

Donala Water and Sanitation District, Aug. 21

Proposed regional reclamation facility cost is \$44 million

By Jim Kendrick

On Aug. 21, Tetra Tech consultant engineer Steve Tamburini presented his Regional Water Reclamation Facility Conceptual Study to the Donala Water and Sanitation District board, showing how indirect potable reuse of Donala's reusable wastewater effluent and any other fully consumable renewable water could reduce potable water demands on its groundwater wells.

The conceptual study determined the infrastructure necessary to capture nearly all the reusable wastewater treated effluent that can be reclaimed in a joint venture by

Donala, Woodmoor Water and Sanitation District, and the Town of Monument.

Each of these three water providers has its own plans to construct reclaimed water infrastructure, and they commissioned Tetra Tech to study what common facilities they could share to potentially save overall capital, operations, and maintenance costs.

Director Bob Denny was excused.

Tamburini said that the conceptual reclamation project includes the following components:

- A new Upper Monument Creek Regional Wastewater Treatment Facility (UMCRW-WTF) effluent pump station and pipeline for Donala, but not Triview Metropolitan District.
- A new Tri-Lakes Wastewater Treatment Facility (TLWWTF) effluent pump station and pipeline for Woodmoor and Monument.
- An advanced regional water reclamation facility (ARWRF) to receive and treat water from both effluent pump stations and further treat it using micro filtration and nanofiltration.
- A return pipe to TLWWTF for the ARWRF waste filtrate to be treated and disposed of.
- An AWRWF effluent pump station and pipeline will pump the dual-filtered highly treated effluent from all three entities north to be discharged to Monument Creek upstream from Monument Lake.
- Three Monument Creek raw water galleries would be built by these three entities to individually capture and divert their share of the highly treated effluent into their separate surface water supply systems.
- Monument could use its existing alluvial well system water treatment plant for further treatment and distribution.
- Woodmoor could use its existing Monument Creek exchange pump station at Arnold Avenue to capture and transport its water.
- Donala would construct a new capture/diversion structure on Monument Creek upstream of TLWWTF, along with a pump station and pipeline to transport its reclaimed water back to Donala's water treatment pipe.
- Tetra Tech recommended that each entity construct a dedicated advanced oxidation process in their individual water treatment plants to provide final treatment of the reclaimed water.

Tamburini noted that the wastewater to be reclaimed will have already undergone nutrient removal for ammonia, nitrate, and nitrite at the WWTF. The AWRWF's micro-filters would remove particles larger than 0.1 microns (µm) and its nanofilters would remove consumed or flushed pharmaceuticals and other endocrine disrupting compounds like estrogen. The advanced oxidation processes added to each entity's local water treatment plants would oxidize any residual organic compounds from the effluent and from the blended raw Monument Creek water. Reverse osmosis cannot be used because that type of desalinated RO waste brine is toxic hazardous material that cannot be reused, causing too much water loss for RO to be cost effective.

Tamburini estimated a project cost was \$44.12 million with a system capacity of 3 million gallons per day (MGD) for all three entities participating or \$50.27 million for a capacity of 4 MGD if Triview were to join the project at a later date. Some of the probable costs Tamburini listed for the 3 MGD option were:

- TLWWTF pump/pipe - \$740,000
- UMCRRWTF pump/pipe - \$3.641 million
- ARWRF plant (2 MGD) - \$22.29 million
- Add 1 MGD of capacity - \$4.98 million
- Add 1 MGD more of capacity - \$4.42 million
- ARWRF pump/pipe - \$6.08 million
- Donala's pump/pipe to Holbein Drive WTP - \$6.39 million

Donala General Manager Kip Petersen reported that Donala's initial cost for the smaller capacity option would be about \$19.1 million, not including the diversion structure in Monument Creek to return Donala's water to the district. Donala's cost to move its reclaimed water from Monument Creek to its water treatment plant on Holbein Drive would be less if it could be shared with Triview.

Petersen said the rough annual probable cost for Donala to reuse its eligible water for this system would be about \$40,000 per acre-foot per year. The annual Donala operating cost for this system would be about \$516,000 per year. He said that return water could be used four or five times, limited by losses such as evaporation and irrigation run-off. An acre-foot of water is 325,851 gallons.

The board thanked Tamburini for his report and presentation. There was board consensus to take no further action on this proposal at this time.

The meeting adjourned at 3:43 p.m.

The next meeting will be held at 1:30 p.m. on Sept. 18 in the district conference room at 15850 Holbein Drive. Meetings are normally held on the third Thursday of the month. Information: 488-3603.

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