

August 2005

Application Sheet 015: CHEVRON-TEXACO, CAPE TOWN, SOUTH AFRICA.

Chevron-Texaco South Africa installs the BioTector Series 4 plus Organic Analyser for measuring on-site wastewater in order to improve the quality of effluent discharged to sea.

BACKGROUND:

The wastewater generated at the Chevron refinery originates from water used in refinery processes as well as water drained from tanks and wash water run-off from process areas. The wastewater is channelled to a primary effluent treatment unit where it is treated using gravity separation and flocculation. This treatment basically involves oil removal. The recovered oil is recycled to the refinery and the treated effluent is discharged via a retention basin to the sea through a 5.5 km pipeline, which terminates approximately 550m off the Table Bay shoreline at about 11m below mean sea level.

APPLICATION:

Although the Chevron refinery has always upheld effluent regulations, the company has received a number of nuisance complaints over the past few years, mainly about the odour of the wastewater pumped into the ocean, just off Bloubergstrand. Although Chevron has already implemented a number of mechanisms to reduce the contamination of wastewater entering and leaving its existing treatment plant, it has decided that further treatment of the water, by removing the more volatile organics, would solve the problem.

The installation of reliable monitoring instruments was an important part of the research informing the decision-making process. The BioTector TOC analyser was chosen and was installed in August 2005 to monitor the wastewater flowing between the two settlement ponds before release into the sea. Chevron is monitoring Total Organic Carbon (TOC), Total Inorganic Carbon (TIC), Total Carbon (TC), Volatile Organic Carbon (VOC) and Chemical Oxygen Demand (COD) with correlation – all with the BioTector TOC analyser.

The BioTector operates by using the unique patented Two Stage Advanced Oxidation Process (using ozone promoted hydroxyl radicals). It is the most aggressive oxidation system for TOC analysis on the market. No sample filtering is required with the BioTector resulting in a true representative sample being analysed.

The BioTector at Chevron will be upgraded in the future for multi-stream analysis.



**Wastewater from
Chevron-Texaco
to Table Bay.**

**Monitored by the
BioTector TOC
Analyser.**