

# Monthly Report

December, 1998

## TOSCO Refinery at Rodeo Fenceline Monitor System

### System Overview

#### Review/Objectives:

A circuit breaker problem in Unit 100 caused a general computer system failure on December 20-21. The systems were brought back online shortly, incurring no more than 1.5% downtime, depending on the individual system.

The 20,000-hour cryocooler installed during November in the North FTIR is operating reliably. Another 20k-hour unit will be installed in the South in January '99, as soon as the part is available.

The North fenceline PerspectUV units were returned to Sci-Tec for diagnostics, calibration and upgrade on December 2. Upgraded loaner units were then installed to provide coverage while the primary units are being serviced at the factory. The CS<sub>2</sub> channel on the loaner unit shows a regular, diurnal, negative baseline shift. According to Sci-Tec this is caused by the region this unit uses for CS<sub>2</sub>. This region was used in an effort to reduce cross-sensitivities and is different from that used by the primary Tosco receivers. They have noted the problem and will make sure the primaries return from the factory with the old region in use. Preliminary findings from Sci-Tec, outlining the status of the primary units now at the factory, are attached at the end of this report.

The upgrade on the South TDLS units was completed and both units installed in December, and the loaner units returned to Boreal. This completes all of the TDLS upgrades and annual factory calibrations.

### FTIR System

#### Operation:

The North fenceline FTIR on-stream efficiency was 83.2% with approximately 0.6% weather-related downtime. System testing and maintenance resulted in approximately 0.7% downtime. Approximately 15.4% of the downtime was due to the recurring, sporadic, software error ("Bomem= -305") that causes the unit to fall out of *Continuous Monitor* mode. The instrument and hardware manufacturers have been unable to determine the exact cause of the error to date. We are trying to find 3<sup>rd</sup> party software that will automatically restart monitoring and alleviate the downtime caused by this error. We are also continuing to run bench tests designed to induce the error under controlled conditions, and thus find a solution.

The South fenceline FTIR on-stream efficiency was 83.4% with approximately 3.7% weather-related down time. System testing and maintenance resulted in approximately 1.3% downtime. Approximately 11.1% of the downtime was due to a recurring software error as described above.

#### **Data:**

The ambient gas QA compound results for the North Sensor show the mean Methane concentration was 1.39 ppm with a 0.23 ppm or 16.5% standard deviation. The mean Nitrous Oxide concentration was 0.245 ppm with a 0.024 ppm or 9.60 % standard deviation.

The ambient gas QA compound results for the South Sensor show the mean Methane concentration was 1.35 ppm with a 0.191 ppm or 14.11% standard deviation. The mean Nitrous Oxide concentration was 0.237 ppm with a 0.028 ppm or 11.91 % standard deviation.

Data summary reports are attached.

#### **UV System**

##### **OPERATION:**

Weather accounted for approximately 3% downtime on both fencelines. The North fenceline incurred 18% downtime while the loaner units were installed, and an additional 5% for system adjustments afterward. South and primary North UV system downtime was due largely to beam-block conditions in the instruments and intermittent lapses in the UV logging software. The software lapses are a known bug in the Sci-Tec software and is supposed to be resolved in the pending upgrade. The susceptibility to beam-block will also be addressed when the units go to Sci-Tec.

Sci-Tec is evaluating the current reliability of the instruments that have returned to the factory. We cannot vouch for the validity of the data obtained from them at this time. The UV data presented here should be used with caution.

##### **DATA:**

Data summary reports are attached.

#### **TDL System**

##### **OPERATION:**

Weather accounted for approximately 3.4% downtime on the North and 2.8% on the South. All units incurred approximately 10.8% downtime due to system maintenance and the South H<sub>2</sub>S TDL incurred an additional 1.7%.

##### **DATA:**

The data summary report is attached.

#### **CGD System**

##### **OPERATION:**

All Combustible Gas Detector (CGD) units functioned normally throughout the month. Approximately 10.8% downtime was due to system testing, maintenance and backup activities.

None of the CGD units experienced any hardware failures or hardware related downtime.

##### **DATA:**

The data summary report is attached.