
Direct Potable Reuse Pilot Demonstration Project

Purpose

Develop a direct potable reuse (DPR) pilot demonstration facility to assist Valley Water and the Cities of San José and Santa Clara in being prepared for implementation of a future DPR project.

Background on DPR and Associated Regulations

DPR is the delivery of purified water to a drinking water treatment plant or a drinking water distribution system without an environmental buffer (such as groundwater). Additional treatment, monitoring, and/or an engineered buffer(s) would be used in place of an environmental buffer to provide equivalent protection of public health and response time in the event that the purified water does not meet specifications. The California State Water Resources Control Board is in the process of developing regulations for DPR.

Project Goals and Benefits

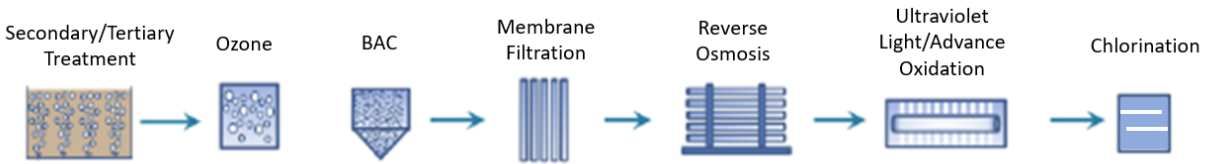
The DPR pilot project would assist Valley Water and the Cities in being prepared for implementation of a future DPR project by

- Permitting and meeting regulatory requirements
- Testing and optimizing the processes that will be used in a future full-scale facility
- Investigation of data gaps and informing operation and maintenance (O&M) requirements for a full-scale facility
- Providing the means to promote public outreach/education and potential future use as a water taste test station
- Determine impacts of new treatment train on reverse osmosis (RO) concentrate
- Providing training for operations and maintenance staff

Given the importance of the educational and outreach opportunities for DPR offered by this project, facility planning may evaluate and review consideration for classroom instruction, conference rooms, laboratory /testing requirements, parking, restrooms, and storage needs.

Project Scope

The project will develop a DPR pilot demonstration facility adjacent to the Silicon Valley Advanced Water Purification Center (SVAWPC), taking from 0.25 to 1 million gallons per day (MGD) of the existing wastewater flow available and treating it through a new treatment train that would be consistent with the draft DPR regulations. There are several potential locations for the new treatment train which include areas in the vicinity of the SVAWPC main process building. The project could be located within the existing fence line or outside depending upon the size and required footprint. For example, the treatment components and other supporting infrastructure may necessitate an area as large as 0.7 acres for a 1 MGD size pilot. The pilot treatment train would include ozone, biological activated carbon (BAC), membrane filtration, reverse osmosis (RO), ultraviolet light/advanced oxidation, and chlorination:



Project Cost

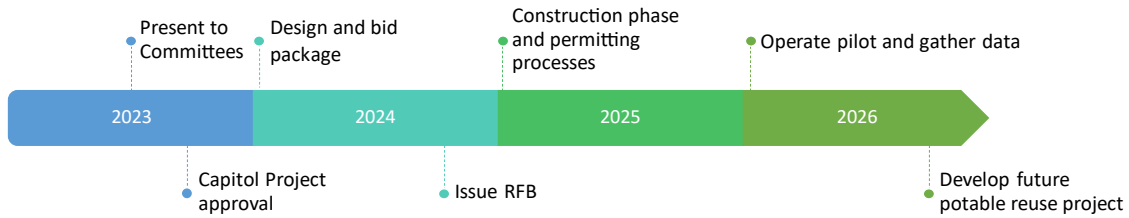
Depending on the size of the flow and the type of building that would be used, the preliminary costs are estimated to range from \$6 million (size of 0.1 MGD) to \$25 million (size of 1.0 MGD) for the design and construction and approximately \$1 million per year for operation and maintenance support.

Project Requirements

- The project requires review of the existing lease agreement with the City of San José to evaluate if amendment is needed.
- The project requires review of the current Integration Agreement with the City to ensure the DPR pilot is consistent.
- Permit for building construction from the City of San José Planning Department.
- CEQA compliance.
- Title 22 permitting will allow the water from the demonstration facility to be blended with current non-potable recycled water (would depend on the size of the pilot facility).

Implementation Milestones (2023 – 2026)

- Coordination with San José and Santa Clara on needed agreements (current efforts).
- Present concept for DPR pilot and obtain feedback from the Recycled Water Committee (RWC). (2023 - 3rd Quarter)
- Present concept for DPR pilot and obtain feedback to/from the Joint Recycled Water Policy Advisory Committee (JRWPAC). (2023 - 3rd Quarter)
- Submit DPR Pilot into Capital Program process for Board Review and approval (2023 - 4th Quarter).
- Upon approval as a capital project work with a consultant to implement the design and bid package which would include the Engineer's Estimate for Construction (2024).
- Perform CEQA analysis.
- Upon completion of design, issue request for bid (RFB) for construction (2024).
- Construction phase and permitting processes (2025).
- Operate pilot plant (starting in 2026).
- Use the results of the pilot to develop a future potable reuse project with the Cities and obtain regulatory approvals (2026 and beyond).



Attachment:

Benchmarking with Peer Agencies

- Las Virgenes-Triunfo Pure Water Demonstration Facility
- East County Advanced Water Purification Program (Padre Dam)
- Metropolitan Water District of Southern California and Los Angeles County Sanitation Districts
- City of San Diego Pure Water Program – Demonstration Pure Water Facility
- Hampton Roads Sanitation District

Attachment: Benchmarking

Benchmarking with Peer Agencies

The following are images of pilot facilities from other agencies.



Figure 2: Las Virgenes-Triunfo Pure Water Demonstration Facility
Size: 0.14 MGD



Figure 3: East County Advanced Water Purification Program (Padre Dam)
Size: 0.1 MGD



Figures 4 & 5: Metropolitan Water District of Southern California and Los Angeles County Sanitation Districts
Size: 0.5 MGD



Figure 6: City of San Diego Pure Water Program – Demonstration Pure Water Facility
Size: 1.0 MGD



Figure 7: Hampton Roads Sanitation District

Size: 1.0 MGD