

OPERATIONS & WATER QUALITY COMMITTEE SUMMARY MINUTES

June 3, 2020

4:15 p.m.

ATTENDANCE

Directors: Judy Huang (Chair), John Weed

Staff: Kurt Arends, Mike Wickham, Cris Pena, Ranga Sampath

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The monthly Operations & Water Quality Committee Meeting was held on June 3rd, 2020 at 4:15 PM. Due to COVID-19 and in accordance with Governor Newsom's Executive Order N-25-20 which suspends portions of the Brown Act, this meeting was conducted by Zoom Webinar and Teleconference and members of the public were invited to participate.

DISCUSSION TOPIC

1. Newark Desalination Facility Source Well Pilot Study: Ranga Sampath, Environmental Engineer, provided an overview of an upcoming pilot study to be conducted for the Newark Desalination Facility (NDF). The purpose of the study is to determine if groundwater from the shallow (Newark Aquifer) can be mixed with groundwater from the deeper (Centerville-Fremont (C-F) Aquifer) at the NDF without damaging the membranes. Specifically, the pilot study will help determine if groundwater from the Newark Aquifer well, Darvon 1, can be blended in the raw water mix at the NDF. Previously, during Phase I of the NDF, mixing of the waters from the Newark and C-F Aquifer resulted in membrane fouling and damage. A 2007 study concluded that the most likely cause of membrane fouling was due to the oxidation of manganese. The study indicated that the Newark Aquifer wells contained enough dissolved oxygen (DO) to oxidize the high manganese levels present in wells from the C-F Aquifer. The study recommended a few operational changes, namely, reducing the size of the pre-filters from 5-microns to 1-micron, and using Cedar 2, a Newark Aquifer well, as a blend around via the intertie pipeline, instead of mixing within the NDF. The strategy worked; however, the other Newark Aquifer well, Darvon 1, with pumps and piping in place, was left dormant since that time. Due to the significant improvement in aquifer water quality since that time, a pilot study is planned to explore the option of mixing the source waters again and to validate the previous assumptions. Additionally, a new hypothesis - whether even smaller manganese particles, more commonly referred to as colloidal and sub-colloidal particles, were a potential contributing factor to the membrane fouling, will also be explored.

Mr. Sampath explained the goals of the pilot study which are to verify the two hypothesis: (1) is DO responsible for manganese oxidation, and (2) if the colloidal and sub-colloidal particles that are passing through the 1-micron filters are fouling the RO membranes. Mr. Sampath explained that the pilot study will be conducted in phases, with the assistance of a consultant who will review the operational and water quality data and prepare the pilot study test plan. The first phase includes passing the NDF's raw water through one RO train as a control and introducing DO in the other train, to verify the DO hypothesis. The second phase will involve running one RO train with C-F water (similar to the current operation of the NDF) and mix

Newark and C-F water raw water on the other train to verify if DO is the likely cause of manganese oxidation, thereby causing membrane fouling. It was also noted that the District had purchased a trailer so that the pilot unit can be transported to the individual well sites for testing (Darvon for example). Finally, Mr. Sampath explained that identifying the most likely cause of the membrane fouling, whether due to manganese colloidal particles or oxidation, will help to determine if Darvon 1 can be used as a raw water source for the NDF. This will also open options for other future well sites for the NDF, and provide alternatives for potential treatment options, once the source of membrane fouling is identified.

Director Weed asked about the use of the intertie pipeline for possible blending, the improving water quality conditions in the Newark and C-F aquifers and suggested that the effects of temperature on manganese precipitation be considered in the study.

2. Public Comments: There were no public comments.

RECOMMENDATIONS

Topics discussed by the Committee were informational only, and no recommendations are being made.