LEOPOLD
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Salida, Colorada Case study

Leopold® Technology Saves Salida, Colorado 50,000 GPD

State-of-art filters with Leopold® Type XA™ underdrain and integral air scour triple filter run times and maximize performance.

The City of Salida sits right in the middle of the state of Colorado in the Upper Arkansas River Valley, beautifully settled in the "Heart of the Rockies." Lonnie Oversole is plant manager for the water treatment facility that serves the approximately 6,000 residents of the City of Salida and supports the influx of visitors that are critical to the area's economy. In recent years, Oversole became frustrated by the consistently short filtration run-times and the large amount of water wasted by the four dual-cell Wheeler bottom filters used to clean the region's drinking water. In an area with a history of dry seasons and drought-like conditions, the need to carefully conserve water is particularly critical.

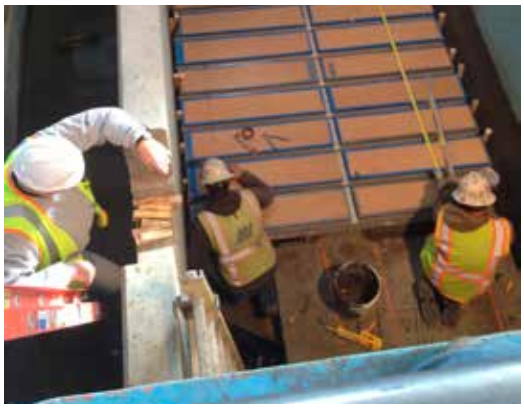
Scope

Oversole knew that to drive valuable improvement in productivity, he would need to update the entire filtration system, which was installed when the plant was built in 1959. While the filter media was a top priority for replacement, Oversole realized it would also be beneficial to install new underdrains and to add air scour to the filters to maximize performance.

Solution

The plant worked with SGM Engineering to research and compare the various options and service providers available in order to make recommendations to Oversole regarding the best solution to improve process efficiency. In the end, Xylem's Leopold Type XA™ underdrain with I.M.S® 200 media retainer, new filter media (12" silica sand/18" anthracite), and wash troughs, emerged as the top choice. Oversole and his team were particularly attracted to Leopold's I.M.S® media retainer, which eliminates the need for the support gravel used with older equipment while increasing the filter depth and freeboard. A smooth installation by Moltz Construction concluded in May 2014.

The benefits of the new, state-of-the-art system were quickly evident and continue to deliver significant improvements.



The Type XA™ Underdrain with I.M.S® 200 media retainer being installed in the existing filter basins.

Customer: Salida, Colorado
Challenge: Filtration System Rehab
Products: Leopold® Type XA™ underdrain
I.M.S® 200 media retainer

Results

The underdrain operates by collecting filtered water during the filter run and efficiently distributing air and water during its highly effective backwash cycle, which in turn contributes to longer filter runs, reduced operating costs, and improved production of clean drinking water. The low-profile underdrain also increases filter depth for additional driving head and media expansion within the filter. The air scour process allows for a collapse pulse cleaning of the filter media resulting in a significant reduction in backwash water use. Prior to rehabilitation, the backwash procedure consisted of a hydraulic-only backwash with a high rate wash cycle of up to 16 minutes. Backwashing each dual cell filter used approximately 95,000 to 105,000 gallons of water. The rehabilitation of the filters with integral air scour reduced the filter high rate backwash down to only 7 minutes in turn resulting in a 50% reduction in water usage during the new backwash cycle for each dual cell filter.

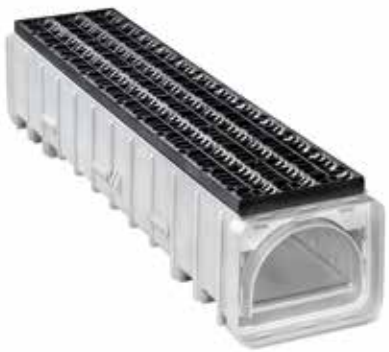
Before rehabilitation, Salida used 5% of their production water for filter backwash purposes based upon an average production rate of 1 to 2 MGD. They are now using less than 2%. With the Leopold filter system, the plant is saving approximately 50,000 gallons of water per day that was previously used for backwash purposes.

The I.M.S® 200 media retainer also proved to be extremely valuable to the plant's new filter system. By replacing the gravel support structure, the I.M.S® 200 media retainer increased the vertical profile of the filter system allowing the filter to operate to increased headloss levels, extending filter run times. The equipment's rigid construction and precision-engineered, injection-molded slots directly support the sand and anthracite above the underdrain and provide uniform distribution of backwash air and water adding to the overall system efficiency. The increased lift off resistance provides additional assurances to the owner that their system will run consistently and reliably throughout a wide range of operating conditions.

Combined with the installation of the new filter media and wash troughs, this particular type of underdrain and media retainer brought the water treatment plant's operations up to speed, with the latest technology and equipment features in place to position it for visibly improved productivity.

Oversole was happy to report that filter runs have tripled. The inefficiency of the previous system resulted in limited filter run times, as the filter media had to be cleaned via backwash every 90 hours. Now the filters can run three times as long before requiring a backwash. The new filters produce higher quality effluent and ultimately higher quality water is delivered to the residents and tourists of Salida. Oversole is very pleased with the results, cost savings, and overall return on his investment in Xylem's cutting-edge Leopold filter system.

The Type XA™ Underdrain with I.M.S® 200 media retainer being installed in the existing filter basins.



The Leopold Type XA™ underdrain with I.M.S® 200 media retainer

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