habitat
NE: No Effect anticipated from the Proposed Action to federally listed species or designated critical habitat
NLAA: Proposed Action Not Likely to Adversely Affect federally listed species
3 Definition of Occurrence Indicators
Present: Species recorded in area and suitable habitat present.
Possible: Species recorded in area and habitat suboptimal.
Unlikely: Species recorded in area but habitat marginal or lacking entirely.
Absent: Species not recorded in study area and suitable habitat absent.

# 3.3 Recreation

## 3.3.1 Affected Environment

Contra Loma is a 741-acre Recreation Area, consisting of the 80-acre Contra Loma Reservoir and approximately 661 acres of surrounding land. East Bay currently manages recreation activities on the reservoir and the recreational lands surrounding the reservoir pursuant to an agreement with Reclamation. For further details of existing recreational uses at Contra Loma, please see the Contra Loma Resource Management Plan/ Environmental Impact Statement (Reclamation 2011).

## 3.3.2 Environmental Consequences

### *No Action*

Under the No Action Alternative, no herbicides would be applied to the aquatic vegetation. Recreationists could have limited access to recreational facilities at Contra Loma.

### *Proposed Action*

Under the Proposed Action, the chemical treatment of non-native species would enhance Contra Loma public recreation activities by providing greater access by the public.

The Proposed Action is consistent with the Contra Loma Resource Management Plan/ Environmental Impact Statement for the enhancement of current recreational uses and facilities (Reclamation 2011). The Plan includes management actions to enhance, replace, or upgrade existing recreational uses and facilities and installation of new facilities to expand or complement existing uses and facilities. During herbicide application, some existing recreational opportunities may be temporarily restricted.

#### *Cumulative Impacts*

The Proposed Action would allow East Bay the ability to chemically treat non-native plant species that are restricting visitor access to the reservoir. Visitor access to the docks could be expected to increase due to the treatment these non-native plant species.

## 3.4 Water Resources

### 3.4.1 Affected Environment

The Contra Costa Water District operates and maintains the Contra Loma Reservoir under contract with Reclamation. The reservoir receives and stores Central Valley Project water from the Contra Costa Canal until it is released back to the canal via gravity flow. The reservoir is primarily used as a regulating reservoir for peak or short-term municipal water supplies for Contra Costa Water District customers, for emergency storage, and as a backup water supply during maintenance of upstream facilities.

Contra Loma Reservoir has a maximum capacity of 2,627 acre-feet, but under typical operating conditions, reservoir storage ranges between approximately 690 and 2,000 acre-feet, depending on supply needs and hydrologic conditions (Contra Costa Water District 2009).

Water quality in Contra Loma Reservoir is heavily influenced by the Delta, its primary source of water. Water for the reservoir is diverted from the Delta at the Rock Slough and Old River intake sites and is then conveyed by the Contra Costa Canal to Contra Loma, where it is pumped uphill from the canal to the reservoir. Because the reservoir is utilized for municipal water supplies, there are implemented restrictions with body contact, programs for litter and waste reduction, regular restroom maintenance and inspection, prevention of zebra and quagga mussel infestation, and trail maintenance.

### 3.4.2 Environmental Consequences

#### *No Action*

Under the No Action Alternative, there would be no impacts to operations of Contra Loma Reservoir. The reservoir would continue to receive and store water from Contra Costa Canal for municipal purposes. Also, because there would be no herbicide application, water quality would not be impacted.

#### *Proposed Action*

Under the Proposed Action, East Bay would be able to treat cattails and Brazilian water weed with herbicide along the shoreline and boat docks under their Aquatic Pesticide Application Plan. This would allow the public greater access to the reservoir for recreational use of the park.

The Proposed Action would not impact to operations of Contra Loma Reservoir. However, during invasive species treatment, water quality could be affected. However, East Bay would apply herbicides to Contra Loma according to the label instructions, as required under their NPDES Permit. Also, East Bay would monitor water quality to receiving waters to insure there are no impacts to water resources.

***Cumulative Impacts***

The Contra Loma Reservoir receives and stores water from Contra Loma canal. It is primarily used as a regulating reservoir for peak or short-term municipal water supplies for Contra Costa Water District Customers. The Proposed Action would be covered by the permitting programs established by the Clean Water Act, designed to minimize and mitigate adverse impacts to protected water bodies, including the Contra Loma Reservoir. Typical conditions include measures to control the potential for spills of objectionable materials. Therefore the Proposed Action is not anticipated to cause conflicts or create other cumulative impacts to Contra Loma Reservoir.

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# Section 4 Consultation and Coordination

## 4.1 Public Review Period

Reclamation intends to provide the public with an opportunity to comment on the Draft Finding of No Significant Impact and Draft Environmental Assessment during a 30-day public review period.

## 4.2 List of Agencies and Persons Consulted

Reclamation has consulted with the following regarding the Proposed Action:

- United States Fish and Wildlife Service

Reclamation is coordinating the Proposed Action with East Bay Regional Parks District.

## 4.3 Clean Water Act (33 U.S.C. § 1251 et seq.)

Section 301 of the Clean Water Act (33 U.S.C. § 1311) prohibits the discharge of any pollutants into waters of the United States, except as allowed by permit issued pursuant to various sections of the Clean Water Act.

### Section 401

Section 401 of the Clean Water Act (33 U.S.C. § 1341) requires any applicant for an individual Army Corps of Engineers (Corps) dredge and fill discharge permit (see Section 404, below) to first obtain certification from the state that the activity associated with dredging or filling will comply with applicable state effluent and water quality standards. This certification must be approved or waived prior to the issuance of a permit for dredging and filling.

There would be no dredge or fill from the Proposed Action and therefore a Section 401 permit is not required.

### Section 402

Section 402 of the Clean Water Act (33 U.S.C. § 1341) establishes the National Pollutant Discharge Elimination System (NPDES) to regulate point source discharges of pollutants into waters of the United States. A NPDES permit sets specific discharge limits for point sources discharging pollutants into waters of the United States and establishes monitoring and reporting requirements, as well as special conditions.

Parks acquired an NPDES Permit for the proposed action. The permit is scheduled to expire October 31 at the end of the permit. The Proposed Action will be carried out only during the time when an NPDES permits the action.

### Section 404

Section 404 of the Clean Water Act (33 U.S.C. § 1344) authorizes the Corps to issue permits to regulate the discharge of "dredged or fill materials into waters of the United States". No activities such as dredging or filling of wetlands or surface waters would be required for implementation of the Proposed Action, therefore permits obtained in compliance with CWA section 404 are not required.

There would be no dredge or fill and therefore a Section 404 permit under the Clean Water Act (33 U.S.C. § 1344) is not required for the Proposed Action.

## 4.4 Endangered Species Act (16 U.S.C. § 1531 et seq.)

Section 7 of the Endangered Species Act requires Federal agencies, in consultation with the Secretary of the Interior and/or Commerce, to ensure that their actions do not jeopardize the continued existence of endangered or threatened species, or result in the destruction or adverse modification of the critical habitat of these species.

Reclamation is consulting with U.S. Fish and Wildlife Service on potential effects to California red legged frog. This EA will not be finalized until consultation is complete.

# Section 5 References

Reclamation (Bureau of Reclamation). 2011. Contra Loma Reservoir and Recreation Area Final Resource Management Plan and Final Environmental Impact Statement. Mid-Pacific Region South-Central California Area Office. Fresno, California. September. Website: http://www.usbr.gov/mp/nepa/nepa_projdetails.cfm?Project_ID=6396.

EPA. https://www.epa.gov/endangered-species Accessed 2/15/2018.

EPA. https://www.epa.gov/safepestcontrol/tips-reducing-pesticide-impacts-wildlife#applicator

EPA. 2008. Risks of Glyphosate Use to Federally Threatened California Red-legged Frog (Rana aurora draytonii) Pesticide Effects Determination, Environmental Fate and Effects Division, Office of Pesticide Programs, Washington, D.C. 20460. October 17, 2008.

Feaver, P. E. 1971. Breeding Pool Selection and Larval Mortality, of Three California Amphibians: *Ambystoma tigrinum* californiense Gray, Hyla regilla Baird and Girard, and Scaphiopus hammondi hammondi Girard. M.S. Thesis. Fresno State College. July 1971. 65pp.

RECLAMATION
*Managing Water in the West*

**Draft FINDING OF NO SIGNIFICANT IMPACT**

# East Bay Regional Parks Herbicide Application at Contra Loma Reservoir

**FONSI-17-046**

U.S. Department of the Interior
Bureau of Reclamation
South-Central California Area Office

**March 2018**

# Mission Statements

The Department of the Interior protects and manages the Nation's natural resources and cultural heritage; provides scientific and other information about those resources; and honors its trust responsibilities or special commitments to American Indians, Alaska Natives, and affiliated island communities.

The mission of the Bureau of Reclamation is to manage, develop, and protect water and related resources in an environmentally and economically sound manner in the interest of the American public.

**BUREAU OF RECLAMATION**
**South-Central California Area Office, Fresno, California**

**FONSI-17-046**

# East Bay Regional Parks Herbicide Application at Contra Loma Reservoir

| | |
|---|---|
| Prepared by: Kate Connor<br>Natural Resources Specialist | Date |
| Concurred by: Ned Gruenhagen<br>Wildlife Biologist | Date |
| Concurred by: Rain L. Emerson<br>Environmental Compliance Branch Chief | Date |
| Approved by: Michael P. Jackson, P.E.<br>Area Manager | Date |

# Introduction

In accordance with section 102(2)(c) of the National Environmental Policy Act (NEPA) of 1969, as amended, the Bureau of Reclamation (Reclamation) has released this draft Finding of No Significant Impact (FONSI) which is supported by Reclamation's Environmental Assessment (EA)-17-046, *East Bay Regional Parks Herbicide Application at Contra Loma Reservoir*, hereby incorporated by reference, for public review. No final decision shall be made on the FONSI until public review has been completed and comments, if any, considered.

## Background

Reclamation constructed the Contra Loma Reservoir (The Reservoir) in 1967 as part of the Central Valley Project. Contra Costa Water District operates and maintains the system and includes the 80-acre reservoir. The reservoir is a popular recreational fishing, boating, and swimming destination. In 1972, a management agreement between Reclamation and East Bay Regional Parks District (East Bay) transferred management responsibilities of recreation of the reservoir and the recreational lands surrounding the reservoir over to East Bay (Agreement No. 14-06-200-6023).

East Bay has developed an Aquatic Pesticide Application Plan (Appendix A) for Contra Loma. They have also received a National Pollutant Discharge Elimination System Permit (NPDES) (Appendix B) from the Regional Board for application of these pesticides (Permit No. CAG990005).

## Alternatives Considered

### No Action

Under the No Action Alternative, Reclamation would not approve the application of herbicide to control non-native plant species at Contra Loma Reservoir. This alternative would result in limit management of non-native plant species to mechanical removal, and would limit recreational use of Contra Loma.

### Proposed Action

Reclamation would approve East Bay's application of herbicides to control weed species at Contra Loma until February 2041 when the Management Agreement (Agreement #14-LC-20-047) between Reclamation and East Bay for Contra Loma Reservoir expires.

The Reclamation Manual provides that on lands not addressed by an approved Integrated Pest Management (IPM) plan, Pesticide Use Proposals (PUP's) be developed and approved before pesticides are applied (Env 01-01). The areas where herbicide applications are needed at Contra Loma Reservoir would be determined by East Bay's Fishery Manager, based on weed load and public use. There are currently 3 docks and 1 boat launch area at the reservoir where control of aquatic weeds is needed.

