

**CASE STUDY # 060**

**BIOAUGMENTATION ACHIEVES  
NITRIFICATION WITHOUT RECYCLE  
OF BIOSOLIDS**

**SUBJECT:**

Bioaugmentation achieves nitrification without recycle of biosolids at a petroleum refinery wastewater treatment plant.

**PRODUCT APPLIED: MICROCAT-XNC Ammonia Oxidizing Bioformula**



**TREATMENT SYSTEM:**

Wastewater flow: 5681 m<sup>3</sup>/day

The activated sludge wastewater treatment system consists of equalization tanks, two aeration tanks in series, two aerated ponds, five settling ponds and a carbon scrubber.

**OBJECTIVE:**

The treatment objective was to determine if nitrification could be achieved in the aeration tanks within the hydraulic residence time (5 days), even though recycle of biosolids did not exist.

**PROGRAM:**

Biological activity in wastewater samples from the aeration basin was analyzed using respirometry over a period of time. One sample was augmented with **MICROCAT-XNC**; the other sample contained only indigenous biomass. Nitrate levels were measured at the conclusion of the respirometry test to determine nitrification.

**RESULTS:**

Nitrate production in the sample augmented with **MICROCAT-XNC** were 14 mg/l, while the control measured less than 0,25 mg/l. Also, oxygen uptake in the augmented reactor was 30% higher, indicating enhanced nitrification and hydrocarbon degradation.

Bioscience achieved the desired result by establishing nitrification in the sample augmented with **MICROCAT-XNC**.

# NITRIFICATION

