



LOCATION

Chad

PROJECT TYPE

Oil Produced Water

COMPLETION DATE

2012

DESIGN FLOW

17,000 bwpd

2725 m³/d

TREATMENT

Aerated Lagoons

Vertical Flow Wetlands

Irrigation Storage Basins

PROJECT:

Caracal Energy Produced Water Treatment

NEED

In order to develop the Badila and Mangara oil fields in Southern Chad, Caracal Energy needed a simple, reliable way to treat and manage produced water from oil wells. Due to the remote locations, traditional methods of produced water disposal by deep well injection were not feasible, and surrounding region is water-scarce due to limited rainfall nine months of the year.

SOLUTION

NWC, working in partnership with the design/build firm Norwest International, implemented a series of treatment systems that allowed biological treatment of the water using aerated lagoons and wetlands. Because the oil produced water is nutrient-deficient, camp sewage is blended into the overall waste stream to provide the necessary amount of fertilizer. Flow through each treatment system is by gravity, and there is the option of aerating the lagoons to process peak flow and loading events.

Treated water is stored in basins accessible to local villagers, who can use the water for irrigation during the dry season.

BENEFIT

The lagoon-wetland treatment systems have proven to be simple and robust, a major benefit in locations where site logistics and access are major challenges. As a result, the original contract was expanded from two to five treatment systems.

Treated water produced by the systems meets agricultural reuse standards set by the World Health Organization (WHO). Public access to the irrigation storage basins has proven to be a major benefit to local farmers and helps stabilize year-round food production in surrounding communities.