Under the Proposed Action, East Bay Parks would submit Pesticide Use Proposal's (PUP's) to Reclamation. Reclamation would review and approve PUP's submitted for treating weeds at Contra Loma Reservoir until the Management Agreement expires. Reclamation would notify East Bay Parks of the approved submitted PUP's. Herbicide applications would be made by certified applicators using backpack sprayers, wands, drip lines or other suitable, but non-aerial application means.

Roundup Custom® (active ingredient glyphosate) aquatic label, would be applied to emergent weeds (e.g., cattails (*Typha latifolia)* and tules (*Scirpus* spp.) at the reservoirs shoreline. Sonar One® (active ingredient; fluridone) would be applied in the immediate area around docks and boat launch areas to control aquatic weeds such as Brazilian Waterweed (*Egeria densa*). Herbicides would be applied up to twice per year, and at rates permitted under the label. Reclamation's review and approval of PUP's allows for consideration and implementation of changes required to comply with laws, policies and guidelines then in place. If necessary, additional consultation with regulatory agencies would be conducted.

#### *Environmental Commitments*

East Bay shall implement the environmental protection measures listed in Table 1 of EA-17-046 to reduce environmental consequences associated with the Proposed Action. Environmental consequences for resource areas assume the measures specified would be fully implemented.

## Findings

In accordance with NEPA, Reclamation's South-Central California Area Office determined that the approval of the Proposed Action is not a major federal action that will significantly affect the quality of the human environment; consequently, an environmental impact statement is not required.

The following reasons are why the impacts from the proposed action are not significant:

- The proposed action will not significantly affect public health or safety (40 CFR 1508.27(b)(2)).

- The proposed action will not significantly affect natural resources and unique geographical characteristics such as proximity to historic or cultural resources; parks, recreation, and refuge lands; wilderness areas; wild or scenic rivers; national natural landmarks; sole or principal drinking water aquifers; prime farmlands; wetlands (Executive Order (EO) 11990); flood plains (EO 11988); national monuments; migratory birds; and other ecologically significant or critical areas (40 CFR 1508.27(b)(3) and 43 CFR 46.215(b)).

- There is no potential for the effects to be considered highly controversial (40 CFR 1508.27(b)(4)).

- The proposed action will not have possible effects on the human environment that are highly uncertain or involve unique or unknown risks (40 CFR 1508.27(b)(5)).

- The proposed action will neither establish a precedent for future actions with significant effects nor represent a decision in principle about a future consideration (40 CFR 1508.27(b)(6)).

- The proposed action will not have cumulatively significant impacts (40 CFR 1508.27(b)(7)).

- The proposed action will not significantly affect historic properties (40 CFR 1508.27(b)(8)).

- The proposed action will not significantly affect listed or proposed threatened or endangered species, or its habitat that has been determined to be critical under the Endangered Species Act of 1973 (40 CFR 1508.27(b)(9)).

- The proposed action will not threaten a violation of Federal, State, tribal or local law or requirements imposed for the protection of the environment (40 CFR 1508.27(b)(10)).

- The proposed action will not affect any Indian Trust Assets (512 DM 2, Policy Memorandum dated December 15, 1993).

- Implementing the proposed action will not disproportionately affect minorities or low-income populations and communities (EO 12898).

- The proposed action will not limit access to, and ceremonial use of, Indian sacred sites on Federal lands by Indian religious practitioners or adversely affect the physical integrity of such sacred sites (EO 13007 and 512 DM 3).

# Appendix A: Aquatic Pesticide Application Plan

Aquatic Pesticide Application Plan

# East Bay Regional Park District

## Aquatic Pesticide Application Plan (APAP)

**For the**

**Statewide General National Pollutant Discharge Elimination System (NPDES) Permit for Residual Aquatic Pesticide Discharges to Waters of the United States from Algae and Aquatic Weed Control Applications**

**Water Quality Order No. 2013-0002-DWQ**

**General Permit # CAG990005**


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## Certification

***"I certify under penalty of law that this document and all attachments were prepared under my direct supervision in accordance with a system designed to insure that qualified personnel properly gathered and evaluated 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".***

Signed and Agreed:

_____

Casey Brierley
IPM Specialist
East Bay Regional Park District

_____

Stephen Burkholder
Project Biologist
Blankinship & Associates, Inc.

_____

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## Limitations

The services used to prepare this document were performed consistent with our agreement with our client and were rendered in a manner consistent with generally accepted professional consulting principles and practices using the level of care and skill ordinarily exercised by other professional consultants under similar circumstances at the same time the services were performed. No warranty, express or implied, is included. This document is solely for the use of our client unless otherwise noted. Any use or reliance on this document by a third party is at such party's sole risk.

# East Bay Regional Park District

# Aquatic Pesticide Application Plan

**Statewide General National Pollutant Discharge Elimination System (NPDES) Permit for Residual Aquatic Pesticide Discharges to Waters of the United States from Algae and Aquatic Weed Control Applications**
**Water Quality Order No. 2013-0002-DWQ**
**General Permit # CAG990005**

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**Appendix A**

## Aquatic Pesticide Application Plan

In March 2001, the State Water Resources Control Board (SWRCB) prepared Water Quality Order # 2001-12-DWQ which created Statewide General National Pollutant Discharge Elimination System (NPDES) Permit # CAG990003 for the discharges of aquatic herbicides to waters of the United States. The purpose of Order # 2001-12-DWQ was to minimize the areal extent and duration of adverse impacts to beneficial uses of water bodies treated with aquatic herbicides. The purpose of the general permit was to substantially reduce the potential discharger liability incurred for releasing water treated with aquatic herbicides into waters of the United States. The general permit expired January 31, 2004.

On May 20, 2004 the SWRCB adopted the statewide general NPDES Permit for Discharge of Aquatic Pesticides for Aquatic Weed Control in Waters of the United States #CAG 990005. Dischargers were required to have the general permit to perform aquatic herbicide applications. In May 2009, the general permit expired, but was administratively continued until November 30, 2013.

The Statewide General NPDES Permit for Residual Aquatic Pesticide Discharges to Waters of the United States from Algae and Aquatic Weed Control Applications (herein referred to as the "Permit") was adopted on March 5, 2013 and became available on December 1, 2013 (SWRCB 2013). The Permit requires compliance with the following:

- The Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries in California, a.k.a. the State Implementation Plan, or SIP (SWRCB 2000)
- The California Toxics Rule (CTR)
- Applicable Regional Water Quality Control Board (RWQCB) Basin Plan Water Quality Objectives (WQOs) (CVRWQCB 2003)

Coverage under the Permit is available to single dischargers and potentially to regional dischargers for releases of potential and/or actual pollutants to waters of the United States. Dischargers eligible for coverage under the Permit are public entities that conduct resource or pest management control measures, including local, state, and federal agencies responsible for control of algae, aquatic weeds, and other organisms that adversely impact operation and use of drinking water reservoirs, water conveyance facilities, irrigation canals, flood control channels, detention basins and/or natural water bodies.

The Permit does not cover indirect or non-point source discharges, whether from agricultural or other applications of pesticides to land, that may be conveyed in storm water or irrigation runoff. The Permit only covers algaecides and aquatic herbicides that are applied according to label directions and that are registered for use on aquatic sites by the California Department of Pesticide Regulation (DPR).

The East Bay Regional Park District (herein referred to as "District") maintains 65 parks, covering over 113,000 acres in its two-county jurisdiction, with more than 1,200 miles of trails. The facilities managed by the District include, but are not limited to: Big Break Regional Shoreline (Oakley), Contra Loma Regional Park (Antioch), Crown Beach (Alameda), Del Valle Regional Park (Livermore), Lake Chabot (Castro Valley), Garin Regional Park, Hayward Shoreline, Lake Anza, Martin Luther King Jr. Regional Shoreline (San Leandro Bay near Oakland Airport), Oyster Bay, Quarry Lakes Regional Recreation Area (Fremont), and Shadow Cliffs Regional Recreation Area (Pleasanton), Temescal Regional Recreation Area.

In addition, the District manages vegetation in and around streams, creeks, other water holding and water conveyance facilities throughout the District's jurisdiction. Refer to **Figure 1.**

Nuisance algae and aquatic vegetation grows in the District's facilities. The presence of algae and aquatic weeds adversely impact the ecology, aesthetics, operations, recreational, and educational uses of District parks. As such, the District has determined the need to use algaecides and aquatic herbicides to control problem aquatic vegetation and algae. The District's "project", as defined by the Permit, is the use of algaecides and aquatic herbicides to control algae and aquatic vegetation.

According to Permit requirements, the District has completed a Notice of Intent (NOI) and prepared an Aquatic Pesticide Application Plan (APAP). Sampling and analysis will be performed and annual reports will be submitted to the San Francisco and Sacramento Regional Water Quality Control Boards (RWQCBs).

Using Integrated Pest Management (IPM) techniques, the District intends to apply algaecides and aquatic herbicides using 2013 Permit. The specific herbicides are identified in their Notice of Intent to Comply (NOI). For the purposes of complying with the 2013 Permit, the District has created this APAP.

This APAP is a comprehensive plan developed by the District that describes the project, the need for the project, what may be done to reduce water quality impacts, and how those impacts will be monitored. Specifically, this APAP contains the following eleven (11) elements.

1. Description of the water system to which algaecides and aquatic herbicides are being applied;
2. Description of the treatment area in the water system;
3. Description of types of weed(s) and algae that are being controlled and why;
4. Algaecide and aquatic herbicide products or types of algaecides and aquatic herbicides expected to be used and if known their degradation byproducts, the method in which they are applied, and if applicable, the adjuvants and surfactants used;
5. Discussion of the factors influencing the decision to select algaecide and aquatic herbicide applications for algae and weed control;
6. If applicable, list the gates or control structures 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;
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;
8. Description of monitoring program;

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

10. Description of the Best Management Practices (BMPs) to be implemented. The BMPs shall include, at the minimum:

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

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

    10.3. 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;

    10.4. 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; and

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

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

    11.1. 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:

        11.1.1. No action;

        11.1.2. Prevention;

        11.1.3. Mechanical or physical methods;

        11.1.4. Cultural methods;

        11.1.5. Biological control agents; and

        11.1.6. 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.

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

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

This APAP is organized to address the aforementioned 1 through 11 elements.

Insert Figure 1 – Project Location Map.

Insert Figure 2-Big Break Regional Shoreline Map

## Element 1: Description of the Water System

**Big Break Regional Shoreline** is a part of the 1150-square-mile Sacramento-San Joaquin River Delta. Big Break was once an upland farm, but is now submerged and forms a small bay at the edge of the San Joaquin River where seawater mixes with freshwater. The mixing of water produces a unique habitat with large species diversity. The Big Break Visitor Center is located in the park and hosts a variety of interpretive and education exhibits and programs that highlight the Delta's ecosystems and wildlife. As part of the interpretive programs an artificial slough through the facility was created, however it has not been appropriately maintained and nuisance aquatic vegetation has overgrown the area. The nuisance vegetation impairs the educational uses of the District's facilities and has prevented efforts to re-establish native plant communities. Refer to **Figure 2.**

Current aquatic vegetation problems do not exist in the following water bodies, however historical occurrences suggest treatments may be needed in future years depending on weather patterns and water levels.

**Contra Loma Regional Park:** The park includes a shallow, warm, 80-acre reservoir for year-round fishing and a lifeguarded swim lagoon for summertime swimming.

**Crown Beach:** Crown beach consists of a 2.5 mile beach with sand dunes.

**Del Valle Regional Park:** The park contains a five-mile long lake with many recreation activities including swimming, windsurfing, and boating.

**Garin Regional Park:** Garin Regional Park contains Jordan Pond which is used for recreational uses such as fishing.

**Hayward Shoreline:** Hayward Regional Shoreline consists of 1,811 acres of salt, fresh, and brackish marshes, seasonal wetlands, and public trails.

