

# Expanding Treatment Capacity

## CONTRAFLO® Solids Contact Clarifier



CASE STUDY

**Location:** Eureka Springs, Arkansas

**Owner:** Carroll-Boone Water District

### Treatment Challenge

When the Carroll-Boone Water District, located west of Eureka Springs, Arkansas, was faced with the problem of meeting the increasing needs of their production capabilities, they knew renovation and expansion were the only solutions. With an initial plant capacity of 6 MGD in 1982, the ever-growing area saw a dramatic increase in just a few short years, doubling their capacity to 12 MGD by 1990. When the time came for renovating the existing plant, the decision was made to also add another clarifier to treat the plant's raw water supply.

In 1994, a 90-foot diameter General Filter Type "CCS" CONTRAFLO® Solids Contact Clarifier was installed to replace an existing clarifier that was no longer in use. Then, to increase total capacity to 12 MGD, a second plant, known as the East Plant, was built. Included was a Type "C" CONTRAFLO® as well as a MULTIWASH® CenTROL® four-cell Gravity Filter. Finally, in 2001, a second

CONTRAFLO® was added to the West Plant, this time a 90-foot diameter Type "C" unit. The final addition increased the final maximum capacity of the plant to 18 MGD. While the plant rarely runs at full capacity, the performance remains consistent.

Nestled on the southern edge of Beaver Lake, the surface water quality remains relatively consistent. Turbidity normally ranges from 0.5 to 0.7 NTU with occasional spikes during long rain periods. "If the turbidity reaches 1 NTU, then we start to get excited," claims Plant Manager John Summers. The plant also sees a pH of 6.6, total hardness of 54 mg/L as CaCO<sub>3</sub>, and alkalinity of 56 mg/L as CaCO<sub>3</sub>. With this water quality, the CONTRAFLO® units are one piece of the treatment process.

The CONTRAFLO® units, along with the gravity filters and some chemical addition, are operated efficiently to meet state drinking water requirements. According to Mr. Summers, "Once the raw water reaches the CONTRAFLO® units, chlorine and liquid alum are fed directly into the unit." After the water is properly treated in the CONTRAFLO®, lime is fed to re-adjust the pH prior to the gravity filters.

From there, the water then enters a clearwell where ammonia is fed for the last treatment process. It is this operation, along with the "almost perfect" performing CONTRAFLO® units, according to Mr. Summers, that gives the people of the Carroll-Boone Water District quality drinking water now and will continue to do so well into the future.