



Santa Clara Valley Water District

File No.: 22-0530

Agenda Date: 5/10/2022

Item No.: 4.1.

BOARD AGENDA MEMORANDUM

SUBJECT:

Consider the March 23, 2022, Request from the Recycled Water Committee to Provide Information to the Board of Directors on Desalination as a Potential Water Supply in Santa Clara County, and Approve the Inclusion of Desalination to the 2022 Recycled Water Committee Work Plan.

RECOMMENDATION:

- A. Receive information on desalination as a potential water supply in Santa Clara County; and
- B. Approve the inclusion of Desalination to the 2022 Recycled Water Committee Work Plan.

SUMMARY:

Since 2003, Santa Clara Valley Water District (Valley Water) has been exploring potential desalination projects to help meet future water supply needs. One effort happening under the Bay Area Regional Reliability (BARR) Partnership is the Bay Area Regional Desalination Project (BARDP) that Valley Water is evaluating with Contra Costa Water District (CCWD), Zone 7 Water District (Zone 7), and San Francisco Public Utilities Commission (SFPUC). In addition, Valley Water evaluated local brackish groundwater desalination in 2018 and plans to begin a pre-feasibility study of other potential local desalination options. This memo will provide background on the work Valley Water has done related to desalination and recommended next steps.

Background

Starting in 2003, the BARDP evaluated several sites around the San Francisco Bay for a desalination project. Three sites in Santa Clara County were part of the evaluation. Ultimately the Mallard Slough in eastern Contra Costa County was chosen as the most feasible site for a desalination project. Mallard Slough was preferred, because it has brackish water, existing water rights to feed the project, and is close to existing CCWD facilities. CCWD has agreed to provide two of their water rights (a permit and a license) to provide feed water to the desalination plant. CCWD is unable to fully use the water rights since the water is generally not fresh. In 2011 BARDP completed a pilot study for the project which showed technical and operational feasibility. Between 2012-2015 partners completed a wheeling study, greenhouse gas analysis, a site-specific assessment, and permitting evaluation. The current BARDP project proposal is to build between a 10-25 million gallons per day (MGD) desalination treatment facility using CCWD water rights.

Further analysis completed between 2019 and 2020 has shown that project water delivery may not

be dependable during droughts. The water right permit is junior to the Central Valley Project (CVP) and State Water Project (SWP) and thus is subject to Term 91 curtailments. These curtailments happen during the summer of most years except for the very wet years (Attachment 1). The water right license is a senior water right but was still curtailed from May through October of 2015 due to the severe drought conditions. Valley Water would not receive the desalinated water directly, since there is currently no viable conveyance options from the proposed project site. Valley Water would instead receive its project water as an exchange with CCWD for CCWD's CVP supplies. Therefore, the exchange would also be subject to uncertainties in the Delta and require an adequate contract allocation during droughts. Valley Water and partners continue to track changes to water rights and CVP exchanges that could influence the project.

Three of the sites included in the preliminary evaluation as part of the BARDP study were for brackish groundwater desalination in Santa Clara County. The evaluation determined that each site would produce less than 5 MGD, which is insufficient for the BARDP. Valley Water also conducted its own brackish groundwater desalination study in 2009. The 2009 study also found low water availability and widespread contamination in the shallow aquifer. This Valley Water study was revisited in 2018 and similar results were found, including added concerns that pumping shallow groundwater by the Bay could reverse the hydraulic gradient that is currently towards the Bay. A reversed hydraulic gradient could cause inland intrusion of saline water into the shallow groundwater basin and negatively impact surface water connected to the shallow groundwater.

Next Steps

The Water Supply Master Plan currently recommends meeting new demands with potable reuse rather than desalination. Desalination and potable reuse share the same membrane technology (e.g., Reverse Osmosis) to purify water. Currently, the Silicon Valley Advanced Water Purification Center (SVAWPC) uses this technology to purify treated wastewater. There are three major wastewater treatment plants located in Santa Clara County. These could provide sufficient wastewater to supply a local advanced water purification facility like the SVAWPC. Currently, potable reuse is more cost efficient than desalination since reuse requires much less energy to remove impurities. This also means potable reuse generates fewer greenhouse gases compared to desalination processes. In addition, potable reuse is expected to have fewer regulatory uncertainties.

Valley Water plans to continue evaluating desalination projects through the Master Plan and its Monitoring and Assessment Program (MAP). Valley Water is currently developing a scope of work for a preliminary feasibility study of Bay water desalination in Santa Clara County. In addition, Valley Water also continues to participate in the BARDP and track changes to water rights and CVP exchanges that could influence the project. Staff will continue to provide updates on regional and local desalination studies to the Recycled Water Committee when new information is available.

ENVIRONMENTAL JUSTICE IMPACT: ENVIRONMENTAL JUSTICE IMPACT UNKNOWN

Further analysis is necessary to determine the Environmental Justice impacts associated with any potential future desalination project in Santa Clara County or the Bay Area region. Any analysis of the environmental impact will be completed if a specific project is being proposed for Valley Water's

investment. The findings of that analysis would get presented to the Board during a future update.

FINANCIAL IMPACT:

The desalination evaluation for Santa Clara County is currently in the preliminary feasibility stage and funding budget is included in the proposed FY2022-23 Biennial Operating and Capital Budget. Funding is included in the Recycled & Purified Water Program Project, Project No. 91101004, and the Water Supply Planning Project, Project No. 9574101. These projects are funded by the Water Utility Enterprise Fund (Fund 61).

CEQA:

The recommended action does not constitute a project under CEQA because it does not have the potential for resulting in direct or reasonably foreseeable indirect physical change in the environment.

ATTACHMENTS:

None

UNCLASSIFIED MANAGER:

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