then discharging it into Monument Creek south of Monument, where it is currently just lost downstream, "indirect reuse" would instead pipe that water upstream of Monument Lake. This recirculated effluent would then mix with lake water and then be withdrawn again from the lake and treated again to potable drinking water standards at a new water treatment plant. This cycle can be performed several times, though some of the water is lost each cycle.

Lytle's comments included:

- Indirect reuse more than doubles the use of each water molecule
- Reuse would reduce the rate of decline of the town's non-renewable Denver Basin water and would increase "peaking capacity" during intense water use times.
- It would allow time for the town to increase its renewable water rights portfolio.
- Woodmoor Water and Sanitation is a potential partner with the town on a reuse plant associated with Monument Creek.

Lytle's conclusion was that a reuse system is absolutely essential to efficiently and economically provide an ongoing, reliable water supply to the town's water service area west of I-25. "Of all the projects on the water master plan, reuse should be the priority. It is not cheap but it is a 'no-brainer,'" he said.

Technical memorandum on Well 9 and radium

Tharnish introduced the fact that Steven Farabaugh, PE of Forsgren Associates, wrote a draft technical memo for the town explaining Forsgren's recommendations on options for addressing radium levels in Well 9 for the Town of Monument. Recent testing has shown increased concentrations of radium that are above Environmental Protection Agency (EPA) limits and has prompted the town to issue a notice of violation to its citizens. See www.ocn.me/v16n9.htm#water and related Oct. 3 Monument Board of Trustees article on page 1.

No formal presentation of the contents of the Oct. 11 technical memo was made, but excerpts include:

- Radium concentrations in the water from Well 9 have been detected for many years; until recently these concentrations were within the limits of the Safe Drinking Water Standards (SDWS) set by the EPA.
- Recent testing has shown increased concentrations of radium-226 and radium-228 at over 7 picocuries per liter (pCi/L) combined.

The memo outlined four options for the town to consider:

Blend Wells 3 and 9 finished water with Well 8 finished water. Dilution would help, but it would not result in a final radium concentration below the level set by the EPA, it may impact distribution pressure zones, and it may leave radium in the backwash filters that would need to be disposed of at an authorized site. Could cost \$50,000.

Note: The memo did not address what levels of radium concentration would be rinsed into the backwash water, which was a concern discussed at the Oct. 11 Tri-Lakes Wastewater Treatment Facility Joint Use Committee (JUC), after the memo was released. Currently, all town water filter backwash water is sent to Tri-Lakes Wastewater Treatment Facility (TL-WWTF) in unannounced surges during filter flushing, which might lead to radioactive contamination of TLW-WTF sludge.

- 2. Ion Exchange treatment system. This "best available technology" would remove radium to meet EPA limits. It would require pre-arranged disposal plans for all of the various used substances that could contain low-level radioactive material. Could cost \$275,000 plus an annual \$14,000 in operations and maintenance (O&M). *Note:* Radioactive contamination of TLWWTF sludge may occur due to the as-yet unspecified concentrations of radium in the system's regeneration water
- 3. Hydrous Manganese Oxide (HMO) Filtration. This technique "adsorbs" the radium into HMO solids, which are then backwashed out of filters, so a large portion of the low-level radioactive radium would end up either in the biosolids or in the effluent from the Tri-Lakes Wastewater Treatment Facility, which might lead to radioactive contamination of TLWWTF sludge due to the higher concentrations of radium in the backwash water. Could cost \$146,000 plus an annual \$9,000 O&M.
- 4. Adsorptive Resin. This option results in the radium being removed from the water system and does not produce wastewater containing radium. It uses a one-use throw-away media that must then be disposed of in a licensed facility. Could cost \$360,000 plus an annual \$80,000 O&M.

Forsgren recommended the dilution option plus installing an HMO filtration system. The trustees asked questions but did not take any action.

Note: For more details on the sludge con-

tamination questions, see related Oct. 11 TLWWTF JUC article on page 9.

Triview president encourages "spirit of cooperation" with town

Triview Metropolitan District Board President Reid Bolander addressed the trustees during the public comments section of the meeting. He expressed his and the Triview board's desire for the town and district to work together more closely with the town and find a way to repair some of the distrust and negativism that seemed to have developed between them.

He acknowledged Triview's historical difficulties, including debt and some questionable past management practices and decisions, but he said the current board and staff are making significant progress now and in the last several years on those fronts.

Bolander referred to recent disparaging comments about Triview made by one town trustee at the Oct. 3 meeting and said it would be better for town representatives to discuss their "possible disdain or anxiety" with the Triview board and staff directly instead of airing grievances at public meetings. "Enmity between us does not serve any of our residents, but working together we will benefit one another."

The consensus of the six trustees who were present was to re-start the semi-annual meetings between the town and Triview and work to build relationships between the two.

Note: Triview, on the east side of I-25, includes two-thirds of the population of the town of Monument. It provides roads, parks, and drainage maintenance,

as well as water and sanitation utility services to the residents of Jackson Creek, Promontory Pointe, and Sanctuary Pointe. Triview's water system is wholly independent of Monument's Public Works water system located on the west side of I-25. The Town of Monument provides land use planning, police, and general governance for the district. A majority of the current Monument Board of Trustees are residents of Triview.

TLMFPD gets impact fee permission

Tri-Lakes Monument (TLMFPD) Fire Chief Chris Truty presented a request to the town for permission to collect Fire Protection and Emergency Services Im-







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