

LAKE ARROWHEAD COMMUNITY SERVICES DISTRICT

MEMORANDUM

DATE: MAY 26, 2020

TO: BOARD OF DIRECTORS
Lake Arrowhead Community Services District

FROM: MATT BROOKS, Operations Manager

CATHERINE CERRI, General Manager

SUBJECT: CONSIDER AWARDING A PROFESSIONAL SERVICES CONTRACT WITH DUDEK FOR PILOT TESTING SUPPORT FOR THE NANO2 MICRONIZED OXYGEN INFUSION SYSTEM DEMONSTRATION AT THE WILLOW CREEK WASTEWATER TREATMENT PLANT

A. RECOMMENDATION

It is recommended that the Board of Directors:

1. Award a Professional Services Contract with Dudek to move forward with providing pilot testing support for the Kadance/NanO2 micronized oxygen infusion system at the Willow Creek Wastewater Treatment Plant (WCWWTP), as outlined in their attached proposal, at a cost Not-to-Exceed \$28,910 for time and materials.
2. Authorize the General Manager to execute the contract.

B. REASON FOR RECOMMENDATION

In January 2020, Dudek approached the District with a conceptual design to address the nitrogen removal issues at the Grass Valley Wastewater Treatment Plant (GVWWTP) through improvements made to the WCWWTP site. This concept would harness the use of a newer technology, micronized oxygen infusion, which has already shown promising results in a recently completed pilot study done in San Luis Obispo. Roughly 75% of the District's wastewater flows through the WCWWTP site prior to moving on to the GVWWTP. The Willow Creek WWTP processes currently consists of: preliminary treatment (screenings and grit removal), a primary clarifier, and two storage ponds that can be used for flow equalization and/or emergency storage. The storage ponds are largely under-utilized because of issues with an ineffective mixing system, odor issues, and the need for manual operation. Both Dudek and LACSD staff are very excited about this concept and the future implications it can bring. To this point Dudek has facilitated a few discussions between the District and Kadance/NanO2, Dudek and

LACSD staff have visited the WCWWTP site for more discussion, and it has been recommended to evaluate this technology further by way of a small-scale pilot testing.

Dudek is familiar with the District's treatment processes, influent and effluent wastewater quality, and the stringent parameters set forth in the Waste Discharge Requirements in which the District must comply with; specifically, the requirements set forth for Total Nitrogen. Dudek has already captured and reviewed most of the Grass Valley WWTP (GVWWTP) data as part of the 2018 Process Evaluation work and will share this data with Kadance/NanO2. Dudek will provide coordination and guidance support to the District during the pilot testing, review the pilot system layout, sampling protocols and procedures, and collect and analyze data provided by Kadance/NanO2 and the District. Then, Dudek will prepare and provide a concise Pilot Test Report describing the operation of the pilot system, parameters of the pilot test, summary of the results, and discussion of the applicability of the NanO2 technology at the WCWWTP.

C. BACKGROUND INFORMATION

Dudek has completed a process evaluation and data gap analysis for the Grass Valley Wastewater Treatment Plant (GVWWTP). This was Phase 1 of a multi-phase wastewater system improvement plan and was completed in July 2018. This phase evaluated individual unit processes at the plant for hydraulic capacity and capacity to perform its intended treatment. The analysis found that the trickling filters at the GVWWTP are a critical bottleneck for BOD removal and nitrification. In November 2019 Dudek completed the second phase of the project, a Consequence of Failure Analysis for the District's wastewater treatment plants and "top five" most critical wastewater lift stations. This second phase was intended to identify and prioritize risks within these facilities, and to guide strategic O&M and capital investments for the District going forward. Again, one of the top recommendations from this second phase was to "Construct a supplemental treatment process to address BOD removal and nitrification deficiencies with the trickling filters."

D. FISCAL IMPACT

This project is a budgeted item and will be funded by Fund 200 (Wastewater Operations) at a cost Not-to-Exceed \$28,910 for time and materials.

E. ENVIRONMENTAL IMPACT

This analysis does not qualify as a project under CEQA.

F. ATTACHMENTS

- Dudek Proposal for Pilot Testing and Conceptual Design of Pond System Improvements at the Willow Creek WWTP
- Dudek PowerPoint Presentation