



PROJECT:
Cano Limon
Occidental Petroleum
Produced Water Treatment

LOCATION
Cano Limon, Colombia

PROJECT TYPE
Oil Produced Water

COMPLETION DATE
2012

DESIGN FLOW
2,400,000 bwpd
345,600 m³/d

TREATMENT
Aerated Lagoons

NEED

Occidental Petroleum (Oxy) operates the Cano Limon oil field near Aracua, Colombia. Due to increasing volumes of oil produced water and changing regulatory requirements, Oxy had to substantially upgrade the existing produced water system to handle increasing loads of Ammonia, CBOD₅, COD and Phenols. Major engineering challenges were that the existing works had to stay in service and the high flow rate (3.8 m³/s).

SOLUTION

NWC, working in partnership with the Colombian design/build firm Valrex, converted major portions of the produced water flow path upstream of Laguna Draga to a series of complete-mix and partial-mix aerated lagoons. New aeration distribution systems were installed using floating pipes, and new flow baffles were installed to optimize hydraulic efficiency of the overall treatment process.

BENEFIT

The aerated lagoon process has resulted in highly effective treatment of all regulated parameters. Water quality in Laguna Draga and downstream water bodies in the Llanos Norte have been substantially improved. The staged lagoon treatment process stores and processes all biosolids in-situ, and there is no export of sludge or other residuals from the treatment process.