**Lake Anza:**

**Lake Chabot:** Lake Chabot is a 315 acre drinking water reservoir that serves as an emergency water supply for the East Bay. It is stocked with trout and catfish and is a popular fishing spot. Swimming is not allowed in the lake.

**Martin Luther King Jr. Regional Shoreline:** This 741-acre park on San Leandro Bay near Oakland airport consists of boating, fishing, and other recreational activities.

**Oyster Bay:** Oyster Bay Regional Shoreline is a park under development south of the Oakland Airport.

**Quarry Lakes Regional Recreation Area:** Quarry lakes consists of 351-acres of lake that are used for groundwater recharge. Recreational activities including boating, swimming, and fishing.

**Shadow Cliffs Regional Recreation Area:** This park consists of a main 80-acre lake and a chain of smaller lakes and ponds. Swimming, boating and fishing are allowed on the lake.

**Temescal Regional Recreation Area:** Temescal is a lake popular for swimming and fishing.

Refer to **Appendix A** for maps of these sites.

## Element 2: Description of the Treatment Area

The District may apply algaecides or aquatic herbicides to the water bodies described in Element 1 if aquatic weeds or algae treatment thresholds are met.

## Element 3: Description of Weeds and Algae

Weeds found throughout the District water bodies include emergent, floating, and submerged aquatic vegetation and algae including cattails, tule, and pampas grass

The presence of algae, above aquatic vegetation species, and others adversely affect aesthetics, ecology, operations, and recreational and educational uses of District parks.

## Element 4: Algaecides and Aquatic Herbicides Used, Known Degradation Byproducts, Application Methods and Adjuvants

**Table 1** summarizes the algaecides and aquatic herbicides that may be used by the District.

**Table 1: Algaecides and Aquatic Herbicides That May be Used**

| Herbicide | Application Method(s) | Adjuvant |
|---|---|---|
| Diquat Dibromide | Submersed boom, handgun, or boom sprayer | Various "Aquatic"-labeled adjuvants |
| Endothall | Submersed boom/injection, handgun or boom sprayer, or spreader (granules) | Not Applicable |
| Fluridone | Submersed boom, or spreader | Not Applicable |
| Glyphosate | Backpack sprayer, handgun, or boom sprayer | Various "Aquatic"-labeled adjuvants |
| Imazamox | Backpack sprayer, handgun, or boom sprayer | Various "Aquatic"-labeled adjuvants |
| Imazapyr | Backpack sprayer, handgun, or boom sprayer | Various "Aquatic"-labeled adjuvants |
| Penoxsulam | Backpack sprayer, handgun, or boom sprayer | Not Applicable |
| Sodium Carbonate Peroxyhydrate | Handgun, boom sprayer (liquid), or spreader (granules) | Not Applicable |
| Triclopyr | Backpack sprayer, handgun, or boom sprayer | Various "Aquatic"-labeled adjuvants |

As required, aquatic-labeled adjuvants or surfactants may be used to enhance the efficacy of an herbicide. Generally, the District uses adjuvants that are not nonylphenol-based.

All herbicide applications are made in accordance with the product label. For example, an application of glyphosate and a surfactant to pampas grass in and along Big Break's constructed channel will be made with a handgun sprayer calibrated to deliver the correct amount of material per acre treated to achieve the desired target concentration. .

## Element 5: Discussion of Factors Influencing Herbicide Use

Treatment of aquatic vegetation and algae by the District is determined by the application of IPM. One of the primary operational goals of the IPM program is to establish a general and reasonable set of control measures that not only aid in managing aquatic vegetation populations, but also address public health & safety, economic, legal, and aesthetic requirements. An action threshold level is the point at which action should be taken to control aquatic vegetation before the drainage feature is significantly impacted; moreover, established action threshold levels may change based on public expectations. A central feature of IPM is to determine when control action is absolutely necessary and when it is not. Examples of when or how thresholds are met are when algae or aquatic vegetation causes complaints about objectionable odors, creates a nuisance, or impedes recreational uses of the District's facilities. Typical problems associated with aquatic vegetation or algae blooms are adverse impacts to water quality and aesthetics, and nuisance odors. If vegetation or algae equals or exceeds a threshold, a control method is implemented. Control methods may include mechanical, cultural controls, biological, and/or chemical, consistent with the District's IPM techniques. Algaecide and aquatic herbicide use may or may not be employed as a last resort control method, and is considered a critical part of the IPM program. For some aquatic vegetation species, herbicides offer the most effective (i.e. long-lasting or least labor intensive) control; sometimes, they may be the only control available.

Algaecide and aquatic herbicide applications may also be made prior to threshold exceedance. For example, based on predicted growth rate and density, historical algae and aquatic weed trends, weather, water flow, and experience, aquatic weeds or algae may reasonably be predicted to cause future problems. Accordingly, they may be treated soon after emergence or when appropriate based on the algaecide and aquatic herbicide to be used. Even though algae and aquatic weeds may not be an immediate problem at this phase, treating them before they mature reduces the total amount of algaecide and aquatic herbicide needed because the younger aquatic weeds are more susceptible and there is less biomass to target. Furthermore, treating aquatic weeds and algae within the ideal time frame of its growth cycle ensures that the selected control measures will be most effective. Managing aquatic weed populations before they produce seeds, tubers or other reproductive organs is an important step in a comprehensive aquatic weed control program. Generally, treating algae or aquatic vegetation earlier in the growth cycle results in fewer controls needed and less total herbicide used. Selection of appropriate algaecide and aquatic herbicide(s) and rate of application is done based on the identification of the algae and aquatic weed, its growth stage and the appearance of that algae or aquatic weed on the product label.

The selection of and decision to use an algaecide or aquatic herbicide is based on the recommendation of a California Department of Pesticide Regulation (CDPR)-licensed Pest Control Adviser (PCA). The PCA considers a variety of control options that may include mechanical and/or cultural techniques that alone or in combination with algaecide or aquatic herbicide use are the most efficacious and protective of the environment.

Evaluating alternative control techniques is part of the District's IPM approach; therefore an alternative treatment may be selected as part of a test program. Alternative control techniques include mechanical removal (i.e. manually, or with an excavator), grazing and/or native species establishment. A more detailed description of each of these is presented in **Element 10** and **Element 11** of this document.

In general, alternative control techniques are more expensive, labor intensive, not as effective, may cause temporary water quality degradation, and/or further spread algae or aquatic weeds. The equipment and labor required to perform these techniques is not always readily available. This may cause delays in removal leading to increased plant material to remove and increased cost.

## Element 6: Gates and Control Structures

The District operates and maintains water control structures at some of its facilities. As applicable or necessary, District staff will close gates, valves or other structures during an algaecide or aquatic herbicide application to control the extent, if any, that receiving waters will be affected by residual algaecides or aquatic herbicides.

To evaluate the presence of leaks, control structures within the treatment area will be inspected prior to and during the application. If leaks develop on closed valves or gates, they will be stopped as soon as practicable.

# Fig.3 Aquatic Herbicide Application Log rev 1.22.14

**For Client Use Only**



****IMPORTANT** To Be Completed EVERY TIME an Aquatic Herbicide Application is Made**

## I. GENERAL

Date _____ Location _____ Start Time _____ Stop Time _____

Agency _____ Personnel _____

Weather _____

Total Area Treated (Ac or linear ft) _____ Target Weed(s) _____

☐ If NO applications made this month, check here and list month: _____

## II. PESTICIDE & ADJUVANT INFORMATION

Herbicide #1 Used: _____ Rate or Target Concentration: _____ Total Amt Applied _____

Herbicide #2 Used: _____ Rate or Target Concentration: _____ Total Amt Applied _____

Adjuvant #1 Used: _____ Rate or Target Concentration: _____ Total Amt Applied _____

Adjuvant #2 Used: _____ Rate or Target Concentration: _____ Total Amt Applied _____

Method of Application: _____ Application Made **With** water flow / **Against** water flow / **Not Applicable** (Circle One)

## III. TREATED WATERBODY INFORMATION

Waterbody type (Circle One: lined canal, unlined canal, creek, drain, ditch, reservoir, lake, pond) Other: _____

Water flow (ft/sec, cfs) _____ Water Depth (ft): _____ Water temperature (F): _____

Percent weed cover _____ Sheen: (circle one) **yes** **no**

Color: (circle one) **none** **brown** **green** other: _____ Clarity (circle one) **poor** **fair** **good**

Other Information: _____

## IV. GATES, WEIRS, CHECKS OR OTHER CONTROL STRUCTURES (ONLY FILL OUT IF APPLICABLE)

| | Yes | No | N/A |
|---|---|---|---|
| **A. Are there any gates or control structures in the treatment area that may discharge to streams, rivers, lakes, or other natural waterways?** (If the answer to question A is Yes then answer questions B-F the Table below, otherwise leave blank) | | | |
| Before Application | | | |
| **B. Have flow control structures been closed & sealed to prevent aquatic pesticide from discharging to natural waterways?** | Yes | No | |
| **C. Have necessary flow control structures been inspected for leaks?** | Yes | No | |
| **D. If leaks were found, were they sealed or otherwise prevented from allowing water to discharge to natural waterways prior to application?** | Yes | No | |
| During Application | | | |
| **E. Were necessary flow control structures inspected for leaks?** | Yes | No | |
| **F. If leaks developed, was the application stopped until the leak could be sealed or prevented from allowing water to discharge to natural waterways?** | Yes | No | |

If the answer to any of the above questions is No, explain: _____

| Gate | Time Closed | Time Opened | How was time opened determined: |
|---|---|---|---|
| | | | |
| | | | |
| | | | |

## V. CERTIFICATION

I _____ (print name) certify that the APAP has been followed (sign here): X _____

## Element 7: State Implementation Policy (SIP) Section 5.3 Exception

The Permit allows the District to apply for a SIP Section 5.3 Exception for a short-term or seasonal exception to the copper WQO. If an exception is granted, this section will be amended to describe the exception period as outlined in the required CEQA documentation. The District does not currently have a SIP exception.

## Element 8: Description of Monitoring Program

Attachment C of the Permit presents the Monitoring and Reporting Program (MRP). The MRP addresses two key questions:

> Question No. 1: Does the residual algaecides and aquatic herbicides discharge cause an exceedance of the receiving water limitations?
>
> Question No. 2: Does the discharge of residual algaecides and aquatic herbicides, including active ingredients, inert ingredients, and degradation byproducts, in any combination cause or contribute to an exceedance of the "no toxics in toxic amount" narrative toxicity objective?

Attachment C of the Permit provides MRP guidelines that the District will use to meet the aforementioned goals.

### 8.1 Data Collection

Visual monitoring will be performed for all algaecide and aquatic herbicide applications at all sites and be recorded by qualified personnel.

**Figure 3** (Aquatic Pesticide Application Log) or its equivalent, **Figure 4** (Aquatic Herbicide Field Monitoring & Sampling Form MOVING Water) or its equivalent or **Figure 5** (Aquatic Herbicide Field Monitoring & Sampling Form STATIC Water) will be used.

