refinery meets immediate potable water needs with a SUEZ mobile solution

challenge

The Marathon Garyville Refinery produced potable water from the cold lime softened, Mississippi river water supply. The water treatment system’s pressure sand filters typically had produced effluent turbidity of 0.5 NTU, however, turbidity as high as 1.5 NTU had been coming from these filters.

Marathon struggled to meet the Louisiana Department of Health & Hospitals (DHH) specification of less than 0.3 NTU using the activated carbon filtration and a two-step chlorination to further treat the sand filtered water. When these specifications were not met over several consecutive days, warning signs were posted instructing employees not to drink the water.

The refinery’s potable water system needed immediate upgrades and a project to fix the current system was planned. With the costs of the project increasing daily, they needed another alternative to carry then through to the planned refinery expansion. This expansion was slated in the next couple years and would include a new potable water system.

solution

The Marathon Refinery requires between 120 gpm and 200 gpm (0.5 m³/h and 0.8 m³/h) of potable water. SUEZ provided an immediate solution to their potable water needs through the mobile ZeeWeed ultrafiltration (UF) system. This system further polishes effluent from the pressure sand filters.

The main goal for the ultrafiltration system was to achieve turbidities below 0.3 NTU on a consistent basis. In addition, if a 4-log reduction of cryptosporidium could be achieved, it would help to eliminate requirements for upstream chlorination.

Figure 1: SUEZ ZeeWeed Ultrafiltration System

SUEZ guaranteed <0.3 NTU turbidity from the UF, or offered to remove the technology at no cost. This guarantee enabled Marathon to move quickly with installing a full-scale system in less than 30 days, avoiding Louisiana DHH’s typical requirement for a 12-month pilot testing on new technologies.

results

The SUEZ Zeeweed UF has met or exceeded the < 0.3 NTU specification since installed at the refinery. Using a team approach SUEZ’s local field service, site service representatives and support from product engineers in Oakville, Ontario worked through service issues to improve reliability in operation. The Zenotrac monitoring system is used to document issues as they arise and capture operating data for root cause analysis.

Because of the outstanding results, the refinery has expanded the short-term mobile agreement into a 3-year outsourcing agreement.