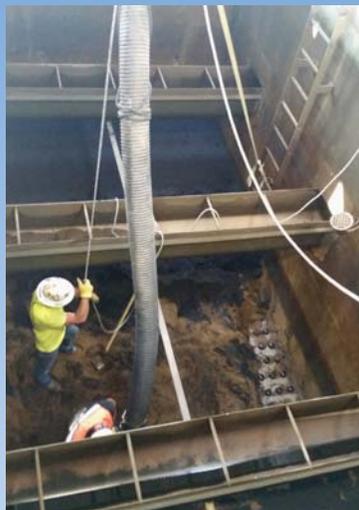


## Orthos Helps Save \$Millions During Rehab of 29-Year-Old Filters in Utah Clever Retrofit Design Increases WTP Capacity by 25%

### Success Results:

- In-house process engineering knowledge produces massive savings to client
- Facility throughput increase without adding new filters
- 80% savings versus alternative
- 25+ year filters made effectively new with straight-forward nozzle and media replacement



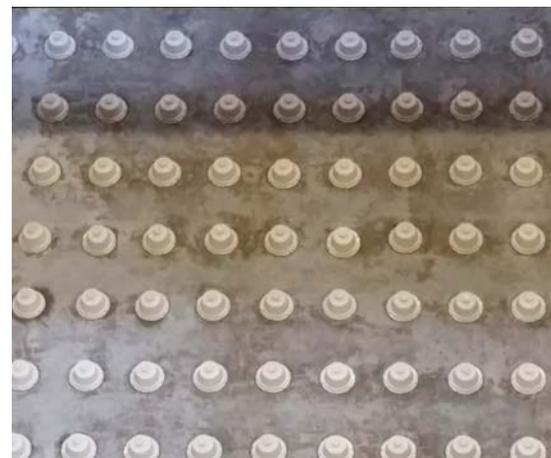
Filter Media Removal

*Poseidon Filtration Systems™ deliver to municipal clientele complete systems that include PLC-based controls, monolithic floor underdrains, backwash troughs, air header piping, and filtration media.*



May 2, 2016 – Orthos Liquid Systems, Inc., (Orthos) the leading manufacturer of nozzle-based filter underdrain systems in water/wastewater treatment, helped Washington County Water Conservancy District (WCWCD) save millions of dollars through clever engineering design during last year’s filtration upgrade at the Quail Creek Water Treatment Plant (QCWTP) in Hurricane, Utah. Without adding any new filters, the facility can now process 60 million gallons per day (MGD) versus 48 MGD previously, a throughput increase of 25%.

The QCWTP utilizes 12 monolithic underdrain gravity filters, placed in service in 1989 (27 years old—a testament to concrete suspended floor underdrain longevity). These filters contained nozzles from the defunct Patterson Candy company that needed replacement. Working with WCWCD and Carollo personnel, Orthos engineers modeled flow through a new nozzle design that increased the tailpipe bore from 12.5 mm to 16.0 mm. The ability of Orthos to injection mold nozzles to meet specific performance requirements made the tailpipe redesign possible. This clever change with higher-quality media increased filter throughput by 25% without having to add any new filter basins.



Newly-Installed Nozzles

*Photos by Julie Applegate, St. George News*



Completed Filter Nozzle Retrofit

In an interview with St. George News, Ron Thompson, WCWCD General Manager, stated the filters “are clearly meeting the new design criteria” and “easily meet the 60 MGD capacity we’re shooting for out of this plant.” Filtration upgrades including new piping cost less than \$5 million versus \$80 million for a new 40 MGD facility that was considered. Per gallon of capacity increase, this calculates to 80-cents on the dollar of savings for WCWCD.

“Because Orthos is the leader in nozzle-based filtration systems, our experienced personnel can offer creative solutions to provide present and on-going savings to our clients,” said Stuart Humphries, Director of Municipal Sales and Marketing. “Clearly the Quail Creek project is a home run for the rate payers in Washington County, Utah—we’re proud to be part of that success. This facility also exemplifies the huge long-term value of monolithic floor filter underdrains. At the end of life cycle, in contrast to a complete block underdrain overhaul, nozzles are simply replaced as the monolithic floor remains part of the civil structure. No need to replace the chandelier when all you have to do is change out the light bulbs!”