# Fig.4 Page 1/3

# Aquatic Herbicide Field Monitoring & Sampling Form – Moving Water

**For Client Use Only**



****IMPORTANT** Attach Relevant Aquatic Herbicide Application Log (AHAL) Form**

**Agency:**_____ **Site Name:**_____

## SAMPLE #1: Background (BG)

**Collect upstream of, or in treatment area within 24 hours of the treatment starting.**

**Draw Sample Location and include identifiable points of reference**

N

Scale: 1"≈

Sampler Name:_____

Date:_____ Time:_____

Herbicide Applied (Surfactants?):_____

Approximate Water Speed (ft/sec):_____

Sample Waypoint or GPS Coordinates_____

Target Vegetation:_____

Site Description:_____

DO (mg/L):_____ EC (µs/cm)_____

pH:_____ Turbidity (NTU):_____

Temp (°C):_____

| DO YOU NOTICE | YES | NO | UNKNOWN | IF YES, DESCRIBE YOUR OBSERVATIONS |
|---|---|---|---|---|
| Floating Material | | | | |
| Settleable Substances | | | | |
| Suspended Material | | | | |
| Bottom Deposits | | | | |
| Taste and Odors | | | | |
| Water coloration | | | | |
| Visible Films, Sheens or Coatings | | | | |
| Fungi, Slimes, or Objectionable Growths | | | | |
| Aquatic Community Degradation | | | | |

# Fig.4 Page 2/3

# Aquatic Herbicide Field Monitoring & Sampling Form – Moving Water

**For Client Use Only**



**Agency:**_____ **Site Name:**_____

## SAMPLE # 2: Event Monitoring (Event)

**Collect immediately downstream of treatment area shortly after application, but after sufficient time has elapsed such that treated water would have exited the treatment area. The timing for the collection of this sample will be a site-specific estimation based on flow rates and size of the application area, and duration of treatment.**

Sampler Name:_____

Date:_____ Time:_____

Sample Waypoint or GPS Coordinates_____

_____

Approximate Water Speed (ft/sec):_____

Length of Treated Area (ft):_____

Application Start Date: _____ Start Time:_____

Application End Date: _____ End Time: _____

Application made with or against water flow? (Circle One)

DO (mg/L):_____ EC (µs/cm)_____

pH:_____ Turbidity (NTU):_____

Temp (°C):_____

**Draw Sample Location and include identifiable points of reference**

N

Scale: 1" ≈ _____

| DO YOU NOTICE | YES | NO | UNKNOWN | IF YES, DESCRIBE YOUR OBSERVATIONS |
|---|---|---|---|---|
| Floating Material | | | | |
| Settleable Substances | | | | |
| Suspended Material | | | | |
| Bottom Deposits | | | | |
| Taste and Odors | | | | |
| Water coloration | | | | |
| Visible Films, Sheens or Coatings | | | | |
| Fungi, Slimes, or Objectionable Growths | | | | |
| Aquatic Community Degradation | | | | |

**Date Field Blank (FB) Collected: _____ Date Field Duplicate (FD) Collected: _____**

Revised 1/22/2014

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# Aquatic Herbicide Field Monitoring & Sampling Form – Moving Water

**For Client Use Only**



**Agency:**_____ **Site Name:**_____

## SAMPLE # 3:
## Post-Event Monitoring (Post)

**Collect in treatment area within 7 days of application, or when treatment is deemed complete.**

Sampler Name:_____

Date:_____ Time:_____

Sample Waypoint or GPS Coordinates_____

_____

Approximate Water Speed (ft/sec):_____

DO (mg/L):_____ EC (µs/cm)_____

pH:_____ Turbidity (NTU):_____

Temp (°C):_____

Comments_____

_____

**Draw Sample Location and include identifiable points of reference**

N

Scale: 1" ≈

| DO YOU NOTICE | YES | NO | UNKNOWN | IF YES, DESCRIBE YOUR OBSERVATIONS |
|---|---|---|---|---|
| Floating Material | | | | |
| Settleable Substances | | | | |
| Suspended Material | | | | |
| Bottom Deposits | | | | |
| Taste and Odors | | | | |
| Water coloration | | | | |
| Visible Films, Sheens or Coatings | | | | |
| Fungi, Slimes, or Objectionable Growths | | | | |
| Aquatic Community Degradation | | | | |

# Fig.5 Aquatic Herbicide Field Monitoring & Sampling Form – Static Water



**For Client Use Only**



****IMPORTANT** Attach Relevant Aquatic Herbicide Application Log (AHAL) Form**

**Agency:**_____ **Site Name:**_____

## SAMPLE #1: Background (BG)

**Collect upstream of, or in treatment area within 24 hours of the treatment starting.**

**Draw Sample Location and include identifiable points of reference**

N

Scale: 1" ≈ _____

Sampler Name:_____

Date:_____ Time: _____

Herbicide Applied (Surfactants?):_____

_____

Sample Waypoint or GPS Coordinates_____

_____

Target Vegetation:_____

Site Description:_____

DO (mg/L):_____ EC (µs/cm)_____

pH:_____ Turbidity (NTU):_____

Temp (°C):_____

| DO YOU NOTICE | YES | NO | UNKNOWN | IF YES, DESCRIBE YOUR OBSERVATIONS |
|---|---|---|---|---|
| Floating Material | | | | |
| Settleable Substances | | | | |
| Suspended Material | | | | |
| Bottom Deposits | | | | |
| Taste and Odors | | | | |
| Water coloration | | | | |
| Visible Films, Sheens or Coatings | | | | |
| Fungi, Slimes, or Objectionable Growths | | | | |
| Aquatic Community Degradation | | | | |

# Fig.5 Aquatic Herbicide Field Monitoring & Sampling Form – Static Water



For Client Use Only



**Agency:**_____ **Site Name:**_____

## SAMPLE # 2: Event Monitoring (Event)

**Collect immediately outside the treatment area immediately after the application event, but after sufficient time has elapsed such that treated water would have exited the treatment area. The timing for the collection of this sample will be a site-specific estimation based on size of the application area, and duration of treatment.**

**Collect Field Blank and Duplicate Samples as Needed**

Sampler Name:_____

Date:_____ Time:_____

Sample Waypoint or GPS Coordinates_____

_____

Length of Treated Area (ft):_____

Application Start Date: _____ Start Time:_____

Application End Date: _____ End Time: _____

DO (mg/L):_____ EC (µs/cm)_____

pH:_____ Turbidity (NTU):_____

Temp (*C):_____

**Draw Sample Location and include identifiable points of reference**

N ↑

Scale: 1" ≈ [ ]

| DO YOU NOTICE | YES | NO | UNKNOWN | IF YES, DESCRIBE YOUR OBSERVATIONS |
|---|---|---|---|---|
| Floating Material | | | | |
| Settleable Substances | | | | |
| Suspended Material | | | | |
| Bottom Deposits | | | | |
| Taste and Odors | | | | |
| Water coloration | | | | |
| Visible Films, Sheens or Coatings | | | | |
| Fungi, Slimes, or Objectionable Growths | | | | |
| Aquatic Community Degradation | | | | |

**Date Field Blank (FB) Collected: _____ Date Field Duplicate (FD) Collected: _____**

# Fig.5 Page 3/3

# Aquatic Herbicide Field Monitoring & Sampling Form – Static Water

**For Client Use Only**



**Agency:**_____ **Site Name:**_____

## SAMPLE # 3:
## Post-Event Monitoring (Post)

**Collect within treatment area within 7 days of application, or when treatment is deemed completed.**

**Draw Sample Location and include identifiable points of reference**

N

Scale: 1" ≈ _____

Sampler Name:_____

Date:_____ Time:_____

Sample Waypoint or GPS Coordinates_____

_____

DO (mg/L):_____ EC (µs/cm)_____

pH:_____ Turbidity (NTU):_____

Temp (*C):_____

Post- Treatment Efficacy (circle one)
**poor fair good unknown**

Impacts to water quality (circle one)
**positive negative unknown**

Comments_____

| DO YOU NOTICE | YES | NO | UNKNOWN | IF YES, DESCRIBE YOUR OBSERVATIONS |
|---|---|---|---|---|
| Floating Material | | | | |
| Settleable Substances | | | | |
| Suspended Material | | | | |
| Bottom Deposits | | | | |
| Taste and Odors | | | | |
| Water coloration | | | | |
| Visible Films, Sheens or Coatings | | | | |
| Fungi, Slimes, or Objectionable Growths | | | | |
| Aquatic Community Degradation | | | | |

8.2 Monitoring Locations and Frequency

Water quality sampling for glyphosate will be conducted for one application event from each environmental setting (flowing water and non-flowing water) per year. No water quality sampling is required for applications of products that contain sodium carbonate peroxyhydrate. For application of all other algaecides and aquatic herbicides listed on the Permit, the District will collect samples from a minimum of six application events for each active ingredient in each environmental setting per year. If there are less than six application events in a year for an active ingredient, the District will collect samples for each application event in each environmental setting.

If the results from six consecutive sampling events show concentrations that are less than the applicable receiving water limitation/trigger in an environmental setting, the District will reduce the sampling frequency for that active ingredient to one per year in that environmental setting. If the annual sampling shows exceedances of the applicable receiving water limitation/trigger, the District will be required to return to sampling six applications the next year, and until sampling may be reduced again.

Sites will be chosen to represent the variations in treatment that occur, including algaecide or aquatic herbicide use, hydrology, and environmental setting, conveyance or impoundment type, seasonal, and regional variations. The exact location(s) of sample site(s) will be determined after site scouting and a decision to make an aquatic herbicide application are made per the District IPM approach. **Figure 4** or **Figure 5** is the form used to document sampling.

### 8.2.1 Sample Locations

Sampling will include background, event, and post-event monitoring as follows:

**Background Monitoring:** In **non-flowing (static)** water, the background (BG) sample is collected in the treatment area, within 24 hours prior to the start of the application.

**Event Monitoring:** The event monitoring (Event) sample for **flowing** water is collected immediately downstream of treatment area immediately after the application event, but after sufficient time has elapsed such that treated water would have exited the treatment area.

The Event sample for **non-flowing (static)** water is collected immediately outside the treatment area immediately after the application event, but after sufficient time has elapsed such that treated water would have exited the treatment area.

The location and timing for the collection of the Event sample may be based on a number of factors including, but not limited to algae and aquatic weed density and type, flow rates, size of the treatment area and duration of treatment.

**Post-Event Monitoring**: The post-event monitoring (Post) sample is collected within the treatment area within one week after the application, or when the treatment is deemed complete.

One full set of three samples (i.e., BG, Event and Post) will be collected during each treatment from the representative site(s) treated within the District's jurisdiction according to the monitoring frequency and locations described earlier.

Additionally, one Field Duplicate (FD) and one Field Blank (FB) will be collected and submitted for analysis for each analyte, once per year. The FD and FB samples will most likely be collected during Event Monitoring. See **Figure 4** and **Figure 5** for the field sampling forms to be used.

### 8.3 Sample Collection

If the water depth is 6 feet or greater the sample will be collected at a depth of 3 feet. If the water depth is less than 6 feet the sample will be collected at the approximate mid-depth. As necessary, an intermediary sampling device (e.g., Van-Dorn style sampler or long-handled sampling pole) will be used for locations that are difficult to access. Long-handled sampling poles with attached sampling container will be inverted before being lowered into the water to the desired sample depth, where it will be turned upright to collect the sample. Appropriate cleaning technique is discussed in Section 8.8.4.

### 8.4 Field Measurements

In conjunction with sample collection, temperature will be measured in the field. Turbidity, electrical conductivity, pH, and dissolved oxygen may be measured in the field using field meters as available, or analyzed in the laboratory. Turbidity, pH, and dissolved oxygen meters are calibrated according to manufacturer's specifications at the recommended frequency, and checked with a standard prior to each use. Conductivity meters are calibrated by the manufacturer and will be checked according to manufacturer's specifications with standards throughout the year (typically once per month) to evaluate instrument performance. If the calibration is outside the manufacturer's specifications, the conductivity probe will be recalibrated. Calibration logs are maintained for all instruments to document calibration.

### 8.5 Sample Preservation and Transportation

Samples may be collected directly into preserved containers, or collected in unpreserved containers, and preserved at the laboratory upon receipt if they analytical method requires preservation. Once a sample is collected and labeled it will immediately be placed in a dark, cold (~4° C) environment, typically a cooler with ice. Delivery to the laboratory should as soon as practicable after sample collection.

