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DIVISION OF WATER QUALITY

Attachment E – Notice of Intent

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

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

I. NOTICE OF INTENT STATUS (see Instructions)

Mark only one item	A. New Applicator	B. X Change of Information: WDID# 2 28AP00002
	C. ☐ Change of ownership or responsibility: WDID#	

II. DISCHARGER INFORMATION

A. Name City of Napa, Water Division			
B. Mailing Address PO Box 660			
C. City Napa	D. County Napa	E. State CA	F. Zip 94559-0660
G. Contact Person Erin Farnand	H. E-mail address efarnand@cityofnapa.org	I. Title Water Quality Manager	J. Phone 707-253-0822

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

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

IV. RECEIVING WATER INFORMATION

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

1. ☒ Canals, ditches, or other constructed conveyance facilities owned and controlled by Discharger.
   Name of the conveyance system: Lake Hennessey, Lake Milliken, Milliken Diversion Dam
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. X Directly to river, lake, creek, stream, bay, ocean, etc.
   Name of water body: Lake Hennessey, Lake Milliken, Milliken Diversion Dam

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

V. ALGAECIDE AND AQUATIC HERBICIDE APPLICATION INFORMATION

A. Target Organisms: ____

Filamentous Algae, cyanobacteria or other algae species

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

PAK 27 Algaecide
Active Ingredient (85%): sodium carbonate peroxyhydrate

C. Period of Application: Start Date as needed/seasonal End Date as needed/seasonal

D. Types of Adjuvants Used:
NA

VI. AQUATIC PESTICIDE APPLICATION PLAN

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

If not, when will it be prepared? _____

VII. NOTIFICATION

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

VIII. FEE

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

IX. CERTIFICATION

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

A. Printed Name: Erin Farnand

B. Signature: _____ **Date:** 08-26-13

C. Title: Water Quality Manager

XI. FOR STATE WATER BOARD STAFF USE ONLY

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

CITY OF NAPA
WATER DIVISION

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 USING PAK™ 27 ALGAECIDE

The following APAP is for the City of Napa Water Division. The required elements are individual addressed according to Section VIII. C, Limitations and Discharge Requirements, of the General Permit.

1. Description of the water system to which algaecides and aquatic herbicides are being applied

   The Lake Hennessey Watershed is roughly 33,687 acres. Lake Hennessey was formed in 1946 by the construction of Conn Dam on Conn Creek about 4 miles upstream of its confluence with the Napa River. The lake is supplied by precipitation runoff from the 58 square-mile area watershed and has 4 major tributaries, Conn Creek, Moore Creek, Sage Creek and Chiles Creek. Lake Hennessey has a capacity of 31,000 acre-feet (AF) and a safe yield of 5,000 AF. The lake is usually at capacity during the wet season and is slowly drawn down to its lowest level, generally in October of each year. Water is released from the lake to satisfy downstream agricultural demands and in stream flow requirements in Conn Creek ("City of Napa Watershed Sanitary Survey," Brown and Caldwell, December 2012).

   The watershed is largely undeveloped while the major land uses include rural residential development and agriculture in the valleys and the foothills and open space throughout. The City of Napa owns 2821 acres around, and including, the lake. The majority of the remaining watershed property is privately owned.

   Hennessey Water Treatment Plant (HTP) is a 20 MGD capacity conventional filtration plant, which derives its source water from Lake Hennessey in St. Helena, California. Water is conveyed to HTP through the intake tower by a gravity pipeline from the Lake Hennessey intake pump station located at the downstream face of Conn Dam.

   The Lake Milliken Watershed is approximately 6,200 acres. Lake Milliken was formed in 1923 by the construction of the Milliken Dam on Milliken Creek. The lake is supplied by Milliken Creek and it is intermittent, being fed by rainfall during the

wet season. Lake Milliken has a capacity of 2,000 AF and a safe yield of 400 AF. Because of concerns regarding dam safety, the reservoir is kept to a lower surface water level than the original design yielding an effective storage capacity of approximately 1,400 AF. Water is released from the lake to satisfy downstream agricultural demands and in stream flow requirements in Milliken Creek ("City of Napa Watershed Sanitary Survey," Brown and Caldwell, December 2012).

The watershed is largely undeveloped with the major uses include rural residential development and agriculture in the valleys and foothills with undeveloped land in the steeper areas. The City of Napa owns 1,400 acres around, and including, the lake. The majority of the remaining watershed property is privately owned.

