

**Metropolitan Domestic Water Improvement District
Board of Directors Meeting**

November 9, 2020

**Authorizing Pipe Loop Testing for the
Northwest Recharge, Recovery, and Delivery System (NWRRDS)
Metro-only Project**

Synopsis

The Board of Directors is requested to authorize utilizing Carollo Engineers, Inc., (Carollo) to conduct Pipe Loop Testing for the Northwest Recharge, Recovery, and Delivery System (NWRRDS) Metro-only project under the current Professional Services Agreement for Miscellaneous Water System Design. Work will include a simulation of distribution system conditions representing the introduction of NWRRDS blended water along with a recommended corrosion treatment regime for full-scale implementation.

Background

In April 2014, the Metropolitan Domestic Water Improvement District (District) Board of Directors considered the timeline to implement NWRRDS. It is estimated that construction of NWRRDS infrastructure will be completed in Fiscal Year 2024. The portion of the project that includes the booster station and pipeline from the shared forebay facility to Herb Johnson Reservoir is being completed by the District. For simplicity, this has been called NWRRDS Metro-only project.

The District desires to maximize use of its Central Arizona Project (CAP) water allocation through NWRRDS to reduce groundwater pumping within the Metro Main service area and stabilize the observed trends in declining groundwater levels. As part of that goal, delivery of the blended water to customers is intended to meet the District Board-adopted average annual range of total dissolved solids (TDS) between 400 and 500 milligrams per liter (mg/l).

Issues

NWRRDS recovered water will have higher levels of mineral content, measured as TDS, than wells currently serving the Metro Main system. Carollo recently completed an assessment of blended water quality following introduction of NWRRDS water, including calculation of corrosion indices as an indication of potential impacts to pipe scale stability. While calculations of corrosion indices can give an idea of potential areas of concern in a distribution system when introducing a new water source, they cannot fully predict how pipes will react to new water blends. Accordingly, the stability of the NWRRDS water blend will be evaluated using pipe loop testing.

Pipe loops will be set up as outlined in the pipe loop testing plan and distribution system conditions will be simulated to observe and measure the effect on distribution system piping scale stability. A recommended corrosion treatment regime will be developed for full-scale implementation.

Recommendation

Staff recommends the Board authorize the General Manager to execute an agreement with Carollo to complete Pipe Loop Testing for the NWRD Metro-only project in the amount of \$182,027.00 using the Professional Services Agreement for Miscellaneous Water System Design. Staff also recommends the General Manager be authorized to increase the scope and fee by \$5,000.00, if necessary, to accommodate unforeseen conditions encountered during the evaluation.

Suggested Motion

I move to authorize the General Manager to execute an agreement with Carollo Engineers, Inc., to complete Pipe Loop Testing for the Northwest Recharge, Recovery, and Delivery System Metro-only project in the amount of \$182,027.00 using the Professional Services Agreement for Miscellaneous Water System Design and to authorize the General Manager to increase the scope and fee by \$5,000.00, if necessary, to accommodate unforeseen conditions encountered during the evaluation.

Respectfully submitted,

Sheila M. Bowen, P.E.
District Engineer

I concur with the above-noted recommendation.

Respectfully submitted,

Joseph Olsen, P.E.
General Manager