### 8.6 Sample Analysis

**Table 2** shows the constituents that each sample must be analyzed for.

**Table 2: Required Sample Analysis**

| Analyte | EPA Method | Reporting Limit | Hold Time (Days) | Container | Chemical Preservative |
|---|---|---|---|---|---|
| Temperature[1] | Field measured | N/A | N/A | N/A | N/A |
| Dissolved Oxygen[1] | Field measured | N/A | N/A | N/A | N/A |
| Turbidity[2] | 180.1 | 0.00 NTU | 2 | 100 mL HDPE | None |
| Electrical Conductivity[2] | 120.1 | 0 µS/cm | 28 | 100 mL HDPE | None |
| pH[2] | 150.1 or 150.2 | 1-14 | Immediately | 100 mL HDPE | None |
| Nonylphenol[3] | 550.1m | 0.5 µg/L | 7 | 2 x 40 mL VOA | None |
| *Triclopyr | 8151, 8150A, 615 | 0.5 µg/L | 7 | 1L Amber Glass | None |
| *Diquat | 549 | 40 µg/L | 7 | 500 mL Amber HDPE | $H_2SO_4$ |
| *Endothall | 548.1 | 40 µg/L | 7 | 100 mL Amber Glass or 2 x 40 mL VOA | None |
| *Fluridone | SePro FasTest, HPLC | 1 ug/L | 7 | 30 ml Amber HDPE | None |
| *Glyphosate | 547 | 0.5 µg/L | 14 | 2 x 40 mL VOA | None |
| *Imazamox | HPLC | 50 ug/L | 14 | 2 x 40 mL VOA | None |
| *Imazapyr | 532m | 100 ug/L | 14 | 1 L Amber Glass | None |
| *Penoxsulam | 532m | 20 ug/L | 7 | 1 L Amber Glass | None |

Notes:
* Signifies algaecide or aquatic herbicide active ingredient. Chemical analysis is only required for the active ingredient(s) used in treatment.
Analysis not required for algaecides and aquatic herbicides containing sodium carbonate peroxyhydrate.
EPA Methods are taken from NEMI 2004.
[1]Field measured.
[2]May be field or laboratory measured.
[3]Required only when a nonlyphenol-based surfactant is used.
HPLC – High Performance Liquid Chromatography.
m – Modified extraction or analysis technique.

## 8.7 Reporting Procedures

An annual report for each reporting period, from January 1 to December 31 will be prepared by March 1 of the following year and will be submitted to the appropriate RWQCB. In years when no algaecides or aquatic herbicides are used, a letter stating no applications will be sent to the appropriate RWQCB in lieu of an annual report.

The annual report will contain the following information as described in Attachment C of the Permit:

1. An Executive Summary discussing compliance or violation of the Permit and the effectiveness of the APAP; and
2. A summary of monitoring data, including the identification of water quality improvements or degradation as a result of algaecide or aquatic herbicide application.

The District will collect and retain all information on the previous reporting year. When requested by the Deputy Director or Executive Officer of the applicable RWQCB, the District will submit the annual information collected, including:

1. An Executive Summary discussing compliance or violation of the Permit and the effectiveness of the APAP to reduce or prevent the discharge of pollutants associated with herbicide applications;
2. A summary of monitoring data, including the identification of water quality improvements or degradation as a result of algaecide or aquatic herbicide application, if appropriate, and recommendations for improvement to the APAP (including proposed BMPs) and monitoring program based on the monitoring results. All receiving water monitoring data shall be compared to applicable receiving water limitations and receiving water monitoring triggers;
3. Identification of BMPs and a discussion of their effectiveness in meeting the Permit requirements;
4. A discussion of BMP modifications addressing violations of the Permit;
5. A map showing the location of each treatment area;
6. Types and amounts of aquatic herbicides used at each application event during each application
7. Information on surface area and/or volume of treatment area and any other information used to calculate dosage, concentration, and quantity of each aquatic herbicide used;
8. Sampling results shall indicate the name of the sampling agency or organization, detailed sampling location information (including latitude and longitude or township/range/section if available), detailed map or description of each sampling area (address, cross roads, etc.), collection date, name of constituent/parameter and its concentration detected, minimum levels, method detection limits for each constituent analysis, name or description of water body sampled, and a comparison with applicable water quality standards, description of analytical QA/quality control plan. Sampling results shall be tabulated so that they are readily discernible; and
9. Summary of Aquatic Herbicide Application Logs (AHALs, **Figure 2**).

The District will report to the SWRCB and appropriate RWQCB any noncompliance, including any unexpected or unintended effect of an algaecide or aquatic herbicide that may endanger health or the environment. The Twenty-Four Hour Report will be provided orally, by way of a phone call, to the SWRCB and appropriate RWQCB within 24 hours from the time the District becomes aware of any noncompliance. The Twenty-Four Hour Report will include the following information:

1. The caller's name and telephone number;
2. Applicator name and mailing address;
3. Waste Discharge Identification (WDID) number;
4. How and when the District became aware of the noncompliance;
5. Description of the location of the noncompliance;
6. Description of the noncompliance identified and the USEPA pesticide registration number for each product the District applied in the area of the noncompliance; and
7. Description of the steps that the District has taken or will take to correct, repair, remedy, cleanup, or otherwise address any adverse effects.

If the District is unable to notify the SWRCB and appropriate RWQCB within 24 hours, the District will do so as soon as possible and provide a rationale for why the District was unable to provide notification of noncompliance within 24 hours.

In addition to the Twenty-Four Hour Report, the District will provide a written submission within five (5) days of the time the District becomes aware of the noncompliance. The Five-Day Written Report will contain the following information:

1. Date and time the District contacted the State Water Board and the appropriate Regional Water Board notifying of the noncompliance and any instructions received from the State and/or Regional Water Board; information required to be provided in Section D.1 (24-Hour Reporting);
2. A description of the noncompliance and its cause, including exact date and time and species affected, estimated number of individual and approximate size of dead or distressed organisms (other than the pests to be eliminated);
3. Location of incident, including the names of any waters affected and appearance of those waters (sheen, color, clarity, etc);
4. Magnitude and scope of the affected area (e.g. aquatic square area or total stream distance affected);
5. Algaecide and aquatic herbicide application rate, intended use site (e.g., banks, above, or direct to water), method of application, and name of algaecide and herbicide product, description of algaecide and herbicide ingredients, and U.S. EPA registration number;
6. Description of the habitat and the circumstances under which the noncompliance activity occurred (including any available ambient water data for aquatic algaecides and aquatic herbicides applied);
7. Laboratory tests performed, if any, and timing of tests. Provide a summary of the test results within five days after they become available;
8. If applicable, explain why the District believes the noncompliance could not have been caused by exposure to the algaecides or aquatic herbicides from the District's application; and
9. Actions to be taken to prevent recurrence of adverse incidents.

The Five Day Written Report will be submitted within five (5) days of the time the District becomes aware of the noncompliance unless SWRCB staff or Regional Water Board staff waive the above described report if an oral report has been received within 24 hours.

## 8.8 Sampling Methods and Guidelines

The purpose of this section is to present methods and guidelines for the collection and analysis of samples necessary to meet the APAP objective of assessing adverse impacts, if any, to beneficial uses of water bodies treated with algaecides and aquatic herbicides.

This section describes the techniques, equipment, analytical methods, and quality assurance and quality control procedures for sample collection and analysis. Guidance for the preparation of this chapter included: NPDES Storm Water Sampling Guidance Document (USEPA 1992); Guidelines and Specifications for Preparing Quality Assurance Project Plans (USEPA 1980); and U.S. Geological Survey, National Field Manual for the Collection of Water Quality Data (USGS 1995).

### 8.8.1 Surfacewater Sampling Techniques

As discussed in Section 8.3, if the water depth is 6 feet or greater the sample will be collected at a depth of 3 feet, if the water depth is less than 6 feet the sample will be collected at the approximate mid-

depth. As necessary, an intermediary sampling device (e.g., Van-Dorn style sampler or long-handled sampling pole) will be used for locations that are difficult to access. Long-handled sampling poles with attached sampling container will be inverted before being lowered into the water to the desired sample depth, where it will be turned upright to collect the sample. Appropriate cleaning technique is discussed in Section 8.8.4.

During collection, the samples will be collected in a manner that minimizes the amount of suspended sediment and debris in the sample. Surface water grab samples will be collected directly by the sample container, or by an intermediary container in the event that the sample container cannot be adequately or safely used. Intermediary samplers will be either poly (plastic/HDPE), stainless steel or glass. Any container that will be reused between sites will be washed thoroughly and triple rinsed before collection of the next sample, see Section 8.8.4. Alternatively, disposable poly or glass intermediary sample containers can be used.

### 8.8.2 Sample Containers

Clean, empty sample containers with caps will be supplied in protective cardboard cartons or ice chests by the primary laboratory. The containers will be certified clean by either the laboratory or the container supplier. To ensure data quality control, the sampler will utilize the appropriate sample container as specified by the laboratory for each sample type. Sample container type, holding time, and appropriate preservatives are listed in **Table 2**. Each container will be affixed with a label indicating a discrete sample number for each sample location. The label will also indicate the date and time of sampling and the sampler's name.

### 8.8.3 Sample Preservation and Filtering

Samples may either be collected with bottles containing the correct preservative(s), or collected in unpreserved bottles and preserved upon receipt at the analytical lab. If filtration is required, it must be done prior to sample preservation. After collection, samples will be refrigerated at approximately four (4) degrees Celsius (C), stored in a dark place, and transported to the analytical laboratory. Refer to **Table 2**.

### 8.8.4 Sampling Equipment Cleaning

In the event that sampling equipment will be used in more than one location, the equipment will be thoroughly cleaned with a non-phosphate cleaner, triple-rinsed with distilled water, and then rinsed once with the water being sampled prior to its first use at a new sample collection location.

### 8.8.5 Sample Packing and Shipping

All samples are to be packed and transported the day the samples are collected to provide ample time for samples to be analyzed within the required holding time.

Ice will be included in coolers containing samples that require temperature control. Samples will be packaged in the following manner:

1. Sample container stickers will be checked for secure attachment to each sample container.
2. The sample containers will be placed in the lined cooler. Bubble-wrap, suitable foam padding, or newspaper will be placed between sample containers to protect the sample containers from breakage during shipment and handling.
3. The Chain of Custody (COC) will be placed inside a plastic bag and placed inside the cooler. The COC will indicate each unique sample identification name, time and place of sample collection, the sample collector, the required analysis, turn-around-time, and location to which data will be reported.
4. The cooler will then be readied for pick-up by a courier or delivered directly to the laboratory.

## 8.9 Field Sampling Operations

### 8.9.1 Field Logbook

A 3-ring binder, bound logbook or other suitable recording media must be maintained by members of the sampling team to provide a record of sample location, significant events, observations, and measurements taken during sampling. Sample records are intended to provide sufficient data and observations to enable project team members to reconstruct events that occurred during the sampling and must be legible, factual, detailed, and objective. As appropriate and at the discretion of District staff, observations and measurements can be supplemented with pictures of site conditions at the time of sampling.

When recording observations in the field book, the sampling team will note the presence or absence of:

1. Floating or suspended matter;
2. Discoloration;
3. Bottom deposits;
4. Aquatic life;
5. Visible films, sheens, or coatings;
6. Fungi, slimes, or objectionable growths; and
7. Potential nuisance conditions.

See **Figure 4 and Figure 5** for the forms to be used to record relevant field data when sampling.

### 8.9.2 Alteration of Sampling Techniques

It is possible that actual field conditions may require a modification of the procedures outlined herein. Specifically, water levels, weather, other environmental parameters and hazards including stream flow, rainfall, and irrigation water use may pose access and/or sampling problems. In such instances, variations from standard procedures and planned sampling locations and frequencies will be documented by means of appropriate entry into the field logbook.