The Milliken Water Treatment Plant (MTP) is a 5 MGD capacity direct filtration plant which derives its source water from Lake Milliken in Napa, California. Water is conveyed to MTP through the base of the dam and diversion dam by a gravity pipeline.

2. Description of the treatment area in the water system

The City of Napa applies algaecide to a 16.45 acre-foot treatment area concentrated in the intake tower and surrounding shoreline at Lake Hennessey and a 0.09 acre-foot treatment area concentrated in the diversion dam at Lake Milliken. At Hennessey, Fishing is not permitted within 2000 feet of the intake tower and fish cannot be cleaned or scaled in or near the lake. All water vessels are prevented from entering the area within 500 feet of the intake tower by ropes and buoys. There are also signs posted on all the gates, which surround the City property to prevent recreational use near or around the intake tower and the spillway. At Milliken, the lake and surrounding watershed is not open to recreational activities of any kind.

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

Analytical testing of Lakes Hennessey and Milliken identified different types of filamentous algae, cyanobacteria and other algae species that cause adverse taste and odor in the City's potable water supply. Algae found at Lake Hennessey and Lake Milliken is separated into 4 categories—blue-green, green, diatoms and magellates. Each type of algae has a different category of resistance and taste and odor characteristic, which ranges from "very susceptible" to "susceptible" to "resistant" to "very resistant." PAK™ 27 Algaecide dosages are manufacturer-calculated based on surface area, quantity and algae specie resistance.

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

   The City of Napa uses PAK™ 27 Algaecide to eliminate or slow the growth of algae blooms as it minimizes adverse impacts to receiving waters. Upon activation, PAK™ 27 breaks down into sodium carbonate and hydrogen. After contact, the hydrogen peroxide breaks down into water and oxygen and no additional adjuvants are used. PAK™ 27 Algaecide is applied to the intake tower and surrounding shoreline (totaling 16.45 acre-feet) by trained City of Napa applicators using dedicated vehicles and equipment. Recreational use is not permitted in the area of treatment.

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

   The City of Napa decided to select PAK™ 27 Algaecide for algae control as it was determined to be the most practical and environmentally-friendly aquatic pest control method, quickly breaking down into hydrogen peroxide and sodium carbonate which further breaks down into water and oxygen. As PAK™ 27 is applied in accordance with directions on the label, there is no harm to freshwater fish or invertebrates.

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

   The City of Napa does not have gates or control structures used to control the extent of receiving waters, therefore this section is not applicable.

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

acrolein and copper receiving water limitations for all applications that occur outside of the exception period

The City of Napa has not been granted a short-term or seasonal exception, therefore this section is not applicable.

8. Description of monitoring program

The City of Napa monitoring program consists of background and post-event monitoring collected in the application area and event monitoring collected immediately outside of the application area. The City of Napa APAP addresses the two key questions in the Monitoring and Reporting Program (MRP) and considers watershed specific attributes and waste constituents as well as the receiving water quality conditions.

The application areas for Lake Hennessey are consistent with sampling methods and locations. Although the application frequency varies throughout the year, the sample schedule monitoring (background, event and post-event morning) remains constant. Water samples are collected in the application area/intake tower at depths of 5, 10, 20, 30, 40, 50, 60, 70 and 80 feet/bottom of the lake with the depth varying according to the season. Each depth is analyzed for physical and chemical parameters such as temperature, dissolved oxygen, alkalinity, pH, turbidity, total hardness, calcium hardness, chloride, conductivity, total dissolved solids, iron, manganese and copper in the City of Napa's water quality laboratory by Laboratory or Water Treatment Operators trained in water quality testing. The areas of application are also monitored visually for the monitoring area description, appearance of waterway and weather conditions.

In addition to the monitoring program, when the Hennessey Water Treatment Plant is in operation the intake tower water quality is monitored bi-hourly for turbidity, temperature and pH, twice daily for total hardness, alkalinity, color and UV254 and monitored weekly for the above mentioned parameters as well as aluminum, total organic carbon (TOC), dissolved organic carbon (DOC), and total and fecal coliform as Lake Hennessey is the City of Napa's drinking water source regulated by the California Department of Public Health (CDPH).

