

**REGIONAL WATER QUALITY CONTROL BOARD  
SAN DIEGO REGION**

**EXECUTIVE OFFICER SUMMARY REPORT  
November 18, 2020**

**ITEM 11**

**SUBJECT**

Informational Item: Case Status Update for Lake San Marcos and Upper San Marcos Creek Watershed. (Lara Quetin)

**STAFF RECOMMENDATION**

This is an informational item and the Board will not take an action.

**KEY ISSUE**

Lake San Marcos is a seasonally stratified reservoir impaired by elevated phosphorus and nitrogen, excess algal growth, and low dissolved oxygen. The lake and San Marcos Creek, upstream and downstream of the lake, are on the California 303(d) list of impaired water bodies for several pollutants. These impairments interfere with the recreation and habitat beneficial uses of the lake. The Site Restoration Unit has provided oversight of investigation and restoration activities for this case since 2015.

**PRACTICAL VISION**

This item is consistent with the goals of the Recovery of Stream, Wetlands, and Riparian Areas Chapter of the Practical Vision. This chapter is dedicated to providing measurable improvements in the extent and health of stream, wetlands, and riparian systems, and in this case improvements and restoration of Lake San Marcos and the Upper San Marcos Creek watershed.

**DISCUSSION**

Citizens Development Corporation (CDC), along with the County of San Diego, the Cities of San Marcos and Escondido, and Vallecitos Water District (collectively, the Parties), are cooperatively and voluntarily working to restore the water quality of Lake San Marcos and Upper San Marcos Creek (**Supporting Documents 1 and 2**). The restoration work is occurring with San Diego Water Board oversight. The San Diego Water Board adopted Board Resolution No. R9-2017-0038, *A Resolution Supporting the Path Forward for Nutrient Load Reductions in Lake San Marcos and the San Marcos Creek Watershed*,<sup>1</sup> in March 2017. The Resolution affirms the Board's expectations that project activities are effective and proceed as expeditiously as possible. However, there have been delays in the restoration work that are inconsistent with the Resolution's intent.

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<sup>1</sup>[https://documents.geotracker.waterboards.ca.gov/regulators/deliverable\\_documents/2342162907/R9-2017-0038.pdf](https://documents.geotracker.waterboards.ca.gov/regulators/deliverable_documents/2342162907/R9-2017-0038.pdf)

The Parties prepared a Remedial Investigation/Feasibility Study Report<sup>2</sup> in 2016 that includes recommendations for lake and watershed restoration measures. One of the proposed remedies, to increase lake circulation, prevent stratification, and improve oxygenation at Lake San Marcos, is the combination of a lake aeration system and a modified selective withdrawal system.

### **Lake Aeration System**

In October 2019, CDC submitted a “No Permit Required” verification request for installation of an aeration system in the lake to the United States Army Corps of Engineers. This verification ensures the aeration system is installed outside federal waters. The verification process is still ongoing, but the contractors and material suppliers are ready to install the system as soon as the process is complete. The lake aeration system will be installed in two stages in the deepest parts of the lake (**Supporting Document 3**). The first stage will consist of installing the system in the southernmost part of the lake in Fall 2020. The second stage of the system will be installed in 2021 north of the first stage. Documents required under the California Environmental Quality Act are in preparation and must be submitted before the installation of the second stage lake aeration system.

### **Selective Withdrawal System**

The discharge of deep groundwater to the lake is part of the selective withdrawal system. “Selective withdrawal” is the process of removing high nutrient content water from the lake. CDC has been pumping lake water from the shallowest part of the lake (north) since the 1960s for two reasons: 1) to irrigate the adjacent golf course and 2) to improve lake water circulation. However, dry weather conditions and lake water pumping have resulted in lake water level drops each year, which impairs recreational beneficial uses (e.g., boating in shallowest parts of the lake becomes impossible). To replenish the lake, CDC is using groundwater pumped from two groundwater wells. CDC proposed to expand the selective withdrawal system by adding two new groundwater wells that would work in combination with the lake aeration system to help circulate and oxygenate lake water.

CDC seeks to enroll the discharge of groundwater from the four groundwater wells to the lake under San Diego Water Board Order No. R9-2015-0013, NPDES No. CAG919003, *General Waste Discharge Requirements for Groundwater Extraction Discharges to Surface Waters within the San Diego Region* (General Order). However, water quality data for the existing wells indicates that concentrations of total dissolved solids (TDS) and chloride exceed the water quality objectives established for San Marcos Creek (of which the lake is a part) in the Water Quality Control Plan for the San Diego Basin. Further, total recoverable manganese and iron concentrations in groundwater exceed the effluent limitations established in the General Order. Board staff are working with the parties and considering various options to help CDC come into compliance with applicable regulations.

### **Other Proposed Remedies Update**

Pilot testing in the lake is ongoing while watershed pilot testing has been initiated but is not yet completed. Pilot testing of phosphorus inactivation amendments was conducted in the lake between May 2017 and September 2020 and consisted of four alum applications and one Phoslock application. Regarding watershed activities, a pilot study at La Cienega

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<sup>2</sup>[https://documents.geotracker.waterboards.ca.gov/esi/uploads/geo\\_report/9786993443/T10000003261.PDF](https://documents.geotracker.waterboards.ca.gov/esi/uploads/geo_report/9786993443/T10000003261.PDF)

infiltration basin started in 2018, and a second pilot study involving in-stream phosphorus inactivation started in Winter 2019 at San Marcos Creek, upstream of the lake. Both pilot tests require additional work and data collection to be complete. When the pilot studies are complete, a Watershed Corrective Action Plan will be provided to the San Diego Water Board for review and approval.

The Parties and their technical team's representatives will be present at the November Board meeting to answer questions regarding the lake aeration system, modified selective withdrawal system, upcoming activities, and project delays.

## **PUBLIC NOTICE**

This item was publicly noticed in the Meeting Notice and Agenda for the November 18, 2020 meeting. The agenda notice for today's meeting was posted on the San Diego Water Board website and sent to subscribers to the Board meetings email list.

## **SUPPORTING DOCUMENTS**

1. Figure 1: Upper San Marcos Creek Watershed
2. Figure 2: Lake San Marcos
3. Figure 3: Lake aeration system project overview and detailed maps