### 8.9.3 Flow Estimation

Flow estimation measurements must be made for all moving water sampling locations. If feasible, a flow meter calibrated according to the manufacturer's directions may be placed as close to the center of the stream, creek or canal as possible and a reading taken in feet per second (ft/sec). Alternatively, a common floating object (ball, branch, leaf, etc.) may be placed as close to the center of the conveyance as possible and the time it travels a known distance will be estimated and represented in ft/sec. A minimum travel distance of approximately 25 feet will be used.

### 8.9.4 Chain-of-Custody (COC)

The COC record will be employed as physical evidence of sample custody. The sampler will complete a COC record to accompany each sample shipment from the field to the laboratory. The COC will specify: time, date, location of sample collection, specific and unique sample number, requested analysis, sampler name, required turn-around-time, time and date of sample transaction between field and laboratory staff, preservative, if any, and name of receiving party at the laboratory.

Corrections to the COC will be made by drawing a line through, initialing, and dating the error, and entering the correct information. Erasures are not permitted.

Upon receipt of the samples, laboratory personnel will check to insure that the contents of the ice chest(s) are accurately described by the COC. Upon verification of the number and type of samples and the requested analysis, a laboratory representative will sign the COC, indicating receipt of the samples.

The COC record form will be completed in duplicate. Upon sample delivery, the original copy will be left with the laboratory and a copy will be kept by the sampler, three-hole punched, and placed in the field logbook.

### 8.9.5 Sample Label

The label will contain information on the specific project (i.e. East Bay Regional Park District), the unique individual sample ID (i.e. Big Break – BG), the date and time the sample was collected, and the name of the sampler (i.e. S. Burkholder).

Prior to sampling, a water resistant label will be completed with waterproof ink and will be affixed to the appropriate container.

### 8.9.6 Corrections to Documentation

Documents will not be destroyed or thrown away, even if they are illegible or contain inaccuracies that require a replacement or correction. If an error is made on a document used by an individual, that individual will make corrections by making a line through the error and entering the correct information. The erroneous information will not be obliterated. Corrections will be initialed and dated.

### 8.9.7 Document Control

A central file location will be established and used to store documentation such as the filed logbook and laboratory data.

### 8.9.8 Sample Kit

Prior to departing to the field to collect samples, the following equipment will be prepared for use:

- Laboratory-supplied sampling bottles (one set for each sample to be collected plus spares, plus QA/QC samples)
- Sample labels (one for each sample to be collected plus spares)
- Sharpie® Pen or other permanent, water-proof ink marker
- Chain of Custody forms
- Field data logbook
- Flow meter (optional – for moving water applications)
- Zip lock style bags for paperwork
- Non-phosphate cleaner (i.e. Liqui-Nox®)
- Deionized or distilled water
- Ice or blue ice packs
- Clear Mailing Tape
- Cooler for samples
- Grab pole or Van-Dorn style sampler
- Gloves
- Rubber boots or waders
- Stop or wrist watch
- Camera

## 8.10 Quality Assurance and Quality Control (QA/QC)

The purpose of quality assurance and quality control (QA/QC) is to assure and control the quality of data generated during sample collection and analysis as described earlier in this document. Quality assurance and quality control are measured in a variety of ways, as described below.

### 8.10.1 Precision

Precision is a measure of the reproducibility of measurements under a given set of conditions. It is a quantitative measure of the variability of a group of measurements compared to the average value of the group and is expressed as the relative percent difference (RPD). Sources of error in precision (imprecision) can be related to both laboratory and field techniques. Specifically, lack of precision is caused by inconsistencies in instrument setting, measurement and sampling techniques, and record keeping.

Laboratory precision is estimated by generating analytical laboratory matrix spike (MS) and matrix spike duplicate (MSD) sample results and calculating RPD. In general, laboratory RPD values of less than 25% will be considered acceptable.

Field precision is estimated by collecting field duplicates (FDs) in the field and calculating RPD. In general, field RPD values of less than 35% will be considered acceptable. Refer to the discussion of FDs in Section 8.10.5.

### 8.10.2 Accuracy

Accuracy is a measure of how close data are to their true values and is expressed as percent recovery (%R), which is the difference between the mean and the true value expressed as a percentage of the true value. Sources of error (inaccuracy) are the sampling process, field contamination, preservation, handling, sample matrix effects, sample preparation, analytical techniques, and instrument error.

Laboratory accuracy is estimated using reference standards, matrix spike (MS) and matrix spike duplicates (MSD) samples. Acceptable accuracy is generally between 75 and 125%. Refer to the earlier discussion of MS and MSD.

### 8.10.3 Completeness

Completeness is defined as the percentage of measurements made which are judged to be valid measurements. The completeness objective is that the sufficiently valid data is generated to allow for submittal to the SWRCB and RWQCB. Completeness will be assessed by comparing the number of valid sample results to the number of samples collected. The objective for completeness is $\geq$ 80 %.

### 8.10.4 Representativeness

Representativeness refers to a sample or group of samples that reflects the predominant characteristics of the media at the sampling point. The objective in addressing representativeness is to assess whether the information obtained during the sampling and analysis represents the actual site conditions.

### 8.10.5 Field Duplicate

The purpose of a field duplicate (FD) is to quantify the precision, or reproducibility, of the field sampling technique. It involves the duplication of the technique used for a particular field sample collection method and the subsequent comparison of the initial and duplicate values. This comparison is measured as the relative percent difference (RPD). RPD is calculated as follows:

$$RPD = [(Sample1 - Sample2) / (Average\ of\ Samples\ 1\ and\ 2)] \times 100$$

An acceptable field RPD value is $\leq$ 35%.

The FD is collected at the same time as the actual field sample and one FD per year will be collected.

### 8.10.6 Field Blank

The purpose of the field blank (FB) is to assure that the field sampling technique, equipment, or equipment cleaning technique or materials do not impart a false positive or negative result during the collection of the sample. A FB will be prepared with distilled water and allowed to come into contact with the sampling device in a manner identical to the actual sample. The only acceptable values for analytes in the FB is less than the detection limit for the compounds of interest, or an expected, previously determined, background value.

The FB will be collected at the same time as the actual field sample and one FB per year will be collected.

### 8.10.7 Laboratory Quality Assurance and Quality Control

Laboratory precision and accuracy will be monitored by a series of laboratory-generated quality control samples. As long as sufficient sample volume is collected and submitted to the laboratory, no additional effort is required by field activities to generate laboratory quality control samples. Each set of field samples will have associated with it one each from the following set of laboratory quality control samples.

#### *8.10.7.1 Method Blank*

The purpose of the method blank (MB) is to assure that the analytical technique does not impart a false positive result during the preparation or analysis of the sample. A method blank will be prepared by the laboratory from high purity distilled or deionized water. The only acceptable values for analytes in the MB are zero or an expected, previously determined, background values.

#### *8.10.7.2 Matrix Spike*

The purpose of a matrix spike (MS) is to quantify accuracy and to assure that the analytical technique does not impart a false negative or positive result during the preparation or analysis of the sample. It involves the introduction of the analyte (or an analyte surrogate) of interest into the actual sample matrix and then quantitating it.

The amount detected divided by the amount added to the matrix is expressed as a percent recovery (%R). Acceptable values of %R range from 75% to 125%. Percent recovery is calculated as follows:

%R = [(Spike Amount Detected - Sample Value) / Amount Spiked] x 100

#### *8.10.7.3 Matrix Spike Duplicate*

The purpose of a matrix spike duplicate (MSD) is to quantify laboratory precision. An acceptable RPD is less than or equal to 25%. The MSD involves duplication of the MS resulting in two data points from which relative percent difference (RPD) is calculated as follows:

RPD = [(MS – MSD) / (Average of MS and MSD)] X 100

### 8.10.8 Data Validation

Data validation will use data generated from the analytical laboratory and the field. References that can be used to assist in data validation include USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (USEPA 1994) and USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (USEPA 1999).

The purpose of data validation is to ensure that data collected are of sufficient quality for inclusion in reports to the RWQCB. In order to serve this purpose, the following information must be available in order to evaluate data validity:

1. Date of sample collection – required to uniquely identify sample and holding time.
2. Location of samples – required to identify sample.
3. Laboratory QA/QC procedures – required to assess analytical accuracy, precision, and sample integrity. A laboratory QA/QC sample set consists of a MS, a MSD, and a MB. A laboratory QA/QC sample set will be analyzed by the laboratory for each field sample batch. Sufficient sample volume and number will be supplied to the laboratory in order to prepare and evaluate the laboratory QA/QC sample set.
4. Analytical methods – required to assess appropriateness and acceptability of analytical method used.
5. Detection limits – required to assess lower limit of parameter identification.
6. Holding times, preservation, and dates of extraction and analysis – required to assess if a sample was extracted and analyzed within the specified time limits and if a sample was stored at the appropriate temperature.
7. Field QA/QC procedures – required to assess field precision and sample integrity. A field QA/QC sample set consists of FB and FD samples. A field QA/QC sample set will be analyzed by the laboratory for one sampling event per year. Sufficient sample volume and number will be collected in the field and supplied to each laboratory in order to prepare and evaluate the field QA/QC sample set.

### 8.10.9 Data Qualification

Data collected for compliance with the Permit will be qualified through the Analytical Lab Validation process described in Section 8.10.7. This process will ensure all data has been thoroughly reviewed and qualified as valid. During the data validation process, data qualifiers will be used to classify sample data. The following qualifiers will be used:

A - Acceptable. The data have satisfied each of the requirements and are quantitatively acceptable (i.e., valid) and will be used in reports.

R - Reject. Data not valid. This qualifier will be used for samples that cannot be uniquely identified by date of collection or sample location or that fail holding time or, detection limit requirements. Invalid data will not be presented in reports submitted to the RWQCB.

### 8.10.10 Corrective Action

If previously described criteria for valid data are not met, then corrective action as follows will be taken:

1. The laboratory will be asked to check their quality assurance/quality control data and calculations associated with the sample in question. If the error is not found and resolved, then:

    a. The extracts or the actual samples, which will be saved until the data are validated, will be reanalyzed by the laboratory if they are within holding time limitations. These new results will be compared with the previous results. If the error is not found and resolved, then:
    b. If field analytical equipment is used, then calibration records will be reviewed. If the error is not found, then:
    c. The sampling procedure and sample preparation will be re-checked and verified. If the procedures appear to be in order and the error is not resolved, then:
    d. The data will be deemed invalid and not used.

2. Upon discovery of the source of an error, every attempt will be made to address the cause of the error and remedy the problem.

### 8.10.11 Data Reporting

The results of sampling and analysis will be summarized in the Annual Report. The data will be tabulated so that they are readily discernible.

## Element 9: Procedures to Prevent Sample Contamination

Sample collection will not be done in close proximity to application equipment and preferably upwind. Sampling will be done in a manner that prevents contact with algaecide or aquatic pesticide application equipment, containers, or personal protective equipment (PPE). Care will be taken by samplers to minimize contact with any treated water, vegetation, or application equipment.

In the event that sampling equipment will be used in more than one location, the equipment will be thoroughly cleaned with a non-phosphate cleaner, triple-rinsed uncontaminated water, and then rinsed once with the water being sampled prior to its first use at a new sample collection location, as described in Section 8.8.4. Gloves will be changed between sites.

## Element 10: Description of BMPs

The District employs the following BMPs to ensure the safe, efficient and efficacious use of algaecides and aquatic herbicides.

## 10.1 Measures to Prevent Spills and Spill Containment in the Event of a Spill

Applicators take care when mixing and loading algaecides and aquatic herbicides and adjuvants. All label language is followed to ensure safe handling and loading of algaecides and aquatic herbicides. Application equipment is regularly checked and maintained to identify and minimize the likelihood of leaks developing or failure that would lead to a spill. If possible, algaecides and aquatic herbicides will be mixed and loaded in the District's yard before leaving for the application site(s).