The application areas for Lake Hennessey are consistent with sampling methods and locations. Although the application frequency varies throughout the year, the sample schedule monitoring (background, event and post-event morning) remains constant. Water samples are collected in the application area/intake tower at depths of 5, 10, 20, 30, 40, 50, 60, 70 and 80 feet/bottom of the lake with the depth varying according to the season. Each depth is analyzed for physical and chemical parameters such as

temperature, dissolved oxygen, alkalinity, pH, turbidity, total hardness, calcium hardness, chloride, conductivity, total dissolved solids, iron, manganese and copper in the City of Napa's water quality laboratory by Laboratory or Water Treatment Operators trained in water quality testing. The areas of application are also monitored visually for the monitoring area description, appearance of waterway and weather conditions.

In addition to the monitoring program, when the Milliken Water Treatment Plant is in operation, the diversion dam water quality is monitored daily for turbidity, temperature and pH and weekly for total hardness, alkalinity, color, chloride, aluminum, lead, iron, copper, TOC, DOC and UV254 as Lake Milliken is the City of Napa's drinking water source regulated by the California Department of Public Health (CDPH).

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

The City of Napa Watershed Division uses and maintains dedicated equipment and vehicles associated with the algaecide application to prevent sample contamination. Applications are performed by Watershed Staff trained in the use and handling of PAK™ 27.

10. Description of the BMPs to be implemented. The BMPs shall include, at the minimum:
    a. Measures to prevent algaecide and aquatic herbicide spill and for spill containment during the event of a spill

The application of PAK™ 27 Algaecide is the BMP used to eliminate or slow the growth of an existing algae bloom in the City of Napa receiving waters. The total potential application surface is applied in three separate areas all within the intake tower and surrounding shoreline at Hennessey and at the diversion dam at Milliken and only the amount of algaecide needed to apply is loaded for use. While PAK™ 27 Algaecide is toxic to many species of algae at relatively low concentrations it does not present a significant health hazard to either the workers applying it or to the domestic water when proper application and safety procedures are followed. PAK™ 27 Algaecide is applied to the water surface so in case of a spill during the application, the byproducts are hydrogen peroxide and sodium carbonate which further break down into water and oxygen.

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

PAK™ 27 Algaecide is one of the more effective and convenient chemicals to control most undesirable algae. As with any chemical application, the correct concentration is essential for desirable results and the City of Napa never uses more than what is required to eliminate the target algae. Based on the acre-foot per area of the application zone surrounding the intake tower and surrounding shoreline and diversion dam, application rates recommended from Jef Morgan (Peroxygen Solutions), the required pounds of PAK™ 27 Algaecide are determined.

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

The City of Napa Watershed Staff are not only trained yearly in the safe use and handling of PAK™ 27 but the application operation is also inspected annually by the Napa County Agricultural Commissioner on how to avoid any potential adverse effects.

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

The City of Napa manages its own reservoirs and therefore plans and coordinates so that beneficial uses of the water are not impacted during the treatment period as the Hennessey and Milliken Water Treatment Plant's water source is taken from the application area in the intake tower and surrounding shoreline and diversion dam.

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

PAK™ 27 Algaecide is applied as needed, depending on the length of operation, to the same lake surface throughout the entire pesticide application season. No fish have been destroyed throughout the City of Napa receiving waters while using PAK™ 27. Based on water quality testing, visual assessments and manufacturer and US EPA recommendations, the use of PAK™ 27 Algaecide does not affect the marine life within receiving waters.

11. Examination of Possible Alternatives. Dischargers should examine the alternatives to algaecide and aquatic herbicide use to reduce the need for applying algaecides and herbicides. Such methods include:
    a. Evaluating the following management options, in which the impact to water quality, impact to non-target organisms including plants, algaecide and aquatic herbicide resistance, feasibility, and cost effectiveness should be considered:
        i. No action
        ii. Prevention
        iii. Mechanical or physical methods
        iv. Cultural methods
        v. Biological control agents
        vi. Algaecides and aquatic herbicides;

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

The City of Napa uses PAK™ 27 Algaecide because there is no impact to water quality and non-target organisms and is effective in eliminating or slowing the growth of algae. PAK™ 27 Algaecide is toxic to many species of algae at relatively low concentrations and does not present a significant health hazard to either the workers applying it or to the domestic water as proper application and safety procedures are followed per product label requirements. PAK™ 27 Algaecide is applied to the water surface so in case of a spill during the application, the byproducts are hydrogen peroxide and sodium carbonate which further break down into water and oxygen.

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

PAK™ 27 Algaecide is applied to the surface of the receiving water which is the least intrusive method of algaecide application for the City of Napa Watershed Staff and recreational users and non-target organisms.

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

The City of Napa worked closely with the manufacturer in preparing and determining the appropriate application formulation necessary to eliminate or slow the growth of algae in the receiving waters.