

### Unit Filter Run Volume (UFRV) Calculation

Monolithic Filters at the Nashville (TN) Metro Water Umohundro WTP

#### Given

Each cell of the double filters at the Umohundro WTP is 12.5' x 33'.

Each filter produces 1.9 MGD before backwash with run times of 105 hours.

#### Step 1 – Calculate Hydraulic Loading Rate

$$1.9 \text{ MGD/filter} * 10^6 \text{ gal/MG} \div 1440 \text{ min/day} \div (12.5' * 33' * 2) = \mathbf{1.6 \text{ gpm/sf}}$$

#### Step 2 – Calculate UFRV

$$1.6 \text{ gpm/sf} * 105 \text{ hours} * 60 \text{ min/hr} = \mathbf{10,000 \text{ gal/sf}}$$