If algaecides or aquatic herbicides are spilled, they will be prevented from entering any water bodies to the extent practicable. District staff is trained to contain any spilled material and are familiar with the use of absorbent materials such as kitty litter, "pigs," and "pillows". Spills will be cleaned up according to label instructions, and all equipment used to remove spills will be properly contained and disposed of or decontaminated, as appropriate. Applicators will report spills as required by District policy and in a manner consistent with local, state and federal requirements.

## 10.2 Measures to Ensure Appropriate Use Rate

The following BMPs help ensure the appropriate algaecide and aquatic herbicide application rate is used.

### 10.2.1 Site Scouting

Prior to treatment, the District's PCA and/or qualified District staff scout sites to evaluate the extent to which acceptable algae or aquatic weed thresholds have been exceeded. Thresholds are based on impacts to the District's beneficial uses of its parks. Impacts that meet thresholds include nuisance odors, impediments to recreational and educational uses, vegetation control needed to re-establish native plants and beneficial uses of the lakes.

If a location is deemed to have exceeded a threshold, or given algae or aquatic weed population is anticipated to exceed a threshold based on site and weather conditions, historic aquatic weed growth, or other information, an algaecide or aquatic herbicide application is considered. If the application can be made without negatively impacting the water quality, then an application is made.

### 10.2.2 Written Recommendations Prepared by PCA

Prior to application, a PCA licensed by California Department of Pesticide Regulation (DPR) and/or qualified District staff scout the area(s) to be treated, makes a positive identification of pest(s) present, checks applicable product label(s) for control efficacy, and the PCA prepares a written recommendation, including rates of application, and any warnings or conditions that limit the application so that non-target flora and fauna are not adversely impacted. Licensed PCAs must complete 40 hours of continuing education every 2 years to stay licensed, and therefore are up-to-date on the latest techniques for pest control.

### 10.2.3 Applications Made According to Label

All algaecide and aquatic herbicide applications are made according to the product label in accordance with regulations of the U.S. EPA, CalEPA, Cal OSHA, DPR, and the local Agricultural Commissioner. The District's PCA and DPR-licensed Qualified Applicator Certificate (QAC) or Qualified Applicator License (QAL) holders regularly monitor updates and amendments to the label so that applications are in accordance with label directions. Licensed QALs and QACs must complete 20 hours of continuing education every 2 years to stay licensed, and therefore are up-to-date on the latest techniques for pest control.

### 10.2.4 Applications Made by Qualified Personnel

As appropriate, consistent with applicable regulations, the District will utilize QALs, QACs or District staff under the supervision of QALs or QACs to make applications or supervise applications recommended by the PCA. District staff has knowledge of proper equipment loading, nozzle selection, calibration, and operation so that spills are minimized, precise application rates are made according to the label, and only target plants are treated.

## 10.3 The Discharger's plan in educating its staff and herbicide applicators on how to avoid any potential adverse effects from the herbicide applications

See information above on the continuing education requirements of District staff responsible for selection and application of algaecides and aquatic herbicides.

## 10.4 Application Coordination to Minimize Impact of Application on Water Users

As required by the algaecide and aquatic herbicide label, water users potentially affected by any water use restrictions will be notified prior to an application being made. As necessary, gates, weirs, etc. will be closed to prevent discharge of residual algaecide or aquatic herbicides.

## 10.5 Description of Measures to Prevent Fish Kills

It is important to acknowledge that the use of aquatic herbicides and algaecides, even when used according to label instructions, may result in unavoidable fish kills. Nonetheless, measures will be taken to reduce the likelihood of fish kills as described below. Generally speaking, the concentration of residual aquatic herbicides and algaecides (i.e., the concentration of the aquatic herbicide or algaecide present after the treatment is complete) is not sufficiently high to result in fish kills.

### 10.5.1 Applications Made According to Label

All aquatic herbicide applications are made according to the product label in accordance with regulations of the U.S. EPA, CalEPA, DPR, Cal OSHA and the local Agricultural Commissioner. Precautions on the product label to prevent fish kills will be followed. For example, limitations on the

surface water area treated will be followed to prevent dead algae or aquatic weeds from accumulating and then decaying and subsequently depressing the dissolved oxygen (DO) level. Depressed DO may adversely impact fish populations.

### 10.5.2 Written Recommendations Prepared by PCA

Prior to application, a PCA licensed by DPR and/or District staff scouts the area to be treated, makes a positive identification of pest(s) present, checks applicable product label(s) for control efficacy, and in collaboration with District staff, the PCA prepares a written recommendation, including rates of application, and any warnings or conditions that limit the application so that fish are not adversely impacted.

### 10.5.3 Applications Made by Qualified Personnel

As appropriate, consistent with applicable regulations, the District will utilize QALs, QACs or District staff under the supervision of QALs or QACs to make applications or supervise applications recommended by the PCA. The District has knowledge of proper equipment loading, nozzle selection, calibration, and operation so that spills are minimized, precise application rates are made according to the label, and only target plants are treated.

# Element 11: Examination of Possible Alternatives

## 11.1 Evaluation of Other Management Options

Treatment of algae and aquatic weeds is determined by the application of Integrated Pest Management (IPM). For example, if a population of algae or aquatic weeds equals or exceeds a threshold, an algaecide or aquatic herbicide application is made. Thresholds are met when aquatic weeds or algae cause problems, typically associated with odor complaints, adverse impacts to recreational, educational, or other beneficial uses of the District's facilities.

Algaecide and aquatic herbicide applications may also be made prior to threshold exceedance. For example, based on predicted growth rate and density, weather, water availability, and historical records and experience, aquatic weeds may reasonably be predicted to cause future problems. Accordingly, they may be treated soon after emergence. Even though algae or aquatic weeds may not be an immediate problem at this phase, treating them before they mature reduces the amount of algaecide and aquatic herbicide needed because the younger aquatic weeds are more susceptible and there is less plant mass to target. Selection of appropriate algaecides and aquatic herbicides and rate of application is done based on the identification of the algae or aquatic weed and the appearance of that algae or aquatic weed on the product label.

### 11.1.1 No Action

As feasible, this technique is used. For example, consistent with the IPM program used by the District, a threshold is typically reached prior to treatment. Prior to reaching a threshold, no control is considered.

### 11.1.2 Prevention

*Habitat Modification*

After the removal of non-native terrestrial and emergent invasive species, the introduction and re-establishment of native species has been successful at the waters' edge in some cases. This technique is intended to provide competition for non-desirable species and reduce the need for aquatic weed abatement only around the perimeter of the water bodies, but is not possible within lakes or reservoirs.

The District may also consider other habitat modifying techniques appropriate for the individual target areas; for example, dredging, oxygenation or aeration, shading with dyes, and bio-manipulation. In areas where sedimentation has significantly impacted the capacity of the water body, dredging can increase the water volume, reduce organic matter generated in the water body, and remove nutrient-containing sediment. Aeration, oxygenation and mixing are methods that can mechanically add oxygen directly to the water, and can result in the reduction of nuisance algae growth.

Shading the water column using non-toxic, inert dyes can reduce unwanted submerged plants and algae. Use of dyes works on algae and submerged vegetation by limiting their ability to photosynthesize when the dye is present, but is not a long-term solution.

Bio-manipulation utilizes various natural mechanisms that can reduce suspended algae, and involves increasing biological controls in the habitat. The biological controls are typically done by top-down or bottom-up changes to the food-web structure aimed at increasing populations of algae-consuming zooplankton. Bio-manipulation may be more efficient when used in conjunction of other habitat modification methods.

A potential method for the control of submersed aquatic vegetation is the use of aquatic weed mats. These mats can be secured to the bottom of the standing water body with soil nails or similar devices and provide a physical and sunlight penetration barrier to aquatic weeds growing in soil in the littoral zone of water bodies.

*Native Species Establishment*

No appropriate submersed aquatic native plants have been found to establish within lakes or reservoirs to out compete aquatic weed species and not create similar or other operational problems. As such, aquatic vegetation in the District must be controlled to maintain the aquatic weed density tolerances established by the District.

After the removal of emergent non-native invasive species, the introduction and re-establishment of native species has been successful along the banks or margins of streams and rivers. This technique provides competition for non-desirable species, creates habitat, and may reduce the long-term need for emergent aquatic weed abatement. Limitations to this approach include availability of suitable native

species, availability of labor to plant native species, and irrigate and cultivate until the native plant stand is established, and safe access to banks for work crews. Plant characteristics such as growth patterns and the potential to invade areas where they are not wanted must be considered as well as the timing for introduction of native plants. This technique is expensive, takes many years, may be subject to expensive and time-consuming regulatory agency (i.e., California Department of Fish and Wildlife, Corps of Engineers, etc.) approval, and may not be feasible in all areas.

### 11.1.3 Mechanical or Physical Methods

*Mechanical Removal*

Mechanical removal in the District's lakes requires various methods including hand cutting from shore or while wading, hand-pulling aquatic weeds, use of motor-driven aquatic weed harvesters to pull up and remove vegetation, aquatic weed-whacking, or mowing.

Generally, these techniques are very labor intensive per unit acre or length of water treated. Mechanical removal places personnel at risk of general water, boating, slip, trip and fall hazards, poisonous wildlife, drowning, risks the spilling of motor oil and fuel, and can increase air pollution. The cost per area of mechanical removal is significantly higher than the cost of labor, product and equipment of the application of aquatic herbicides. The increased cost of mechanical aquatic weed abatement does not include the cost of the aforementioned risks (pollution abatement, workman's compensation claims, etc.).

In some instances, the use of mechanical techniques may be necessary when the use of algaecides or aquatic herbicides is not practical, or vegetation is not at an appropriate growth stage. Blankinship & Associates estimates that mechanical removal is 10 to 25 times more expensive than using chemical controls. This additional expense does not include the cost for disposal or for obtaining permits.

Environmental impacts due to the use of mechanical techniques include the creation of water-borne sediment and turbidity due to people and equipment working in the water. This suspended sediment can adversely affect aquatic species by lowering dissolved oxygen and preventing light penetration. Disturbing sediment may cause additional problems including, but not limited to, new areas for aquatic weed establishment, fragmentation and re-establishment of aquatic weeds, and siltation. Submersed aquatic vegetation species in the District's water bodies can be spread through fragmentation, and mechanical control has the potential to increase the distribution of the problem vegetation. The costs for trucking and waste disposal are not included. Waste must be taken to traditional landfills and cannot be taken to green waste disposal due to the concern that redistribution of the material may occur and subsequently result in re-establishment.

*Controlled Burns*

This option is most suitable for some types of emergent and terrestrial weeds, and is not appropriate for submerged aquatic vegetation or algae. Additionally, controlled burns create air quality concerns. This option is not a suitable alternative control within the District water bodies.

*Grazing*

This option is most suitable for emergent and terrestrial weeds, and is not suitable for submerged aquatic weeds or algae. Impacts to water quality from animal feces, increases in turbidity, nutrients, and bank erosion, and impacts to desirable species make this option unfeasible in some cases. The cost of hiring grazing animals is also generally more costly than chemical control alternatives. This option is not a suitable alternative control within the District water bodies, but may be considered along shorelines, as appropriate.

*Tilling or Discing*

This option is not suitable for the control of aquatic or riparian vegetation because tilling or discing exposes erodible soils. This option is not a suitable alternative control within the District water bodies.

### 11.1.4 Cultural Methods

Cultural methods used to reduce the amount of aquatic herbicides used include modifying the timing of algaecide and aquatic herbicide and non-herbicide controls. The District may make algaecide and aquatic herbicide applications before the density of algae or aquatic vegetation is high enough to require higher algaecide or aquatic herbicide application rates or additional applications to maintain algae or aquatic weed populations below threshold levels.

