

• **Case Study**

Filtration Performance and Particle Analysis, next-Sand vs. MultiMedia.

Test Conditions

Water Source: Ground water pumped through a grit screen was collected in a 20,000 gallon storage tank. The water was pumped from the storage tank into a header pipe to supply two, parallel plumbed FRP filter vessels.

Equipment Description.

Multimedia System. 48” dia. FRP tank. 36” bed depth comprised of #16 Garnet, #50 Garnet, 20x40 mesh sand and anthracite.

next-Sand System. 48” dia. FRP tank, 1/4x1/8 gravel to cover hub and laterals, 36” bed depth of 14x40 mesh **next-Sand**.

Test Description.

The filtered water was intended as Reverse Osmosis feedwater for a bottled water plant. The tests performed were TSS (Total Suspended Solids) Turbidity and SDI (Silt Density Index.) The tests were performed over a 5 month period by the plant operators with the assistance of a consulting Chemical Engineer.

What is SDI?
SDI is Silt Density Index, a specialized test used to predict the fouling potential of feedwater for Reverse Osmosis systems. Low SDI values allow RO's to operate at higher efficiencies.

Test Results

Table I shows a comparison of the filtration performance of each system.

Table 1. Filtration Performance-Colloidal Removal (TSS and SDI₁₅)

| | Feed | MultiMedia | next-Sand |
|-------------------------|-------------|-------------------|------------------|
| TSS | 31 mg/l | 23 mg/l | <5mg/l |
| SDI₁₅ | .40 | .38 | .18 |

Conclusion

The **next-Sand** media out-performed multi-media in every respect. As an added benefit, **next-Sand** operated at 1/2 the backwash frequency resulting in a water savings. The next filtrate with substantially lower TSS and SDI values provided optimum quality feed water for the Reverse Osmosis system.