### 11.1.5 Biological Control Agents

Goats and sheep are often used for grazing in and along riparian areas. As discussed previously, grazing may be suitable for emergent and terrestrial weeds and is not suitable for submerged aquatic weeds or algae. Impacts to water quality from animal feces, increases in turbidity, nutrients, and bank erosion, and impacts to desirable species make this option unfeasible in some cases. The cost of hiring grazing animals is also generally more costly than algaecide and aquatic herbicide control alternatives. This option is not a suitable alternative control within the District water bodies, but may be considered along the shorelines as appropriate.

### 11.1.6 Algaecides and Aquatic Herbicides;

The selection of and decision to use an algaecide or aquatic herbicide is based on the recommendation of a PCA in collaboration with District staff. The PCA then considers a variety of control options that may include mechanical and cultural techniques that alone or in combination with chemical controls are the most efficacious and protective of the environment.

Evaluating alternative control techniques is part of the District's IPM approach; therefore an alternative treatment may be selected as part its program. Alternative control techniques and detailed description of each of these is presented in Section 11.1. In general, alternative control techniques are expensive, labor intensive, not as effective, and cause temporary water quality degradation. The equipment and labor required to perform these techniques is not always readily available as it is required during the summer months that is typically a busy general maintenance period for the District. This may cause

delays in removal or sporadic plant material activity leading to increased plant growth and subsequently higher plant material removal cost.

The quantity of algaecide and aquatic herbicide required for an application is determined by a PCA that has followed the label directions in making a recommendation. The rate at which an algaecide and aquatic herbicide is used is highly variable and depends on the type, time of year, location, and density and type of aquatic weeds, water presence, and goal of the application. All these factors are considered by the PCA in collaboration with District staff prior to making a recommendation for an application.

## 11.2 Using the Least Intrusive Method of Aquatic Herbicide Application

The District may use a variety of application methods including specialized mechanized vehicles (trucks, all-terrain vehicles, small boats, etc.) and personnel with backpack sprayers to make algaecide and aquatic herbicide applications. Combined with the need to hold, safely transport and properly apply algaecides and aquatic herbicides, the District techniques are the least intrusive as feasibly possible.

Please refer to **Table 1** for application methods.

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

As previously stated, a PCA and/or qualified District staff scout the area to be treated, makes a positive identification of pest(s) present, checks appropriate algaecide and aquatic herbicide product label(s) for control efficacy, and then the PCA prepares a written recommendation. The written recommendation includes rates of application, and any warnings or conditions that limit the application.

The PCA may also recommend that an adjuvant be used to enhance the efficacy of the algaecide or aquatic herbicide.

# References

CVRWQCB. 2004. A Compilation of Water Quality Goals. Available: http://www.swrcb.ca.gov/rwqcb5/water_issues/water_quality_standards_limits/water_quality_goals/. Updated September 2011.

National Environmental Methods Index (NEMI) 2004. Available: http://www.nemi.gov

SWRCB. 2013. Statewide General National Pollutant Discharge Elimination System (NPDES) Permit for Residual Aquatic Pesticide Discharges to Waters of the United States from Algae and Aquatic Weed Control Applications, Water Quality Order No. 2013-0002-DWQ. Available: http://www.waterboards.ca.gov/water_issues/programs/npdes/docs/aquatic/weedcontrol/wp2013_002dwq.pdf

USEPA. 1980. Guidelines and Specifications for Preparing Quality Assurance Project Plans.

USEPA. 1992. NPDES Storm Water Sampling Guidance Document.

USEPA. 1994. USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review.

USEPA. 1999. USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review.

USGS. 1995. U.S. Geological Survey, National Field Manual for the Collection of Water Quality Data.

# Appendix B: National Pollutant Discharge Elimination System Permit

Matt Rodriquez
California
Environmental
Protection Agency

# State Water Resources Control Board

Edmund G. Brown, Jr.
*Governor*

**Division of Water Quality**
1001 I Street • Sacramento, California 95814 • (916) 341-5455
Mailing Address: P.O. Box 100 • Sacramento, California • 95812-0100
FAX (916) 341-5463 • Internet Address: http://www.swrcb.ca.gov

## ATTACHMENT A

## NOTICE OF INTENT

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

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

**I. NOTICE OF INTENT STATUS (see Instructions)**

| MARK ONLY ONE ITEM | A. ☒ New Applicator | B. ☐ Change of Information for WDID |
|---|---|---|
| | C. ☐ Change of Ownership or responsibility WDID# | |

**II. CONTROL AGENCY INFORMATION**

| | | | |
|---|---|---|---|
| A. Name<br>East Bay Regional Park District | | | |
| B. Mailing Address<br>2950 Peralta Oaks Ct, PO Box 5381 | | | |
| C. City<br>Oakland | D. County<br>Alameda and Contra Costa | E. State<br>California | F. Zip<br>94605 |
| G. Contact Person<br>Casey Brierley | H. Title<br>IPM Specialist | I. E-mail address<br>Cbrierley@ebparks.org | J. Phone<br>(510) 544-2343 |

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

| | | | |
|---|---|---|---|
| A. Name | | | |
| B. Mailing Address | | | |
| E. City | F. County | E. State | F. Zip |
| G. Contact Person | H. Title | I. E-mail address | J. 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: **Waterbodies within the District's jurisdiction**

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: **Big Break (Sacramento-San Joaquin River Delta), Contra Loma Reservoir, Crown Beach, Lake Del Valle, Garin Regional Park, Hayward Shoreline, Lake Anza, Lake Chabot, Martin Luther King Jr. Regional Shoreline, Oyster Bay, Quarry Lakes, Shadow Cliffs Lakes, Lake Temescal**

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

## V. ALGAECIDE AND AQUATIC HERBICIDE APPLICATION INFORMATION

A. Target Organisms: **Algae, submersed, floating and emergent aquatic vegetation**

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

**One or more of the following may be used:**

**Diquat Dibromide (Reward®)**
**Endothall (Cascade®)**
**Fluridone (Sonar®)**
**Glyphosate (Roundup Custom®, Rodeo®, AquaPro®, Glypro®)**
**Imazamox (Clearcast®)**
**Imazapyr (Habitat®)**
**Penoxsulam (Galleon SC®)**
**Sodium Carbonate Peroxyhydrate (GreenClean®)**
**Triclopyr (Renovate®)**

**Note: Names listed in parentheses are example product names and may change.**

C. Period of Application: Start Date: **January 1** End Date: **December 31, for the life of the permit**

D. Types of Adjuvants Used:

**Various non-ionic surfactants may be used (Examples include, but not limited to: AgriDex, Silicone Super Wetter, etc)**

## VI. AQUATIC PESTICIDES APPLICATION PLAN

Has Aquatic Pesticides 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**

| | | | |
|---|---|---|---|
| B. 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:** _____

**B. Signature:** _____ **Date:** _____

**C. Title:** _____

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

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

CALIFORNIA
Water Boards

EDMUND G. BROWN JR.
GOVERNOR

MATTHEW RODRIQUEZ
SECRETARY FOR
ENVIRONMENTAL PROTECTION

**State Water Resources Control Board**

September 11, 2014

Mr. Casey Brierley
East Bay Regional Park District
P.O. Box 5381
Oakland, CA 94605

NOTICE OF APPLICABILITY; EAST BAY REGIONAL PARK DISTRICT, STATEWIDE AQUATIC WEED CONTROL PERMIT

Dear Mr. Brierley:

Thank you for your application package for coverage under the Statewide General National Pollutant Discharge Elimination System (NPDES) Permit for Residual Aquatic Pesticide Discharges to Waters of the United States from Algae and Aquatic Weed Control Applications (Aquatic Weed Control Permit), adopted by the State Water Resources Control Board (State Water Board) in June 2013. Effective December 1, 2013, the Aquatic Weed Control Permit regulates discharges of residues resulting from pesticide applications using the following ingredients:

- 2,4-D
- acrolein
- copper
- diquat
- endothall
- fluridone
- adjuvants containing ingredients represented by the surrogate of nonylphenol
- glyphosate
- imazamox
- imazapyr
- penoxsulam
- sodium carbonate peroxyhydrate
- triclopyr-based algaecides and aquatic herbicides

The Aquatic Weed Control Permit regulates discharges of algaecides and aquatic herbicides that are currently registered for use in California and contain the above-listed active ingredients. Users of products containing these ingredients are required to obtain coverage under the Aquatic Weed Control Permit prior to application to waters of the United States.

**Discharge Monitoring and Reporting Requirements**
To comply with the monitoring and reporting requirements of the Aquatic Weed Control Permit, the District shall:

a. Timely inspect the receiving waters, control measures, and BMPs to detect any conditions which may cause violations of the receiving water limitations and other requirements in the Aquatic Weed Control Permit.

b. Conduct monitoring and reporting in compliance with the provisions and requirements in Attachment C of the Aquatic Weed Control Permit.

c. Include the following certification in all monitoring reports:

"I certify under penalty of law that this document and all enclosures were prepared under my direction or 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 and imprisonment for knowing violations."

If you have any questions regarding this NOA or the Aquatic Weed Control Permit, please contact Mr. Russell Norman in the NPDES Wastewater Unit of the Division of Water Quality at (916) 323-5598 or russell.norman@waterboards.ca.gov.

Sincerely,

Victoria A. Whitney, Deputy Director
Division of Water Quality

cc: Pascal Mues
NPDES Permits Office
U.S. EPA Region 9, WTR-5
75 Hawthorne Street
San Francisco, CA 94105

Charles Andrews, Associate Director
California Department of Pesticide Regulation
1001 I Street, 4th Floor
Sacramento, CA 95814

Bruce H. Wolfe, Executive Officer
San Francisco Bay Regional Water Quality Control Board
1515 Clay Street, Suite 1400
Oakland, CA 94612

# Appendix C: Cultural Resource Determination

# CULTURAL RESOURCES COMPLIANCE
# Division of Environmental Affairs
# Cultural Resources Branch (MP-153)

**MP-153 Tracking Number:** 18-SCAO-046

**Project Name:** East Bay MUD Aquatic Weed Application at Contra Loma Reservoir

**NEPA Document:** CEC-17-046

**NEPA Contact:** Kate Connor, Natural Resource Specialist

**MP 153 Cultural Resources Reviewer:** Scott Williams, Archaeologist

**Date:** December 14, 2017

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Reclamation is proposing to approve the application of Roundup Custom (glyphosate) aquatic label would be used to control cattails (Typha latifolia) on the shoreline of the fishing areas at Contra Loma Reservoir. This is the type of undertaking that does not have the potential to cause effects to historic properties, should such properties be present, pursuant to the NHPA Section 106 regulations codified at 36 CFR § 800.3(a)(1). Reclamation has no further obligations under NHPA Section 106, pursuant to 36 CFR § 800.3(a)(1).

The application would be applied twice per year. The shoreline locations for application would be determined as needed by the District's Fishery Manager based on weed load and public use. Sonar (flouridine) would be utilized at the docks and boat launch to control common name (Egeria densa). There are 3 docks and 1 boat launch area. It would be applied in the immediate area around the docks and boat launch. 45 Lbs of granular Sonar would be applied to treat one acre of surface area. The application would be applied twice per year. No ground disturbance is anticipated.

This document is intended to convey the completion of the NHPA Section 106 process for this undertaking. I concur with item 8 that this action would not have significant impacts on properties listed, or eligible for listing, on the National Register of Historic Places as determined by Reclamation (LND 02-01) (43 CFR 46.215 (g). Please retain a copy in the administrative record for this action. Should changes be made to this project, additional NHPA Section 106 review, possibly including consultation with the State Historic Preservation Officer, may be necessary. Thank you for providing the opportunity to comment.